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DELTA REPORT

10-K

CDXS - CODEXIS, INC.

10-K - DECEMBER 31, 2023 COMPARED TO 10-K - DECEMBER 31, 2022

The following comparison report has been automatically generated

TOTAL DELTAS	12989
CHANGES	284
DELETIONS	5594
ADDITIONS	7111

REFINITIV

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended: December 31, 2022 2023

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to .
Commission File No.: 001-34705

Codexis, Inc.

(Exact name of registrant as specified in its charter)

Delaware	71-0872999
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
200 Penobscot Drive, Redwood City, California	94063
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (650) 421-8100

Securities Registered Pursuant to Section 12(b) of the A: Act:

Title of Each Class:	Trading Symbols(s):	Name of Each Exchange on which Registered:
Common Stock, par value $0.0001 per share	CDXS	The Nasdaq Global Select Market

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or emerging growth company. See the definitions of "large accelerated filer, "accelerated filer" and "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☐☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C.7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of voting and non-voting common stock held by non-affiliates of Codexis as of June 30, 2022 June 30, 2023 was approximately $383.8 million $122.4 million based upon the closing price reported for such date on the Nasdaq Global Select Market.

As of February 22, 2023 February 23, 2024, there were 65,946,807 70,303,639 shares of the registrant's Common Stock, par value $0.0001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement to be filed with the Commission pursuant to Regulation 14A in connection with the registrant's 2023 2024 Annual Meeting of Stockholders (the "Proxy "2024 Proxy Statement"), to be filed subsequent to the date hereof, are incorporated by reference into Part III of this Report. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission not later than 120 days after the conclusion of the registrant's fiscal year ended December 31, 2022 December 31, 2023. Except with respect to information specifically incorporated by reference in this Form 10-K, the 2024 Proxy Statement is not deemed to be filed as part of this Form 10-K.

Codexis, Inc.
Annual Report on Form 10-K
For The Year Ended December 31, 2022 December 31, 2023

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The following discussion and analysis should be read in conjunction with our audited Consolidated Financial Statements consolidated financial statements and the related Notes that appear elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended ("the Exchange Act"), particularly in Part I, Item 1: "Business," Part I, Item 1A: "Risk Factors" and Part 2, Item 7: "Management's Discussion and Analysis of Financial Condition and Results of Operations." These statements are often identified by the use of words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate" or "continue," and similar expressions or variations. All statements other than statements of historical fact could be deemed forward-looking, including, but not limited to: any projections of financial information or performance; any statements about historical results that may suggest trends for our business; any statements of the plans, strategies, and objectives of management for future operations; any statements of expectation or belief regarding future events, technology developments, our products and product candidates, product sales, revenues, expenses, liquidity, cash flow, commercial reach, market growth rates or enforceability of our intellectual property rights and related litigation expenses; and any statements of assumptions underlying any of the foregoing. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Accordingly, we caution you not to place undue reliance on these statements. For a discussion of some of the factors that could cause actual results to differ materially from our forward-looking statements, see the discussion on risk factors that appear in Part I, Item 1A: "Risk Factors" of this Annual Report on Form 10-K and other risks and uncertainties detailed in this and our other reports and filings with the U.S. Securities and Exchange Commission ("SEC"). The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report on Form 10-K.

PART I

ITEM 1. BUSINESS

COMPANY OVERVIEW

We are a leading enzyme engineering company leveraging our proprietary CodeEvolver® directed evolution technology platform to discover, develop, enhance, and enhance commercialize novel, high performance high-performance enzymes and other classes of proteins. Enzymes are naturally occurring biological molecules critical to almost all biochemical reactions that sustain life. They can be precisely engineered and optimized for specific functions, and to have particular characteristics, such as an ability to survive environments in which natural enzymes cannot, or to perform (bio)chemical transformations different than those for which they naturally evolved. The We focus on leveraging our capacity to enhance the properties and performance of enzymes has led to drive pivotal improvements across three healthcare industry pillars: two key focus areas: our foundational, revenue-generating biocatalysis pharmaceutical manufacturing life sciences, business and biotherapeutics. The enzymes our Enzyme-Catalyzed Oligonucleotide Synthesis™ ("ECO Synthesis™") manufacturing platform, which is currently in development to enable the commercial scale manufacture of RNA interference ("RNAi") therapeutics. In July 2023, we produce solve for real-world challenges associated with small molecule pharmaceuticals manufacturing, nucleic acid synthesis and genomic sequencing, and – as biotherapeutic candidates – they have the potential to treat challenging diseases. Our unique enzymes drive improvements such as higher yields, reduced energy usage and waste generation, improved efficiency announced that we discontinued investment in manufacturing, greater sensitivity certain development programs, primarily in genomic and diagnostic applications, and potentially more efficacious therapeutics.

Our our novel biotherapeutics business includes a diverse pipeline of product candidates in clinical segment and preclinical development. Our initial biotherapeutic product candidates include enzymes that we are orally administered for function in the gastrointestinal tract ("GI"), such as our partnered product candidates CDX-7108 for the treatment of exocrine pancreatic insufficiency and CDX-6114 for the treatment of phenylketonuria, which are both in Phase 1 clinical trials. We have also engineered a series of transgenes that code for enzymes that may be used as gene therapies actively exploring options to treat rare lysosomal storage disorders with our partner Takeda, such as Fabry Disease and Pompe Disease, as well as a blood factor disorder.

Our performance enzymes business consists primarily of two focus areas: i) biocatalysts for the sustainable manufacturing of pharmaceuticals and ii) enzymes for drive value by potentially monetizing non-core life science applications, assets, including genomic in genomics and next generation sequencing and nucleic acid synthesis. ("NGS").

In our our revenue-generating pharmaceutical manufacturing business, we utilize our CodeEvolver® technology platform to develop optimized enzymes that are used by some of the world's largest pharmaceutical companies to reduce their costs and improve the efficiency and productivity of their manufacturing processes for some small molecule therapeutics. In life science markets, we Our unique enzymes drive improvements such as higher yields, increased purity, reduced energy usage and waste generation, and improved efficiency in manufacturing. We also use our the CodeEvolver® platform technology to develop enzymes for customers using next generation sequencing ("NGS"), a parallel sequencing technology used to identify genomic information in the study of biological systems, and PCR/qPCR for in vitro molecular diagnostic and molecular biology research applications, as well as for synthesis of nucleic acids such as DNA/RNA. RNA, including enzymes utilized in our ECO Synthesis™ manufacturing platform, where our enzymes are poised to deliver many of the same benefits we offer in pharmaceutical manufacturing across purity, yield, and improved efficiency. We demonstrated gram-scale synthesis under process-like conditions with the ECO Synthesis™ manufacturing platform in December 2023 and expect to begin pre-commercial customer testing in 2024. We anticipate that this will be followed by early commercial licenses to the ECO Synthesis™ manufacturing platform in 2025 and a full commercial launch in 2026.

History and Core Technology

We are a pioneer in harnessing computational technologies to drive biology advancements. Since 2002, we have made substantial investments in the development of our proprietary CodeEvolver® technology platform, the primary source of our competitive advantage for both our performance enzymes and biotherapeutics businesses. business. The CodeEvolver® technology platform has the power to transform the performance of an enzyme, tailoring it for a specific application and/or process. Using powerful machine learning tools and sophisticated molecular, cellular, and bioanalytical workflows, we design and screen libraries of thousands of variants in high throughput every two to four weeks on each project, sequencing every variant and correlating its sequence with its performance in a highly application-relevant screen. Content-rich libraries screened under real-world conditions can yield dense and valuable datasets, when data-mined effectively, and multiple parameters can be optimized in parallel. The resulting evolved variants often have a

combination of enhanced properties, such as increased activity, specificity, and stability under desired conditions, or improved expression in the production host. These enhanced properties provide differentiated technical performance in the target application and can provide our customers increased value in the commercial deployment of their products.

Novel Biotherapeutics Recent Changes to Business Strategy

We are developing a diverse pipeline In July 2023, we announced the restructuring of product candidates our business to focus resources on programs that we believe have the strongest probability of creating significant value in the near-term and beyond, including the advancement and commercialization of our ECO Synthesis™ manufacturing platform and growing our complementary pharmaceutical manufacturing business. As part of this enhanced strategic focus, we also streamlined operations, including the discontinuation of investment in certain development programs, primarily in our novel biotherapeutics business. These business, consolidated operations to our Redwood City, California headquarters, and reduced headcount by approximately 25%.

Our biotherapeutic product candidates, which are were in clinical and preclinical development, range were discovered using our proprietary CodeEvolver® technology platform and ranged from orally delivered enzymes to engineered transgenes for delivery as gene therapies that have the potential to address a range of diseases with high unmet patient need. Each therapies. The most advanced of our product candidates is discovered utilizing our proprietary CodeEvolver biotherapeutics programs was CDX-7108,® protein engineering platform.

Our Partnered Oral Enzyme Programs

CDX-7108 a potent lipase intended for the use as a potential treatment of for exocrine pancreatic insufficiency

(“EPI”), which wasUnder being developed under a Strategic Collaboration Agreement with Nestlé Health Science (“Nestlé”) (the “Nestlé SCA”), we have collaboratively developed CDX-7108, a potent lipase intended for use as a pancreatic enzyme replacement therapy (“PERT”).PERT is used to treat pancreatic exocrine insufficiency. There are multiple causes As part of pancreatic exocrine insufficiency including chronic pancreatitis, cystic fibrosis and pancreatic cancer. We estimate there are approximately 190,000 patients in the United States and the market for current therapies is greater than $2.5 billion globally.Although existing therapies are reasonably effective at delivering amylase and protease activity, achieving adequate levels of lipase activity is challenging due to patient compliance and pill burden often leading patients to experience continued symptoms associated with fat malabsorption. CDX-7108 has been specifically engineered for increased potency as a lipase and also to remain stable in acidic conditions such as those encountered in the stomach. The goal is to study whether this combination of properties will deliver adequate lipase activity with a less burdensome dosing schedule.Under the Nestlé SCA, we and Nestlé Health Science are also working on the development completed a Phase 1 clinical trial of engineered amylase and protease enzymes for possible use with CDX-7108. Nestlé Health Science is currently dosing patients in a Phase 1b three-party study. The first two parts of the study evaluated the safety, tolerability, and pharmacokinetics (“PK”) of escalating single and multiple oral doses of CDX-7108 in 48 healthy adult subjects, with no safety issues noted. The third part of the study is evaluating the pharmacodynamics of a single dose of oral CDX-7108 in six enrolled patients with exocrine pancreatic insufficiency (“EPI”). An interim analysis conducted in January In December 2023, of five patients who had completed the study at the time showed a clear indication of improved lipid absorption when patients are administered CDX-7108 versus placebo, which we believe supports a path forward together with Nestlé Health Science to further develop CDX-7108, with the potential for the initiation of a Phase 2 study in early 2024.

CDX-6114 for the treatment of phenylketonuria

We internally developed CDX-6114, an enzyme we engineered to be orally administrated for the treatment of phenylketonuria (“PKU”) in humans. PKU, one of the most common inborn errors of metabolism (“IEMs”), is a metabolic disorder in which the enzyme that converts the essential amino acid phenylalanine into tyrosine is deficient. As a result, phenylalanine accumulates to toxic levels in the brain, causing serious neurological problems including intellectual disability, seizures and cognitive and behavioral problems. To avoid toxic levels of phenylalanine in their blood, individuals with PKU must follow a strict, life-long diet that is low in phenylalanine and supplement their diet with a synthetic phenylalanine-free protein supplements to provide them with sufficient nutrients. Maintaining a strict, life-long diet can be challenging for individuals with PKU. There are an estimated 50,000 patients with PKU in the developed world.

We have partnered with Nestlé Health Science under a Global Development, Option and License Agreement (“Nestlé License Agreement”) to further develop CDX-6114. In February 2019, Nestlé Health Science exercised its option under the Nestlé License Agreement to obtain an exclusive license to develop and commercialize CDX-6114. Nestlé Health Science is currently optimizing the formulation of CDX-6114 to improve performance and we expect Nestlé Health Science to announce an IND filing and clinical trial initiation in 2023. If this collaboration can successfully demonstrate benefit in PKU patients with CDX-6114, this will inform our decisions around the oral enzyme approach to several other IEMs.

Our Wholly-owned Oral Enzyme Programs

In the past we have also worked on internal programs to develop orally administrable enzyme substitution therapy candidates for the treatment of homocystinuria (“HCU”) and Maple Syrup Urine Disease (“MSUD”), that we are now considering partnering options for pursuing further development. In addition, we have a program to develop orally administrable enzyme substitution therapy candidates for the treatment of Celiac Disease (“CD”).

Gene Therapy

We have also used CodeEvolver® to engineer transgenes that encode for enzymes which may improve targeting and expression within the body when administered as gene therapies, offering potentially improved therapeutic benefit as compared to current options.

Our Partnered Gene Therapy Programs

Our first significant program involving engineered transgenes commenced in March 2020 when we entered into a Strategic Collaboration and License Agreement (“Takeda an acquisition agreement with Nestlé (the “Acquisition Agreement”) with Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda Pharmaceutical Co. Ltd. (“Takeda”) pursuant to which we are collaborating agreed to research assign our interests in CDX-7108 (including associated agreements and develop intellectual property rights) to Nestlé and

terminate the Nestlé SCA. Under the terms of the Acquisition Agreement, Nestlé will be solely responsible for the continued development and commercialization of CDX-7108, including all associated costs, with Codexis retaining an economic interest in the program through an upfront payment, future potential milestone payments and net-sales based royalties.

In addition, we used our CodeEvolver® technology platform to engineer a series of transgenes that code for use in enzymes that may be used as gene therapy delivery technology for therapies to treat rare lysosomal storage disorders, such as Fabry Disease and Pompe Disease, as well as a blood factor disorder, and another lysosomal storage disorder. In March 2020, we received a one-time, non-refundable cash payment with Takeda Pharmaceutical Co. Ltd. ("Takeda"). Takeda announced in April 2023 the discontinuation of $8.5 million. Of these programs, the Fabry disease program is the most advanced, with a lead candidate identified in investigational new drug ("IND") enabling activities. We have also provided sequences to Takeda for the Pompe program and await updates on preclinical testing and potential IND enabling activities. In May 2021, Takeda elected to exercise their option to initiate an additional program for a certain undisclosed rare genetic disorder and we received the option exercise fee during the third quarter of 2021. development programs.

In addition to our partnered gene therapy programs, we continue to explore the possible application of our CodeEvolver® technology to develop therapeutic options for devastating diseases as well as to develop and test our own proprietary gene therapy delivery mechanisms.

Performance Enzymes

Our performance enzymes business consists primarily of two complementary focus areas, areas: pharmaceutical manufacturing and life science products. our ECO Synthesis™ manufacturing platform, which is currently in development to enable the commercial-scale manufacture of RNAi therapeutics. In addition to the overlap in technical enzyme engineering expertise required for operating our pharmaceutical manufacturing business and developing the ECO Synthesis™ manufacturing platform, we believe both areas include a similar set of potential customers. Many of our longstanding pharmaceutical manufacturing customers are currently investing in the development of RNAi therapeutics, providing us with an advantage in terms of commercial reach. Further, our pharmaceutical manufacturing business establishes credibility for the ECO Synthesis™ manufacturing platform by demonstrating our proven history of engineering technically complex enzymes for large pharmaceutical companies and effectively scaling up to multiple metric tons of manufactured product using our existing platforms.

Pharmaceutical Manufacturing

We believe the pharmaceutical industry represents a significant market opportunity for our performance enzymes as pharmaceutical companies are in constant search of new small molecule drugs to offer to their customers and are under significant competitive pressure both to reduce costs and to increase the speed to market for their products. To address these pressures, pharmaceutical companies are driven to identify reliable, cost effective cost-effective, and sustainable manufacturing processes to produce both their new drug candidates and their existing products, while not impacting drug safety and efficacy. Cost reduction is increasingly important to drug developers (known as innovators) closer to their product launch and during the commercial stage of the product, which can last a decade or more. In addition, cost pressures further intensify as innovators lose their patent exclusivities and begin to experience competition from manufacturers of generic versions of their products.

Our pharmaceutical manufacturing customers, which include many large global pharmaceutical companies, partner with us to develop optimized engineered enzymes for use as biocatalysts, meeting precisely defined criteria, with the goal of lowering costs and improving the efficiency, productivity and sustainability of their manufacturing processes by: improving productivity, yield and purity; using water as a primary solvent; eliminating hazardous inputs; enabling the use of simple equipment and reducing the need for capital expenditure; reducing energy requirements; reducing the generation of chemical byproducts or waste; and reducing the need for late-stage purifications.

As of December 31, 2022 December 31, 2023, we are selling biocatalysts to pharmaceutical manufacturers for 18 for 16 therapeutic drugs that are currently approved for commercial sales.

Of particular note for 2022, inIn July 2022, we announced that we and Pfizer Inc. ("Pfizer") had entered into an agreement to supply Pfizer with CDX-616, a proprietary high performance high-performance enzyme used to manufacture a critical intermediate for nirmatrelvir, an active pharmaceutical ingredient in PAXLOVID™, Pfizer's antiviral therapeutic, which is currently authorized for emergency use by now approved in the FDA United States for the treatment of mild-to-moderate COVID-19 in people at high risk of progression to severe illness, and also authorized or approved by other regulatory authorities across the globe. While we have generated significant revenue from supplying CDX-616 to Pfizer, particularly in 2021 and 2022, there is no future binding commitment for them Pfizer to purchase any particular quantity or quantities of CDX-616 from us.

We regularly sell biocatalysts, at multi-kilograms to metric tons per annum scale, that have already been engineered, scaled up, and installed in a customer's commercial process. For example, in addition to Pfizer, we sell biocatalysts to Merck, Sharp & Dohme ("Merck") for their manufacture of sitagliptin, the active ingredient in JANUVIA®, to Urovant Sciences GmbH ("Urovant") and KYORIN Pharmaceutical Co., Ltd. ("Kyorin") for the manufacture of vibregon, the active ingredient in Urovant's GEMTESA™ and Kyorin's BEOVA®, products for the treatment of overactive bladder, as well as supporting other products and customers for which public disclosures have not been made.

In addition to these larger volumes of biocatalysts that are sold for our customers' ongoing commercial requirements, we also sell lesser quantities of engineered enzymes for use in a customer's developmental, qualification or regulatory approval operations. As of December 31, 2022 December 31, 2023, 18 Codexis is selling biocatalysts to pharmaceutical manufacturers for 12 drug candidates currently in Phase 2 and Phase 3 clinical trials, use enzymes engineered using CodeEvolver® technology (either by Codexis or by our platform licensing partners) in their chemistry, to customers working to convert to an enzymatic manufacturing and control processes. process for drugs that have been commercially approved. This pipeline of potential approvals reinforces our confidence in our ability to continue to grow this business over time.

Finally, we also sell even smaller quantities of enzymes (typically grams to multi-kilograms multi-kilogram scale) to customers for experimental, testing, and qualification purposes, or as part of an enzyme engineering project.

In addition to the sale of biocatalysts, we also offer research and development partnerships to our customers. These research and development activities are typically governed by collaboration agreements, which often contain research fee payments and intellectual property provisions, under which we screen and/or engineer biocatalysts for customers in connection with their process development efforts. In these collaborations, we typically receive consideration in the form of one or more of the following: upfront payments, milestone payments, payments for screening and engineering, with other exclusive supply of enzyme or licensing fees and royalties as the customer's product commercializes.

We also have licensed our CodeEvolver® enzyme engineering technology platform to pharmaceutical companies to help them develop custom-designed enzymes that are highly optimized for efficient manufacturing processes. To date, we have entered into platform technology licensing agreements with each of GlaxoSmithKline Intellectual Property Development Limited, a subsidiary of GlaxoSmithKline plc ("GSK" ("GSK"), Merck Sharp & Dohme ("Merck") and Novartis Pharma AG ("Novartis" ("Novartis").

Life Sciences ECO Synthesis™ Manufacturing Platform

ECO Synthesis™ Manufacturing Platform Overview

A key strategic priority for Codexis is the advancement and commercialization of our ECO Synthesis™ manufacturing platform, which is currently in development to enable the commercial scale manufacture of RNAi therapeutics. As of December 31, 2023, there are six approved small interfering ribonucleic acid ("siRNA") therapeutics on the market in the United Sates, primarily targeting rare orphan disease indications. However, there are more than 450 RNAi therapeutic assets in development, including over forty that are in Phase 2 and Phase 3 clinical trials, with more than 40 of these targeting large disease indications such as Alzheimer's, hyperlipidemia and hypertension. We expect worldwide demand for RNAi therapeutics to grow significantly as RNAi therapeutics progress through clinical development and are commercially approved.

The current industry standard for manufacturing RNAi therapeutics is a well-established, chemical-based method called phosphoramidite chemistry. This approach has existed for more than forty years and works effectively for small-scale manufacturing required during the discovery stage of clinical development. However, phosphoramidite chemistry faces multiple limitations in the context of commercial-scale manufacture of RNAi therapeutics. This approach requires significant infrastructure and capital investment in order to meet the anticipated future growth in demand for RNAi therapeutics. Phosphoramidite chemistry is also apply currently limited to single-digit kilogram batch sizes, which presents challenges around quality control and scalability. Further, chemical synthesis requires large volumes of acetonitrile to facilitate the reaction environment necessary to produce RNAi therapeutics. Acetonitrile is a toxic solvent with high waste disposal costs and future supply may face constraints and price volatility as demand for RNAi therapeutics grows. As additional RNAi therapeutic candidates are approved for large disease indications, we believe using traditional chemical synthesis for commercial scale production will become prohibitively expensive, time-intensive, and challenging for many drug developers and contract development and manufacturing organizations ("CDMOs").

We believe that the ECO Synthesis™ manufacturing platform presents several advantages to potentially address these limitations. First, this technology is being developed to integrate within existing manufacturing facilities, potentially eliminating much of the infrastructure investment required for commercial scale manufacturing of RNAi therapeutics with phosphoramidite chemistry. The ECO Synthesis™ manufacturing platform is also being designed to manufacture tens to hundreds of kilograms of high-purity RNA per batch, with a closed-loop system intended to increase volumetric reagent efficiency. Finally, our process is aqueous based, potentially mitigating the need for high volumes of acetonitrile, significantly decreasing chemical waste streams, and reducing heavy disposal and purification costs.

ECO Synthesis™ Manufacturing Platform Potential Commercial Opportunity

We believe we have significant competitive advantages to successfully execute on the ECO Synthesis™ manufacturing platform opportunity, largely stemming from synergies with our pharmaceutical manufacturing business in terms of technical expertise and commercial reach. Many of our pharmaceutical manufacturing customers are developing RNAi therapeutics, and we believe that their familiarity with our ability to engineer and scale complex enzymes is a significant commercial advantage for our ECO Synthesis™ manufacturing platform. However, there are also key differences that make this platform a compelling opportunity as compared to our existing pharmaceutical manufacturing business. Pharmaceutical manufacturing generally requires one-to-one custom enzyme engineering projects, which involve significant time and resource investment from Codexis. Our top five selling pharmaceutical manufacturing enzymes in 2023, excluding sales of CDX-616 related to PAXLOVID™, generated on average between $2.0 million to $9.0 million annually per enzyme between 2021 and 2023. By contrast, the ECO Synthesis™ manufacturing platform could be applicable to many customers and has the potential to manufacture a range of siRNA. Further, the potential scalability of our solution is differentiated from phosphoramidite chemistry, which is limited in batch size and requires high volumes of toxic solvent. We believe that the ECO Synthesis™ manufacturing platform could enable CDMOs and drug developers to scale production of RNA therapeutics and as a result could potentially command significantly better economic terms than the current annual revenues for pharmaceutical manufacturing enzymes.

A critical component that is complimentary to the ECO Synthesis™ manufacturing platform is our engineered double stranded RNA ("dsRNA") ligase, which can stitch together fragments of chemically and/or, in the future, enzymatically synthesized RNA. We believe the dsRNA ligase has the potential to reduce the cost because the cost and impurity profile of phosphoramidite chemistry-built molecules has been shown to increase with the length of the oligonucleotide. Our capabilities in RNA ligase engineering have been in development throughout 2023 via customized evolution programs with medium and large pharmaceutical customers developing RNAi therapeutics. The dsRNA ligase is our early market entry into the RNAi therapeutics manufacturing market. In addition to potentially improving upon the wildtype ligation-based approaches currently available, our dsRNA ligase will serve as a way to introduce our ECO Synthesis™ manufacturing platform to customers who want to begin utilizing an enzymatic approach to the manufacture of RNAi therapeutics.

Other Differentiated Enzymes

In addition to DNA/RNA synthesis applications, we have also applied our CodeEvolver® technology platform to develop customized enzymes for customers using NGS and PCR/qPCR for *in vitro* molecular diagnostic and molecular biology research applications, as well DNA/RNA synthesis applications. We view these as attractive markets in which Codexis' technology and products can deliver a strong competitive advantage – in part because manipulation of nucleic acids by enzymes (be it "reading" or "writing") is at the core of these markets and our technology has the proven ability to create enzymes which are stable to the workflow and/or supply chain demands or – importantly – which are less biased in the nucleic acids they are able to sequence or synthesis, which can be of significant benefit in various applications.

In December 2019, we entered into a license agreement to provide Roche Sequencing Solutions, Inc. ("Roche" Roche") with an improved evolved DNA ligase (EvoT4™ DNA ligase) for NGS library prep, which continues prep. In February 2024, we entered into a new license agreement with Roche granting them rights to progress towards commercialization our newly engineered DNA ligase, superseding our prior agreement in new NGS kits. December 2019 for our evolved T4 DNA ligase. We are eligible to receive an aggregate of mid-single digit millions in upfront and technical milestones payments. This is consistent with our business strategy to focus our resources on high-value opportunities in pharmaceutical manufacturing and the ECO Synthesis™ manufacturing platform while monetizing non-core assets within our Life Sciences portfolio.

In June 2020, we entered into a co-marketing and enzyme supply collaboration agreement with Alphazyme LLC ("Alphazyme") for the production and co-marketing of enzymes for life science applications. Since then, this collaboration has enabled the commercialization of Codex® HiFi DNA Polymerase, Codex® HiFi Hot Start DNA Polymerase, Codex® HiFi Hot Start 2X NGS Mix, Codex® HiCap RNA Polymerase, Codex® HiFi UL DNA Polymerase, and Codex® HiTemp Reverse Transcriptase. Development of other novel enzymes for life science applications continues.

Also, in In June 2020, we entered into a Master Collaboration and Research Agreement with Molecular Assemblies, Inc. ("MAI" ("MAI") (the "MAI Agreement") pursuant to which , and between June 2020 and April 2022, we are leveraging leveraged our CodeEvolver® technology platform technology to improve the DNA polymerase enzymes that are critical for enzymatic DNA synthesis. At that the time we entered into the MAI Agreement, we purchased $1.0 million in MAI's Series A financing and John Nicols, the Codexis' then President and CEO, and current director, joined MAI's board of directors. financing. In April 2021, Codexis invested an additional $0.6 million in MAI's Series A financing and, in September 2021, Codexis invested an additional $7.0 million in MAI's Series B financing. As of December 31, 2022, we currently hold 5,443,734 shares of MAI Series A preferred stock and 12,848,635 shares of MAI Series B preferred stock. In April 2022, we and MAI announced that, using our CodeEvolver® technology platform, technology, we had developed a novel, engineered terminal deoxynucleotidyl transferase ("TdT") enzyme which would enable MAI's Fully Enzymatic Synthesis™ ("FES™") technology that produces highly pure, sequence-specific DNA on demand. In August 2022, we and MAI announced that we had entered into a Commercial License and Enzyme Supply Agreement with MAI (the "MAI Supply Agreement") under which Codexis shall manufacture and sell the TdT enzyme to MAI for use in native DNA synthesis. In connection with the execution of the MAI Supply Agreement, we received a milestone payment of $1.0 million in the form of an additional 1,587,049 shares of MAI Series B preferred stock pursuant to the MAI Agreement. In March 2023, we purchased an additional 985,545 shares of MAI Series B preferred stock for $0.8 million. As of

December 31, 2023, we held 5,443,734 shares of MAI Series A preferred stock and 13,834,180 shares of MAI Series B preferred stock, for an aggregate of 19,277,914 shares of MAI's Series A and B preferred stock earned or purchased from MAI.

In March 2022, we announced the initiation of entered into a strategic partnership Stock Purchase Agreement with seqWell, Inc. ("seqWell"), a developer privately held life sciences company, pursuant to which we purchased 1,000,000 shares of transformative library preparation products for demanding genomics plan application, which included an investment to accelerate the commercialization of seqWell's genomics workflow solutions. Codexis and seqWell plan to collaborate on using our CodeEvolver® platform technology for enzyme optimization with seqWell's growing portfolio of genomics workflow and library preparation products. As part of this partnership, we led seqWell's seqWell's Series C financing preferred stock for $5.0 million. In March 2023, we entered into a Master Collaboration Agreement and Research Agreement with seqWell (the "seqWell Agreement"), pursuant to which we are providing research and experimental screening and protein engineering activities in exchange for compensation in the form of additional shares of seqWell's common stock. We received 205,279 shares of seqWell's common stock from research and development services with seqWell in the year ended December 31, 2023. In addition to our initial equity investment and the shares we have received under the seqWell Agreement, in September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and 44,128 common stock warrants for $0.4 million.

In December 2023, we announced that we have entered into an exclusive licensing agreement with Aldevron LLC ("Aldevron"), a $5.0 million investment. global leader in the custom development and manufacture of plasmid DNA, RNA and proteins for the biotech industry, whereby Aldevron licensed our Codex® HiCap RNA Polymerase. Under the terms of the deal, Aldevron received global manufacturing and commercialization rights to the Codex® HiCap RNA Polymerase in exchange for payments for near-term technical milestones, along with commercial milestones and sales-based royalties for research use only material as well as good manufacturing practices ("GMP") material.

OUR STRATEGY

Our strategy is to grow our revenues, profits, and stockholder value by leveraging our CodeEvolver® enzyme engineering directed evolution technology platform in the following ways:

- *Creating and advancing novel biotherapeutic drug candidates.* We intend to continue to pursue opportunities to apply Growing our protein engineering capabilities to the creation and development of novel biotherapeutic drug candidates. In addition, we intend to extend our biotherapeutics pipeline by developing, with our partner Takeda and developing internally, novel gene therapies and transgene products.
- *Growing our foundational revenue-generating pharmaceutical manufacturing business.* We intend to continue to pursue opportunities in the pharmaceutical market to use our enzymes to reduce the costs for manufacturing small molecule drugs. We intend to increase the number of pharmaceutical customers and processes that utilize and benefit from our novel, cost-saving enzyme biocatalyst solutions.
- *Developing and commercializing high-performance enzymes for use in life science applications and nucleic acid synthesis, including our dsRNA Ligase and our proprietary ECO Synthesis™ manufacturing platform*. We intend to offer high-performance enzymes to customers using NGS and PCR/qPCR for *in vitro* molecular diagnostic applications and to enable the future of fully enzymatic nucleic acid synthesis. synthesis, which includes the development of our proprietary ECO Synthesis™ manufacturing platform to manufacture RNAi therapeutics at commercial scale through an enzymatic route, including enabling enzymes to manufacture the building blocks, starter materials, and targeting moieties.

Strategic Collaborations

Biotherapeutics

Nestlé Health Science

In October 2017, • *Monetizing non-core assets and leveraging channel partners with strong commercial reach to drive penetration of other developed, non-core enzymes.* Consistent with our strategy to focus on programs that we entered into believe have the Nestlé License Agreement strongest probability of creating significant value in the near-term and beyond, we continue to look for opportunities to monetize non-core assets and to leverage channel partners with Nestlé Health Science pursuant stronger commercial reach to drive penetration of other developed, non-core life sciences enzymes. Recent examples of this strategy include monetizing CDX-7108 through the purchase agreement with Nestlé and the exclusive licensing agreement with Aldevron for our Codex® HiCap RNA Polymerase, both of which we granted to Nestlé Health Science, under certain of our patent rights and know-how: (i) an option to obtain an were announced in December 2023, as well as the exclusive worldwide, royalty-bearing, sublicensable license to develop and commercialize certain products (each, a "Product") based on CDX-6114 and our other therapeutic enzyme product candidates covered by specified patent applications licensing agreement with Roche in February 2024 for the treatment of hyperphenylalaninaemia ("HPA") (also referred to as PKU), and (ii) an exclusive right of first negotiation (the "Right of First Negotiation") for a period of five years to obtain an exclusive worldwide license to develop and commercialize up to two enzymes discovered by us for use in the field of the prevention, diagnosis, treatment and management of inborn errors of amino acid metabolism. We are not under any obligation to undertake any research and development activities

relating to inborn errors of amino acid metabolism. HPA is a medical condition characterized by elevated concentrations of the amino acid phenylalanine in the blood. PKU can result in severe HPA.

In February 2019, Nestlé Health Science exercised its option to obtain an exclusive, worldwide, royalty-bearing, sub-licensable license for the global development and commercialization of CDX-6114 for the management of PKU. Upon exercising its option, Nestlé Health Science assumed all responsibilities for future clinical development and commercialization of CDX-6114, with the exception of the completion of an extension study, CDX-6114-004, which was substantially completed in the fourth quarter of 2019. The parties established a patent committee to discuss strategies and coordinate activities for the patents related to CDX-6114 and product containing CDX-6114, and we will jointly own all inventions and information that result from each party's activities performed under the Nestlé License Agreement. The Nestlé License Agreement also contains customary representations and warranties by the parties, intellectual property protection provisions, certain indemnification rights in favor of each party and customary confidentiality provisions and limitations of liability.

We are also eligible to receive payments from Nestlé Health Science under the Nestlé License Agreement that include (i) development and approval milestones of up to $85.0 million, (ii) sales-based milestones of up to $250.0 million in the aggregate, which aggregate amount is achievable if net sales exceed $1.0 billion in a single year, and (iii) tiered royalties, at percentages ranging from the mid-single digits to low double-digits, of net sales of products.

In October 2017, we entered into the Nestlé SCA pursuant to which we and Nestlé Health Science are collaborating to leverage the CodeEvolver® enzyme engineeringtechnology platform to develop novel enzymes for Nestlé Health Science's established Consumer Care and Medical Nutrition business areas. The term of the Nestlé SCA has been extended through December 2023 with automatic renewal through December 2024. newly engineered DNA ligase.

In January 2020, we entered into the Nestlé development agreement (the "Nestlé DA") pursuant to which we and Nestlé Health Science are collaborating to advance CDX-7108 into preclinical and early clinical studies. CDX-7108 is the lead candidate discovered under the Nestlé SCA targeting exocrine pancreatic insufficiency. The term of the Nestlé DA has been extended through December 2023 with automatic renewal through December 2024.

Shire Human Genetic Therapies/Takeda Pharmaceutical

In March 2020, we entered into the Takeda Agreement with Takeda pursuant to which we are collaborating to research and develop protein sequences for use in gene therapy products for certain diseases (each, a "Field") in accordance with each applicable program plan (each, a "Program Plan"). On execution of the Takeda Agreement, we received an upfront nonrefundable cash payment of $8.5 million and we initiated activities under three Program Plans for Fabry Disease, Pompe Disease, and an unnamed blood factor disorder, respectively (the "Initial Programs"). We are primarily responsible for the research and development of protein sequences under the Program Plans (the "Protein Sequences") and we are eligible to earn up to$10.5 million of research and development fees and preclinical milestone payments for the Initial Programs. We will own all rights to the protein sequences and corresponding nucleic acid sequences and related intellectual property rights and Takeda will own all rights to products and related intellectual property rights. In May 2021, Takeda elected to exercise their option to initiate an additional (fourth) program for a certain undisclosed rare genetic disorder; as a result, we received the option exercise fee during the third quarter of 2021. We are also eligible to receive up to $3.4 million of research and development fees and preclinical milestone payments for the fourth program under the Takeda Agreement.

We granted to Takeda an exclusive, worldwide, royalty-bearing, sublicensable license to use the protein sequences and their corresponding nucleic acid sequences to develop, manufacture and commercialize the applicable products in the applicable Field. We also granted to Takeda a limited non-exclusive, worldwide, sublicensable license (a) to research the protein sequences within or outside the applicable Fields and (b) to research the products outside of the applicable Fields, which such rights exclude Takeda's right to perform any IND-enabling activities. The licenses to research the Protein Sequences expire after a pre-determined period of time.

The term of the Takeda Agreement begins on the effective date of the Takeda Agreement and continues on a product-by-product and country-by-country basis, until the expiration of Takeda's obligation to pay royalties to the Company with respect to that product in that country. The Takeda Agreement expires in its entirety upon the expiration of Takeda's obligation to pay royalties to the Company with respect to the products in all countries worldwide. Subject to the terms of the Takeda Agreement, and after the first anniversary of the Effective Date with respect to the Initial Programs or after the first anniversary of confirmation of the applicable Program Plan by the parties with respect to the Additional/Option Programs, Takeda may terminate a Program upon specified prior written notice to the Company. Subject to the terms of the Takeda Agreement, Takeda may terminate the Takeda Agreement, at will, on a product-by-product basis upon specified prior written notice to the Company and the Takeda Agreement in its entirety upon specified prior written notice to the Company. Subject to the terms of the Takeda Agreement, Takeda may terminate the Takeda Agreement on a product-by-product basis for safety reasons upon specified prior written notice to the Company. Either party may terminate the Takeda Agreement for an uncured material breach by the other party, or the other party's insolvency or bankruptcy. Pursuant to the Takeda Agreement, we are eligible to receive other payments that include (i) clinical development and commercialization-based milestones, per target gene, of up to $104.0 million and (ii) tiered royalty payments based on net sales of applicable products at percentages ranging from the mid-single digits to low single-digits. Strategic Collaborations

Licensing Our CodeEvolver® Enzyme Engineering Directed Evolution Technology Platform

GlaxoSmithKline

We entered into our first CodeEvolver® enzyme engineering Platform Technology Transfer, Collaboration and License Agreement ("GSK CodeEvolver® Agreement") in July 2014 with GlaxoSmithKline Intellectual Property Development Limited, a subsidiary of GSK, pursuant to which we granted GSK a non-exclusive, worldwide license to use our CodeEvolver® enzyme engineering technology platform in the field of human healthcare for its GSK's internal development purposes.

Under the GSK CodeEvolver® Agreement, we licensed and transferred our certain patents, patent applications and know-how from our CodeEvolver® enzyme engineering technology platform to GSK, completing the transfer in April 2016. Under this agreement, we have the potential to receive contingent payments that range from $5.75 million to $38.5 million per project, based dependent on GSK's successful application of the licensed technology. We are also eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using our CodeEvolver® enzyme engineering technology platform.

The term of the GSK CodeEvolver® Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the GSK CodeEvolver® Agreement. GSK can terminate the GSK CodeEvolver® Agreement by providing 90 days written notice to us.

In 2019, we received a $2.0 million $2.0 million milestone payment on the advancement of an enzyme developed by GSK using our CodeEvolver® enzyme engineering platform technology. technology platform. In 2021, we received two additional milestone payments from GSK under the GSK CodeEvolver® Agreement. Agreement.

Merck

In August 2015, we entered into a CodeEvolver® Platform Technology Transfer and License Agreement (the "Merck CodeEvolver® Agreement") with Merck. The Merck CodeEvolver® Agreement allows Merck to use our proprietary CodeEvolver® enzyme engineering technology platform technology in the field of human and animal healthcare.

Under the terms of the Merck CodeEvolver® Agreement, we granted to Merck an exclusive license under certain patents, patent applications and know-how from our CodeEvolver® enzyme engineering technology platform for the research, development and manufacture of novel enzymes for use by Merck in the chemical synthesis of therapeutic products owned or controlled by Merck ("Merck Exclusive Field") and a non-exclusive worldwide license to use the CodeEvolver® enzyme engineering technology platform to research, develop and manufacture novel enzymes for use by Merck in its internal research programs ("Merck Non-Exclusive Field").

Under the terms of the Merck CodeEvolver® Agreement, Merck paid us upfront technology transfer and license fees and milestone payments over the technology transfer period of 15 months from August 2015. We also have the potential to receive product-related payments of up to $15.0 million for each active pharmaceutical ingredient ("API") that is manufactured by Merck using one or more enzymes that have been developed or are in development using the CodeEvolver® enzyme engineering technology platform during the 10-year period that begins on the conclusion of the 15-month technology transfer period. These product-related payments, if any, will be paid by Merck to us for each quarter that Merck manufactures API using a CodeEvolver®-developed enzyme. The payments will be based on the total volume of API produced using the CodeEvolver®-developed enzyme.

In September 2016, we completed the full transfer of the engineering platform technology. In October 2018, we entered into an amendment to the Merck CodeEvolver® Agreement whereby we amended certain licensing provisions and one exhibit. In January 2019, we entered into an a second amendment to the Merck CodeEvolver® Agreement whereby we installed certain CodeEvolver® enzyme engineering technology platform upgrades into Merck's platform license installation. We maintained those upgrades for a multi-year term that expired in January 2022.

Novartis

In May 2019, we entered into a Platform Technology Transfer and License Agreement (the "Novartis CodeEvolver® Agreement") with Novartis. The Novartis CodeEvolver® Agreement allows Novartis to use our proprietary CodeEvolver® enzyme engineering platform technology in the field of human healthcare.

Under the terms of the Novartis CodeEvolver® Agreement, Codexis we granted to Novartis a worldwide license to use certain patents, patent applications and know-how from our CodeEvolver® enzyme engineering technology platform to research, develop and manufacture novel enzymes for use by or on behalf of Novartis as biocatalysts in the chemical synthesis of small molecule and bioconjugate APIs. The license is exclusive for the research, development and manufacture of novel enzymes for use by Novartis as biocatalysts in the chemical synthesis of API owned or controlled by Novartis ("Novartis Exclusive Field") and non-exclusive license for the research, development and manufacture of novel enzymes for use by Novartis in the chemical synthesis of API not owned or controlled by Novartis or any third party ("Novartis Non-Exclusive Field").

In July 2021, we announced the completion of the technology transfer period during which we transferred our proprietary CodeEvolver® technology platform technology to Novartis (the "Technology Transfer Period").

Pursuant to the Novartis CodeEvolver® Agreement, we received an upfront payment of $5.0 million $5.0 million shortly after the effective date. We completed the second technology milestone transfer under the agreement and received a milestone payment of $4.0 million $4.0 million in 2020. We have also received an aggregate of $5.0 million $5.0 million for the completion of the third technology transfer milestone in 2021.

In consideration for the continued disclosure and license of improvements to the technology and materials during a multi-year period that began on the conclusion of the Technology Transfer Period ("Improvements (the "Improvements Term"), Novartis will pay us annual payments over four years which amount to an additional $8.0 million $8.0 million in aggregate. We also have the potential to receive quantity-dependent, usage payments for each API that is manufactured by Novartis using one or more enzymes that have been developed or are in development using the CodeEvolver® technology platform technology during the period that began beginning on the conclusion of the Technology Transfer Period and ends ending on the expiration date of the last to expire licensed patent. These product-related usage payments, if any, will be paid by Novartis to Codexis for each quarter that Novartis manufactures API using a CodeEvolver®-developed enzyme.

The licenses to Novartis are granted under patents, patent applications and know-how that Codexis owns or controls as of the effective date of the Novartis CodeEvolver® Agreement and that cover the CodeEvolver® platform technology. technology platform. Any improvements to the CodeEvolver® technology platform technology during the Technology Transfer Period will also be included in the license grants from Codexis to Novartis.

INTELLECTUAL PROPERTY

Our success depends in large part on our ability to protect our proprietary technology, products and services under patent, copyright, trademark and trade secret laws. We also rely heavily on confidentiality and non-disclosure and other contractual agreements for further protection of our proprietary technology, products and services. Protection of our proprietary rights, titles and interests is important for us to offer our customers and partners proprietary technology, products and services that are not available from our competitors, and to exclude our competitors from practicing technology that we have developed or exclusively licensed from other parties. For example, our ability to successfully supply innovator pharmaceutical manufacturers as customers depends on our ability to supply proprietary enzymes or methods for making pharmaceutical intermediates or APIs that are not available from our competitors. Likewise, in the generic pharmaceutical area, protection of our proprietary technology, products and services directed to our enzymes and methods of producing pharmaceutical products, through patent or trade secret laws or other legal protections is important for us and our customers to maintain a lower cost production advantage over competitors.

As of December 31, 2022 December 31, 2023, we owned or controlled approximately approximate 2,090 ly 1,990 active issued patents and pending patent applications in the United States and in various foreign jurisdictions, many of which are directed to our enabling technologies and specific methods and products that support our business in the pharmaceutical and oligonucleotide synthesis markets. In addition, our This portfolio also includes patents and pending patent applications that support our businesses in the

biotherapeutics, molecular diagnostics, food and other markets. OurAs of December 31, 2023, our patents and pending patent applications, if issued, have terms that expire between 2023 2024 and approximately 2043. 2044. Our United States (" ("U.S." ") patents and pending patent applications directed to the CodeEvolver® proprietary enabling technology platform developed internally by us have terms that expire between 2029 and approximately 2034. It is possible that some U.S. patents and patent applications (if issued) may be entitled to patent term extensions and/or patent term adjustments, which would extend the protection beyond these expiration dates. It is also possible that some patents and patent applications (if issued) in other jurisdictions will be entitled to additional patent term. terms. Our current intellectual property rights also include patents, trademarks, copyrights, software and certain assumed contracts that we acquired from Maxygen, Inc. ("Maxygen") in October 2010, which are associated with directed evolution technology, known as the MolecularBreeding™ technology platform developed by Maxygen. The intellectual property rights and other related assets that we acquired from Maxygen continue to be subject to existing exclusive and non-exclusive license rights granted by Maxygen to third parties. We continue to file new patent applications in our business areas of interest, for which terms generally extend 20 years from the non-provisional filing date in the United States.

As of December 31, 2022 December 31, 2023, we owned approximately 100 trademark registrations in the United States and foreign jurisdictions, as well as many various common law trademarks. These include, but are not limited to: Codexis®, Codex®, CodeEvolver®, Mosaic®, Sage®, Microcyp®, MCYP®, ProSAR®, Unlock the Power of Proteins®, the Codexis Protein Engineering Experts® logo, Strategist®, Continuity®, Ameli®, Forager®, Analogene®, Harvester®, Atoms®, Riptide®, APS® and a Codexis design mark (i.e., the stylized Codexis logo), as well as pending registration applications for ECO Synthesis™ and ecoRNA™.

COMPETITION

We face differing forms of competition in the biotherapeutics, pharmaceutical manufacturing and life sciences markets, RNAi therapeutics manufacturing, as set forth below.

Biotherapeutics

There are other companies that participate in the biotherapeutics market generally and the PKU market specifically. Many of these companies are large, successful and well-capitalized. BioMarin Pharmaceutical Inc. ("BioMarin") and Daiichi Sankyo Company market Kuvan® in the United States, Europe and Japan for the treatment of a certain type of PKU. In addition, BioMarin had gained FDA approval in May 2018 and began the commercial sales of Palynziq®, an injectable enzyme substitution therapy to address different options for care in the treatment of PKU. Subsequently in May 2019, BioMarin obtained marketing authorization for Palynziq® from the European Commission. Several companies, including Synlogic, Homology Medicines and Rubius have reported clinical efforts to develop biotherapeutic candidates for PKU. Beyond targeting PKU, Takeda, Genzyme / Sanofi S.A., BioMarin, and other companies market or are actively developing enzyme therapeutics. There are numerous companies that are developing other forms of therapeutics, such as small molecules, gene therapy, as well as therapies based on gene editing, which could compete with biotherapeutics.

There are several companies developing or marketing pancreatic enzyme replacement therapies (PERTs) for the treatment of exocrine pancreatic insufficiency (EPI). Approved products derived from porcine pancreas and taken orally with meals include: Creon® (marketed by Abbvie in the US, and by Abbott in the EU, China, Taiwan, Japan, and India), Zenpep® (marketed by Nestlé in the US and EU), Pancreaze® (marketed by Vivus in the US), and Pertzye® (marketed by Chiesi in the US). There are also companies developing recombinant PERTs for treating EPI. First Wave Biopharma is presently testing a recombinant lipase enzyme, adrulipase, in Phase 2 clinical trials. There are also therapies in pre-clinical development for EPI treatment, including SNSP003 (developed by Synspira Therapeutics), a combination of purified lipase, amylase, and protease, in collaboration with the Cystic Fibrosis Foundation. Current marketed PERT therapies as well as potential future PERT therapies in development could compete with CDX-7108.

Performance Enzyme

Pharmaceutical Manufacturing

We market our biocatalyst products and services to manufacturers of small molecule pharmaceutical intermediates and APIs. Our primary competitors in that market are companies marketing either conventional, non-enzymatic catalysts or alternative biocatalyst products and services, or from full service contract development and manufacturing service providers ("CDMOs") full-service CDMOs offering conventional chemistry approaches to the production of APIs. We also sometimes face competition from existing in-house technologies (both biocatalysts biocatalysis and conventional chemistries) within our client and potential client companies. The principal methods of competition and competitive differentiation in this market are price, product quality and performance, including manufacturing yield, safety and environmental benefits and speed of delivery of product. product delivery. Pharmaceutical manufacturers that use biocatalytic processes can face competition from manufacturers that use more conventional processes and/or manufacturers that are based in regions (such as India and China) with lower operating, regulatory, safety and environmental costs.

We also compete with companies developing and marketing conventional catalysts including, for example, Solvias AG, BASF, Johnson-Matthey and Takasago International Corporation.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, as well as subsidiaries of larger contract research/contract manufacturing organizations, such as Royal DSM N.V. ("DSM"), Firmenich, Cambrex Corporation, Lonza, WuXi STA and Almac Group Ltd. Some fermentation pathway design companies, such as Zymergen, which was acquired by Gingko BioWorks, and Amyris, Ginkgo Bioworks, whose traditional focus has been to design microorganisms that express small molecule chemicals, could extend into designing organisms that express enzymes. There is also competition in the enzyme customization and optimization area from several smaller companies, such as BRAIN AG, Arzeda, evoxx technologies GmbH, c-LEcta GmbH, Enzymicals AG, and evoxx technologies GmbH. Enzymaster.

The market for the manufacture and supply of APIs and intermediates is large, with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Novartis, Pfizer, Inc. ("Pfizer"), Bristol-Myers Squibb Company ("Bristol-Myers"), KYORIN Pharmaceutical Co., Ltd. ("Kyorin"), Kyorin, Urovant, Sciences GmbH ("Urovant"), and Teva Pharmaceutical Industries Limited ("Teva"), which have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates for use in their drug product manufacturing. There is also a large network of contract (development &) manufacturing organizations ("C(D)MOs") CDMOs servicing the innovator companies with supply of APIs and/or intermediates, intermediates. These C(D)MOs include Cambrex Corporation, Lonza, Asymchem, WuXi STA and Almac Group Ltd, among many others. The processes used by these companies (both C(D)MOs and innovators) include classical organic chemistry reactions, chemo-catalytic reactions, biocatalytic reactions or combinations thereof. Our biocatalyst-based manufacturing processes must compete effectively on cost and efficiency with these internally developed routes.

We believe that our principal advantage is our ability to rapidly deliver customized biocatalysts for existing and new intermediates and APIs in the pharmaceutical manufacturing market. This capability has allowed us to create a breadth of biocatalysts with improved performance characteristics including, for example, better activity, stability, and activity on a range of substrates, compared to traditional chemistry-based manufacturing processes and naturally occurring (and thus not optimized) biocatalysts. We believe that our CodeEvolver® enzyme engineering technology platform technology provides can provide substantially superior results, in shorter time frames, than companies offering competing biocatalyst development services.

Life Sciences

Our ECO Synthesis™ Manufacturing Platform for RNAi Therapeutics

Following the restructuring of our business announced in July 2023, our Life Sciences business is now primarily focused in two key areas, nucleic acid on RNAi therapeutics manufacturing as we develop and genomics. We supply engineered enzymes commercialize the ECO Synthesis™ manufacturing platform. Phosphoramidite chemistry is the current and custom services to manufacturers long-established industry standard for the manufacture of messenger RNA (“mRNA”), small interfering RNA (“RNAi”), RNAi therapeutics, examples including antisense oligonucleotides (“ASOs” (“ASO”), and other RNA-based molecules as well as manufacturers of next generation sequencing (“NGS”) workflows and kits, small-interfering RNA (in vitro “ diagnostics (“IVD” siRNA”), RNA aptamers, and molecular diagnostic assays. Several of our guide RNA (“gRNA”). Primary competitors in this space include CDMOs, such as ThermoFisher Scientific, Roche Diagnostics (a division of Roche Holding AG), New England Biolabs (“NEB”), and QIAGEN group offer a wide diversity of products across the life sciences market, including products that support multiple applications in Agilent Technologies, which has made significant capital investment to expand their RNA manufacturing capabilities using phosphoramidite chemistry. In addition, CDMOs and genomics. We large pharmaceutical companies are seeking to make incremental improvements to phosphoramidite chemistry, including the development of ligation-based approaches, liquid-phase synthesis, and solvent recycling. There are also compete with multiple early-stage competitors who are pursuing fully enzymatic approaches to the manufacture of RNA, including EnPlusOne, a private startup company, and a UK-based consortium led by the Centre for Process Innovation (“CPI”) and consisting of multiple academic and research organizations, including The University of Manchester and large pharmaceutical companies, that are more focused on offering products including AstraZeneca plc and services for RNA manufacturing, such as Aldevron (a Danaher company) as well as companies focused on providing enzymes and services to genomic sequencing applications, such as Promega Corporation and Watchmaker Genomics. The life science industry has seen great technological leaps since the introduction of enzymes into laboratory and clinical workflows and we recognize the importance of enzymes in this market and the need for purpose-fit, robust, and highly active enzymes that are made possible with our core technology. Novartis.

Other

Core Technology

We are a leader in the field of enzyme engineering to create novel enzymes. Each of enzymes, and our segments rely work across Pharmaceutical Manufacturing and the Eco Synthesis™ manufacturing platform relies on our core technology. We are aware that other companies, organizations and persons have developed technologies that appear to have some similarities to our patented proprietary technologies. For example, we are aware that other companies, including Zymergen, which was acquired by Gingko Ginkgo Bioworks, Amyris, Absci BRAIN, Enzymaster, and Amicus Therapeutics Enzymicals AG have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. In addition, academic institutions such as the California Institute of Technology, the Max Planck Institute University of Manchester, and the Austrian Centre of Industrial Biotechnology are also working in this field. This field is highly competitive with companies and academic and research institutions actively seeking to develop technologies that could be competitive with our technologies.

Technological developments by others may result in our products and technologies, as well as products manufactured by our customers using our biocatalysts, becoming obsolete. We monitor publications and patents that relate to directed molecular evolution to be aware of developments in the field and evaluate appropriate courses of action in relation to these developments.

Many of our competitors have substantially greater manufacturing, financial, research and development, personnel and marketing resources than we do. As a result, our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors.

We initially commercialized our CodeEvolver® enzyme engineering technology platform and products in the manufacture of small molecule pharmaceuticals, which remains a primary business focus. Our customers, which include many large, global pharmaceutical companies, use our technology, products and services in their process development and in manufacturing. Additionally, we have licensed our proprietary CodeEvolver® enzyme engineering technology platform to global pharmaceutical companies enabling them to use this technology, in house, in-house, to engineer enzymes for their own businesses.

CUSTOMERS

We rely on certain key customers for a significant portion of our total revenues and our accounts receivable balances. For the year ended December 31, 2023, two customers accounted for approximately 22% and 13% of our total revenues. As of December 31, 2023, four customers accounted for approximately 21%, 13%, 12% and 12% of our accounts receivable balances. For more information, see Note 15, “Segment, Geographical and Other Revenue Information” in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

OPERATIONS

Our corporate headquarters are located in Redwood City, California and provide general administrative support to our business and are the center of our research, development and business operations. We have limited internal manufacturing capacity at our headquarters in Redwood City. We expect to rely on third-party manufacturers for commercial production of our biocatalysts for the foreseeable future. Our in-house manufacturing is dedicated to producing both Codex® biocatalyst panels and kits and enzymes for use by our customers in pilot scale and clinical production. We also supply initial commercial quantities of biocatalysts for use by our collaborators to produce pharmaceutical intermediates and manufacture biocatalysts that we sell.

In September 2023, we announced that we had entered into an agreement for the assignment and assumption of lease for our San Carlos, California facility. In the first quarter of 2021, we entered into an arrangement to lease a this facility in San Carlos, California to serve as an additional office and research and development laboratory space which we occupied beginning December 2021. Please see Note 15, “Segment, Geographical and Other Revenue Information” in As part of the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K for a description restructuring of our revenues business announced in July 2023, we consolidated operations to our Redwood City headquarters and long-lived assets both within and outside of the United States, and with respect to discontinued investment in biotherapeutics. For additional information on the San Carlos facility, please see see Note 13, “Commitments and Contingencies” in the Notes to our the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

Our research and development operations include efforts directed towards engineering biocatalysts, bioprocess development, cellular engineering, biocatalyst screening, metabolites, strain improvement, fermentation development and process engineering. We conduct enzyme evolution, enzyme production development, microbial bioprocess development, cellular engineering, microbial evolution and process engineering evaluations and design primarily at our headquarters in Redwood City, California. Manufacturing of our enzymes is conducted primarily in four locations, locations: at our in-house facility in Redwood City, California and at third-party contract manufacturing organizations, Lactosan GmbH & Co. KG (“Lactosan”) in Kapfenberg, Austria, ACS Dobfar S.p.A. ("ACSD" (“ACSD”) (formerly known as DPhar S.p.A.) in Anagni, Italy, and Alphazyme LLC ("Alphazyme") in Jupiter, Florida, United States. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing, representing a large percentage of our production of novel enzymes, to contract manufacturing organizations.

GOVERNMENT REGULATION

Our enzymes are used by pharmaceutical and biopharmaceutical companies in the manufacture of their drug or biologic product candidates and finished products. In the United States, the manufacture, distribution, marketing, and sale of drug products and the provision of certain services for development-stage pharmaceutical and biotechnology products are subject to extensive ongoing regulation by the United States Food and Drug Administration (“FDA”), the United States Department of Health and Human Services (“HHS”), state boards of pharmacy, state health departments, various accrediting bodies, and similar regulatory authorities in other countries, including laws and regulations governing bribery, fraud, kickbacks, and false claims. The costs associated with complying with the various applicable federal, state, local, national, and international laws and regulations could be significant, and the failure to comply with such legal requirements could have an adverse effect on our results of operations and financial condition. The FDA extensively regulates, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of drug and biologic products under the Federal Food, Drug and Cosmetic Act, its implementing regulations and other laws, including, in the case of biologics, the Public Health Service Act. Our biotherapeutic product candidates are subject to regulation by the FDA as biologics. Biologics require the submission of a biologics license application (“BLA”) and licensure, which constitutes approval, by the FDA before being marketed in the United States. We, along with third-party contractors, collaborators, and our collaborators, customers will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we they wish to conduct studies or seek approval or licensure of our their product candidates. candidates, which may include regulatory inspections for compliance with current good manufacturing practices (“cGMP”). The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. This regulatory scrutiny results in our customers imposing rigorous quality and other requirements on us as their supplier through supplier qualification processes and customer contracts and specifications.

The process required by the FDA before a drug or biologic product may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA’s good laboratory practice (“GLP”) regulations;
- submission to the FDA of an IND, which must become effective before clinical trials in the United States may begin;
- approval by an institutional review board (“IRB”), or ethics committee at each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials to establish the safety and potency of the product candidate for each proposed indication, conducted in accordance with the FDA’s good clinical practice (“GCP”) regulations;
- preparation and submission to the FDA of a BLA new drug application ("NDA") or biologics license application ("BLA") after completion of all pivotal clinical trials:
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review; trials;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with current good manufacturing practice (“cGMP”) cGMP regulations and to assure that the facilities, methods and controls are adequate to preserve the biological product’s drug's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with Good Clinical Practices, or GCPs; and
- FDA review and approval of the NDA or BLA prior to any commercial marketing, sale or distribution of the product.

Preclinical Environmental, Health and Clinical Trials Safety Regulations

Once a product candidate is identified We are responsible for development, it enters the preclinical testing stage. Preclinical studies include laboratory evaluations of drug chemistry, formulation ensuring an environmentally responsible, safe, and stability, as well as studies to evaluate toxicity in animals, which must be conducted in accordance with GLP requirements. The results of preclinical studies, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational new drug to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises concerns or questions about the conduct of the clinical trial, including concerns that human research subjects will be exposed to unreasonable health risks, and imposes a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin.

A separate submission to an existing IND must also be made for each successive clinical trial conducted during product development, and the FDA must grant permission, either explicitly or implicitly by not objecting, before each clinical trial can begin. Progress reports detailing the results of the clinical trials, among other information, must be submitted at least annually to the FDA and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected suspected adverse events,

findings from other studies or animal or *in vitro* testing that suggest a significant risk for human subjects and any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure.

Clinical trials involve the administration of the product candidate to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial and the parameters and criteria to be used in monitoring safety and evaluating effectiveness. Each protocol must be submitted to the FDA as part of the IND. An independent IRB for each investigator site proposing to participate in a clinical trial must also review and approve the clinical trial and its informed consent form before it can begin at that site, and the IRB must monitor the clinical trial until it is completed. The FDA, the IRB, or the sponsor may suspend or discontinue a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

For purposes of BLA approval, clinical trials are typically conducted in three sequential phases, which may overlap or be combined.

- *Phase 1* - Phase 1 clinical trials involve initial introduction of the investigational product into healthy human subjects or patients with the target disease or condition. These studies are typically designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence of effectiveness.
- *Phase 2* - Phase 2 clinical trials typically involve administration of the investigational product to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosage and dosing schedule and to identify possible adverse side effects and safety risks.
- *Phase 3* - Phase 3 clinical trials typically involve administration of the investigational product to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval and physician labeling.

In some cases, the FDA may condition approval of a BLA on the sponsor's agreement to conduct additional clinical trials to further assess the biologic's safety and effectiveness after BLA approval. Such post-approval clinical trials are typically referred to as Phase 4 clinical trials. Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the biologic and finalize a process for manufacturing the biologic in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and manufacturers must develop, among other things, methods for testing the identity, strength, quality and purity of the final biological product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

Although most clinical research performed in the United States in support of a BLA must be authorized in advance by the FDA, under the IND regulations and procedures described above, there are certain circumstances under which clinical trials can be conducted without submission of an IND. For example, a sponsor who wishes to conduct a clinical trial outside the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND.

BLA Submission and FDA Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of preclinical studies and clinical trials, together with other detailed information, including extensive manufacturing information and information on the composition of the biologic, are submitted to the FDA in the form of a BLA requesting approval to market the biologic for one or more specified indications. The BLA must include all relevant data available from preclinical and clinical studies, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. Data can come from company-sponsored clinical studies intended to test the safety and effectiveness of a use of the product, or from a number of alternative sources, including studies initiated by investigators. The submission of a BLA requires payment of a substantial user fee unless a waiver is granted. Each BLA submitted to the FDA is reviewed for administrative completeness and reviewability within 60 days of the FDA's receipt of the application. If the BLA is found to be complete, the FDA will file the BLA, triggering a full substantive review of the application. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission.

Once a BLA has been accepted for filing under the Prescription Drug User Fee Act, the FDA has a goal of reviewing BLAs within ten months of the 60-day filing date for BLAs designated for standard review or six months for priority review, but the overall timeframe is often extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether the biological product is safe, pure and potent and whether the facility or facilities in which it is manufactured meet standards designed to assure the product's continued safety, purity and potency. The FDA may refer the application to an advisory committee for review, evaluation and recommendation as to whether the application should be approved. The FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations.

Before approving a BLA, the FDA will inspect the facility or the facilities at which the biologic product is manufactured, and will not license the product unless cGMP compliance is satisfactory. The FDA may also inspect the sites at which the clinical trials were conducted to assess their compliance with GCP requirements, and will not license the biologic unless compliance with such requirements is satisfactory. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response Letter ("CRL"). An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A CRL will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the CRL without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the CRL, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy ("REMS"), to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy implemented to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited Development and Review Programs

The FDA maintains several programs intended to facilitate and expedite development and review of new drugs and biologics designed to address unmet medical needs in the treatment of serious or life-threatening diseases or conditions.

For example, a product candidate is eligible for Fast Track designation if it is intended to treat a serious or life-threatening disease or condition and demonstrates the potential to address unmet medical needs for such disease or condition. Fast Track designation applies to the combination of the product candidate and the specific indication for which it is being studied. Fast Track designation provides increased opportunities for sponsor meetings with the FDA during preclinical and clinical development, in addition to the potential for rolling review once a marketing application is filed, meaning that the FDA may review portions of the marketing application before the sponsor submits the complete application, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

In addition, a product candidate may be eligible for Breakthrough Therapy designation if it is intended to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product candidate may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. Breakthrough Therapy designation provides all the features of Fast Track designation in addition to intensive guidance on an efficient development program beginning as early as Phase 1, and FDA organizational commitment to expedited development, including involvement of senior managers and experienced review staff in a cross-disciplinary review, where appropriate.

Any product candidate submitted to the FDA for approval, including a product candidate with Fast Track or Breakthrough Therapy designation, may also be eligible for additional FDA programs intended to expedite the review process, including Priority Review designation and Accelerated Approval. A BLA is eligible for Priority Review if the product candidate is designed to treat a serious or life-threatening disease or condition, and if approved, would provide a significant improvement in safety or effectiveness in the treatment, diagnosis or prevention of a serious disease or condition.

Additionally, product candidates studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive Accelerated Approval if they can be shown to have an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or an effect on a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality which is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. Products receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required post-marketing studies or if such studies fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Fast Track designation, Breakthrough Therapy designation, Priority Review designation and Accelerated Approval do not change the standards for approval but may expedite the development or review process. Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Orphan Drug Designation and Exclusivity

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 individuals in the United States, or a patient population greater than 200,000 individuals in the United States and when there is no reasonable expectation that the cost of developing and making available the drug or biologic in the United States will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA.

If a product candidate that has orphan drug designation subsequently receives the first FDA approval for a particular active ingredient for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same biologic for the same disease or condition for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or if the FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application user fee.

A designated orphan drug many not receive orphan drug exclusivity if it is approved for a use that is broader than the disease or condition for which it received orphan designation. In addition, orphan drug exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or, as noted above, if a second applicant demonstrates that its product is clinically superior to the approved product with orphan exclusivity or the manufacturer of the approved product is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Emergency Use Authorization

The Commissioner of the FDA, under delegated authority from the Secretary of HHS may, under certain circumstances in connection with a declared public health emergency, allow for the marketing of a product that does not otherwise comply with FDA regulations by issuing an EUA for such product. Before an EUA may be issued by HHS, the Secretary must declare an emergency based a determination that public health emergency exists that effects or has the significant potential to affect, national security, and that involves a

specified biological, chemical, radiological, or nuclear agent or agents ("CBRN"), or a specified disease or condition that may be attributable to such CBRN. On February 4, 2020, the HHS Secretary determined that there is such a public health emergency that involves the virus now known as SARS-CoV-2, the virus that causes the COVID-19 infection.Once the determination of the threat or emergency has been made, the Secretary of HHS must then declare that an emergency exists justifying the issuance of EUAs for certain types of products (referred to as EUA declarations).On March 27, 2020, the Secretary of HHS declared – on the basis of his determination of a public health emergency that has the potential to affect national security or the health and security of U.S. citizens living abroad that involves SARS-CoV-2 – that circumstances exist justifying authorization of drugs and biologics during the COVID-19 pandemic, subject to the terms of any EUA that is issued.

Once an EUA declaration has been issued, the FDA can issue EUAs for products that fall within the scope of that declaration.To issue an EUA, the FDA Commissioner must conclude that (1) the CBRN that is referred to in the EUA declaration can cause serious or life-threatening diseases or conditions; (2) based on the totality of scientific evidence available, it is reasonable to believe that the product may be effective in diagnosing, treating, or preventing the disease or condition attributable to the CBRN and that the product's known and potential benefits outweigh its known and potential risks; and (3) there is no adequate, approved, and available alternative to the product. Products subject to an EUA must still comply with the conditions of the EUA, including labeling and marketing requirements. Moreover, the authorization to market products under an EUA is limited to the period of time the EUA declaration is in effect, and the FDA can revoke an EUA in certain circumstances.

Rare Pediatric Disease Priority Review Voucher Program

In 2012, Congress authorized the FDA to award priority review vouchers to sponsors of certain rare pediatric disease product applications. This program is designed to encourage development of new drug and biological products for prevention and treatment of certain rare pediatric diseases. Specifically, under this program, a sponsor who receives an approval for a drug or biologic for a "rare pediatric disease" may qualify for a voucher that can be redeemed to receive a priority review of a subsequent marketing application for a different product. The sponsor of a rare pediatric disease drug product receiving a priority review voucher may transfer (including by sale) the voucher to another sponsor. The voucher may be further transferred any number of times before the voucher is used, as long as the sponsor making the transfer has not yet submitted the application. The FDA may also revoke any priority review voucher if the rare pediatric disease drug for which the voucher was awarded is not marketed in the U.S. within one year following the date of approval.

For purposes of this program, a "rare pediatric disease" is a (a) serious or life-threatening disease in which the serious or life-threatening manifestations primarily affect individuals aged from birth to 18 years, including age groups often called neonates, infants, children, and adolescents; and (b) rare diseases or conditions within the meaning of the Orphan Drug Act. On December 27, 2020, the Rare Pediatric Disease Priority Review Voucher Program was extended. Under the current statutory sunset provisions, after September 30, 2024, FDA may only award a voucher for an approved rare pediatric disease product application if the sponsor has rare pediatric disease designation for the drug, and that designation was granted by September 30, 2024. After September 30, 2026, FDA may not award any Rare Pediatric Disease Priority Review Voucher.

Post-Approval Requirements

Licensed biologics that are manufactured and distributed in the United States are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product distribution, advertising and promotion and reporting of adverse experiences with the product. There is also a continuing, annual prescription drug program user fee.

Any biologics manufactured or distributed pursuant to FDA approvals remain subject to ongoing regulation by the FDA. Manufacturers and their subcontractors workplace. We are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections abide by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP, which impose extensive procedural and documentation requirements. Failure to comply with statutory and regulatory requirements can subject a manufacturer to possible legal or regulatory action, such as warning letters, suspension of manufacturing, product seizures, injunctions, civil penalties or criminal prosecution.

Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information, requirements for post-market studies or clinical trials to assess new safety risks, imposition of distribution or other restrictions under a REMS. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, untitled letters, or holds on post-approval clinical trials;
- refusal of the FDA to approve applications or supplements to approved applications, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the post-approval marketing and promotion of biologics, including standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities, and promotional activities involving the internet and social media. A company can make only those claims relating to safety and efficacy that are approved by the FDA. Physicians may prescribe legally available biologics for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances.

The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, impose stringent restrictions on manufacturers' communications regarding off-label use. Failure to comply with these requirements can result in adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties.

Biosimilars and Regulatory Exclusivity

As part of the Patient Protection and Affordable Care Act enacted in 2010, as amended by the Health Care and Education Reconciliation Act of 2010, the Biologics Price Competition and Innovation Act ("BPCIA") established an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The abbreviated regulatory pathway provides legal authority for the FDA to review and approve biosimilar biologics based on their similarity to an existing brand product, referred to as a reference product, including the possible designation of a biosimilar as interchangeable with a brand product.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed by the FDA. In addition, the licensure of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law. In addition, the period of exclusivity provided by the BPCIA only operates against third parties seeking approval via the abbreviated pathway, but would not prevent third parties from pursuing approval via the traditional BLA approval pathway.

In addition, a biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

Other Healthcare Laws

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business and may constrain the financial arrangements and relationships through which we and our partners research, sell, market and distribute any products for which we obtain marketing approval. Such laws include, without limitation, all relevant county, state and federal anti-kickback, fraud agency regulations for environmental, health and abuse, false claims safety requirements and transparency laws regarding drug pricing have the necessary procedure, permits, and payments licenses in place to operate accordingly. Our contracts with outside suppliers and other transfer of value to physicians and other healthcare providers. If their operations are found to be in violation of any of such laws or any other governmental regulations that apply, they may be subject to penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations, exclusion from participation in federal and state healthcare programs and individual imprisonment.

Coverage and Reimbursement

Sales of any product depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement for such product by third-party payors. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. These third-party payors are increasingly reducing reimbursements for medical products, drugs and services. In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions vendors require compliance with existing controls and measures, could further limit sales of any product. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales.

Healthcare Reform

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, each as amended (collectively known as the "ACA"), was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the pharmaceutical industry. The ACA contained a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and changes to fraud and abuse laws. For example, the ACA:

- increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1% of the average manufacturer price;
- required collection of rebates for drugs paid by Medicaid managed care organizations;
- required manufacturers to participate in a coverage gap discount program, under which they must agree to offer 70 percent point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and
- imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs" to specified federal government programs.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA.

On June 17, 2021, the U.S Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA.Thus, the ACA will remain in effect in its current form.

Other legislative changes have been proposed and adopted since the ACA was enacted. In March 2021, the American Rescue Plan Act of 2021 was signed into law, which eliminates the statutory cap on the Medicaid drug rebate, currently set at 100% of a drug's AMP, beginning January 1, 2024. Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries, proposed and enacted legislation and executive orders issued by the President designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Most recently, the Inflation Reduction Act of 2022, or IRA,

included a number of significant drug pricing reforms, which include the establishment of a drug price negotiation program within the U.S. Department of Health and Human Services, or HHS (beginning in 2026) that requires manufacturers to charge a negotiated “maximum fair price” for certain selected drugs or pay an excise tax for noncompliance, the establishment of rebate payment requirements on manufacturers under Medicare Parts B and D to penalize price increases that outpace inflation (first due in 2023), and a redesign of the Part D benefit, as part of which manufacturers are required to provide discounts on Part D drugs (beginning in 2025). The IRA permits the HHS Secretary to implement many of these provisions through guidance, as opposed to regulation, for the initial years. Additional drug pricing proposals could appear in future legislation. Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Data Privacy and Security Laws

Numerous state, federal and foreign laws, including consumer protection laws and regulations, govern the collection, dissemination, use, access to, confidentiality, and security of personal information, including health-related information. In the United States, numerous federal and state laws and regulations, including data breach notification laws, health information privacy and security laws, and federal and state consumer protection laws and regulations (e.g., Section 5 of the Federal Trade Commission Act) that govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the operations of our partners. In addition, certain foreign laws govern the privacy and security of personal data, including health-related data. Failure to comply with these laws, were applicable, can result in the imposition of significant civil and /or criminal penalties and private litigation. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to make compliance efforts more challenging, and can result in investigations, proceedings, or actions that lead to significant penalties and restrictions on data processing. regulations.

Cybersecurity

In the normal course of business, we may collect and store personal information and other sensitive information, including proprietary and confidential business information, trade secrets, intellectual property, information regarding trial participants in connection with clinical trials, sensitive third-party information and employee information.To protect this information, our existing cybersecurity policies require continuous monitoring and detection programs, network security precautions, and in depth security assessment of technology vendors. We maintain various protections designed to safeguard against cyberattacks, including firewalls and virus detection software. We have established and regularly test our disaster recovery plan and we protect against business interruption by backing up our major systems. In addition, we periodically scan our environment for any vulnerabilities, perform penetration testing and engage third parties to assess effectiveness of our data security practices. A third party security consultant conducts regular network security reviews, scans and audits. In addition, we maintain insurance that includes cybersecurity coverage.

The program incorporates industry-standard frameworks, policies and practices designed to protect the privacy and security of our sensitive information.

Despite the implementation of our cybersecurity program, our security measures cannot guarantee that a significant cyberattack will not occur. A successful attack on our information technology systems could have significant consequences to the business. While we devote resources to our security measures to protect our systems and information, these measures cannot provide absolute security. See “Risk Factors – General Risk Factors” for additional information about the risks to our business associated with a breach or compromise to our information technology systems.

HUMAN CAPITAL RESOURCES

As of December 31, 2022 December 31, 2023, we had 248 174 full-time employees and part-time employees worldwide. Of these employees, 139 61 were engaged in research and development, 39 41 were engaged in operations and quality control and 70 72 were engaged in selling, general and administrative activities. None of our employees is are represented by a labor union. Supported by our annual employee survey, we believe our relationship with our employees to be generally good. Our scientists, bioinformatics experts and other professionals work collaboratively as interdisciplinary teams to unlock and advance technological innovation.

Compensation, benefits and development

Our goal is to attract, motivate and retain talent with a focus on encouraging performance, promoting accountability and adhering to our company values. We offer competitive compensation and benefit programs including a company-matched 401(k) Plan, an Employee Stock Purchase Plan (“ESPP”), stock options for eligible employees, health savings and flexible spending accounts, paid time off, education and training programs, and employee assistance programs. We believe it is important to help build community and enabling our employees actively participate in community service projects and in company-sponsored philanthropic activities.

Diversity, inclusion equity and belonging inclusion

We are committed to our continued efforts to increase diversity and foster an inclusive work environment that supports the our global workforce and the communities we serve. We recruit the best people for the job regardless of gender, ethnicity or other protected traits and it is our policy to fully comply with all laws applicable to discrimination in the workplace. Our diversity, equity and inclusion principles are also reflected in our employee training and policies. We continue to enhance our diversity, equity and inclusion policies which are guided by our executive leadership team. team, including our commitment to green chemistry, demonstrated, among other things, by our “My Green Lab Certification.”

Health and safety

We are committed to maintain a safe and healthy workplace for our employees. Our policies and practices are intended to protect our employees and the surrounding communities in which we operate.

We continue to monitor COVID-19 local, state, and federal guidance, policies and regulations for changes and we implement modifications to internal guidelines as needed. In 2020, in response to the COVID-19 pandemic, we implemented safety protocols and new procedures to protect our employees. These protocols include complying with social distancing and other health and safety standards as required by state and local government agencies, taking into consideration guidelines of the Centers for Disease Control and Prevention and other public health authorities. In addition, we modified the way we conduct many aspects of our business including the practice of social distancing, wearing face coverings mandated by state and local regulations, and maintaining a quarantine for employees determined to be in close contact with a COVID-19 case. For example, we implemented day-time shift hours in our R&D and manufacturing at our Redwood City pilot plant to minimize the number of employees in close proximity to each other and we have significantly expanded the use of virtual interaction whenever possible in our business. For a detailed discussion of the impact of the COVID-19 pandemic on our human capital resources, see “Risk Factors" Item 1A of this Form 10-K.

We previously launched the Employee-Requested Work from Home Policy in late 2020. This policy establishes the process and criteria to enable Redwood City employees to request permission to work from home on a regular basis.

CORPORATE & AVAILABLE INFORMATION

We were incorporated in Delaware in January 2002 as a wholly-owned subsidiary of Maxygen, Inc. We commenced independent operations in March 2002, after licensing core enabling technology from Maxygen, Inc. Our principal corporate offices are located at 200 Penobscot Drive, Redwood City, California 94063 and our telephone number is (650) 421-8100. Our internet address is www.codexis.com. The information on, or that can be accessed through, our website is not incorporated by reference into this Annual Report on Form 10-K or any other filings we make with the U.S. Securities and Exchange Commission (the "SEC").

We make available on or through our website certain reports and amendments to those reports that we file with, or furnish to, the SEC in accordance with the Exchange Act. These include our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act. We make this information available on or through our website free of charge as soon as reasonably practicable after we electronically file the information with, or furnish it to, the SEC. Copies of this information may be obtained at the SEC website at www.sec.gov. The contents of these websites are not incorporated into this filing. Further, the references to website URLs are intended to be inactive textual references only.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below together with the other information set forth in this Annual Report on Form 10-K, which could materially affect our business, financial condition or future results. The risks described below are not the only risks facing our company. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results. Additional discussion of the material risks and uncertainties summarized in this risk factor summary, as well as certain other risks and uncertainties that we face, can be found in this section.

RISK FACTORS SUMMARY

The following is a summary of the principal factors that cause an investment in the company Company to be speculative or risky:

- We have a history of net losses and we may not achieve or maintain profitability.
- We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products.
- Our biotherapeutic Biotherapeutic programs are early stage, highly regulated and expensive.
- If either Nestlé Health Science or Takeda terminate their development programs under their respective license agreements with us, any potential revenue from those license agreements will be significantly reduced or non-existent.
- We may need additional capital in the future in order to expand our business.
- We are dependent on a limited number of customers.
- Our product supply agreements with customers have finite duration and may not be extended or renewed.
- The demand for our product depends in part on our customers' research and development and the clinical and market success of their products.
- With respect to customers purchasing our products for the manufacture of API, the termination or expiration of such patent protection may materially and adversely affect our revenues, financial condition or results of operations.
- We are dependent on a limited number of contract manufacturers for large scale production of substantially all of our enzymes, including CDX-616. enzymes.
- We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products.
- If we are unable to develop and commercialize new products for the target markets, our business and prospects will be harmed.
- Competitors and potential competitors who We have greater invested significant resources and experience than we do may develop products to enable fully enzymatic nucleic acid synthesis, which is based on novel ideas and technologies that make ours obsolete. are largely unproven.
- The ongoing COVID-19 pandemic has adversely affected and may continue in the future to, directly or indirectly, adversely affect our business, results of operations and financial condition.
- Revenues in in future years Future revenues from our sales of CDX-616 to Pfizer are subject to a number of factors which are outside of our control and may not materialize.
- We have investments in non-marketable securities, which may subject us to significant impairment charges.
- Ethical, legal and social concerns about genetically engineered products and processes could limit or prevent the use of our products, processes, and technologies and limit our revenues.
- We have recently enhanced our strategic focus to concentrate on certain programs and business lines. As a result of this refined focus on returning the foundational, revenue-generating pharmaceutical manufacturing business and the ECO Synthesis™ manufacturing platform, we may fail to capitalize on other opportunities that may be more profitable or for which there is a greater likelihood of success.
- Given our recent change in strategic direction, we may receive limited revenue or no future value from certain of our existing license agreements.

- We use hazardous materials in our business, and we must comply with environmental laws and regulations.
- Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.
- As a public reporting company, we are subject to rules and regulations established from time to time by the SEC and Nasdaq regarding our internal controls over financial reporting. We may not complete needed improvements to our internal controls over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our common stock and your investment.
- If we engage We may need additional capital in any acquisitions, we will incur a variety of costs and may potentially face numerous risks that could adversely affect the future in order to expand our business and operations. business.
- We or our customers may not be able to obtain regulatory approval for comply with the use terms of our products in food five-year loan and food ingredients, if required. security agreement (our "Loan Agreement") with Innovatus Life Sciences Lending Fund, I, LP, an affiliate of Innovatus Capital Partners ("Innovatus").
- Our ongoing efforts to deploy our technology in the life science tools market may fail.
- The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and we may be unable to obtain regulatory approval for our product candidates.
- Clinical trials are difficult to design and implement, expensive, time-consuming and involve an uncertain outcome.
- Results of preclinical studies and early clinical trials of product candidates may not be predictive of results of later studies or trials.
- We may not be able to maintain orphan drug designations for certain of our product candidates, and may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.
- We have obtained rare pediatric disease designation for CDX-6512 and CDX-6210, however, there is no guarantee that such designation will result in approval of CDX-6512 or CDX-6210, and even if we obtain approval of CDX-6512 or CDX-6210 for the indication for which we have been awarded rare pediatric disease designation, there is no guarantee that such approval will result in an aware of a rare pediatric disease priority review voucher.
- Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain, or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved, or commercialized in a timely manner, or at all, which could negatively impact our business.
- Even if we our customers or collaborators obtain regulatory approval for any products that we develop alone or with collaborators, utilizing our enzymes, such products will remain subject to ongoing regulatory requirements. requirements, which may result in significant additional expense.
- Our business operations and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose us to penalties.
- The successful commercialization of product candidates developed by us If we or our partners will depend in part on the extent customers fail to which governmental authorities comply with certain healthcare laws, including fraud and health insurers establish adequate coverage, reimbursement levels abuse laws, we could face substantial penalties and pricing policies.
- Recently enacted legislation, future legislation our business, results of operations, financial condition and healthcare reform measures may increase the difficulty and cost for our partners to obtain marketing approval for and commercialize product candidates developed by us.
- Compliance with European Union chemical regulations prospects could be costly and adversely affect our business and results of operations.
- We rely on third parties to conduct our clinical trials and perform some of our research and preclinical studies, which if not satisfactorily carried out or fail to meet expected deadlines, may have an adverse effect on our business and prospects.
- We contract with third parties for the manufacturing and supply of product candidates, which supply may become limited or interrupted or may not be of satisfactory quality and quantity. affected.
- Our efforts to prosecute, maintain, protect and/or defend our intellectual property rights may not be successful.
- Our ability to compete may decline if we do not adequately prosecute, maintain, protect and/or defend our proprietary technology, products or services or our intellectual property rights.
- Third parties may claim that we are infringing, violating or misappropriating their intellectual property rights, which may subject us to costly and time-consuming litigation and prevent us from developing or commercializing our technology, products or services.
- We may be involved in lawsuits to protect or enforce our intellectual property rights, which could be expensive, time-consuming and unsuccessful.
- We may not be able to enforce our intellectual property rights throughout the world.
- If our biocatalysts are stolen, misappropriated or reverse engineered, others could use these biocatalysts to produce competing products.
- Confidentiality and non-use agreements with employees, consultants, advisors, and other third parties may not adequately prevent disclosures and non-use of trade secrets and other proprietary information.
- We are subject to anti-takeover provisions in our certificate of incorporation and bylaws and under Delaware law that could delay or prevent an acquisition of our company.
- Our quarterly or annual operating results may fluctuate in the future.
- We do not intend to pay cash dividends for the foreseeable future.

- If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.
- We face risks associated with our international business.
- Market and economic conditions may negatively impact our business, financial condition, and share price.
- Business interruptions resulting from disasters or other disturbances could delay us in the process of developing our products and could disrupt our sales.
- We are dependent on information technology systems, infrastructure and data, and any failure of these systems could harm our business.
- Actual or perceived failures to comply with applicable data protection, privacy and security laws, regulations, standards and other requirements could adversely affect our business, results of operations and financial condition.
- Evolving expectations around environmental, social and governance matters may expose us to reputational and other risks.

Risks Relating Related to Our Business and Strategy

We have a history of net losses and we may not achieve or maintain profitability.

We have incurred net losses since our inception, including losses of $76.2 million, $33.6 million in , and $21.3 million for the years ended December 31, 2023, 2022, $21.3 million in and 2021, and $24.0 million in 2020. respectively. As of December 31, 2022 and 2021, December 31, 2023, we had an accumulated deficit of $421.3 million and $387.7 million, respectively. $497.5 million. If we are unable to expand o continue to successfully develop and commercialize products in our pharmaceutical manufacturing business, increase sales of existing products and services, develop and commercialize our ECO Synthesisur business, through new ™ manufacturing platform, and or expanded collaborations, development of develop new products or services, or increased sales of existing otherwise expand our business, whether through new or expanded collaborations or other products and services, our net losses may increase and we may never achieve profitability. In addition, some of our collaboration agreements, including our collaboration with Nestlé Health Science and Takeda, and our performance enzyme agreements, including the agreements with GSK, Merck, Novartis, Nestlé Health Science, Aldevron and Novartis, Roche provide for milestone payments, usage payments, and/or future royalty or other payments, which we will only receive if we and and/or our collaborators develop and commercialize products. products or achieve technical milestones. We also may intend to continue to fund the development of additional proprietary performance enzymes and/or biotherapeutic products. enzyme products and advance new technologies like our ECO Synthesis™ manufacturing platform. There can be no assurance that any of these products or services will become commercially viable or that we will ever achieve profitability on a quarterly or annual basis. If we fail to achieve profitability, or if the time required to achieve profitability is longer than we anticipate, we may not be able to continue our business. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products and achieving or sustaining profitability, and could lead to disagreements with our current or former collaborators.

Our ability to maintain and manage collaborations in our markets is fundamental to the success of our business. We currently have license agreements, research and development agreements, supply agreements and/or distribution agreements with various collaborators. For example, we have ongoing collaborations and agreements with GSK, Merck, Novartis, Nestlé Health Science and Takeda that are important to our business and financial results. We may have limited or no control over the amount or timing of resources that any collaborator is able or willing to devote to our partnered products or collaborative efforts. Any of our collaborators may fail to perform its obligations. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. Further, our collaborators may not develop products arising out of our collaborative arrangements or devote sufficient resources to the development, manufacture, marketing or sale of these products. Moreover, disagreements with a collaborator could develop, and any conflict with a collaborator could lead to litigation and could reduce our ability to enter into future collaboration agreements and negatively impact our relationships with one or more existing collaborators. If any of these events occur, especially if they occur in our collaborations with GSK, Merck, Novartis, Nestlé Health Science or Takeda, or if we fail to maintain our agreements with our collaborators, we may not be able to commercialize our existing and potential products or grow our business or generate sufficient revenues to support our operations, we may not receive contemplated milestone payments and royalties under the collaboration, and we may be involved in litigation. Our collaboration opportunities could be harmed and our financial condition and results of operations could be negatively affected if:

- we do not achieve our research and development objectives under our collaboration agreements in a timely manner or at all;
- we develop products and processes or enter into additional collaborations that conflict with the business objectives of our other collaborators;
- we, our collaborators and/or our contract manufacturers do not receive the required regulatory and other approvals necessary for the commercialization of the applicable product;
- we disagree with our collaborators as to rights to intellectual property that are developed during the collaboration, or their research programs or commercialization activities;
- we are unable to manage multiple simultaneous collaborations;
- our collaborators or licensees are unable or unwilling to implement or use the technology or products that we provide or license to them;
- our collaborators become competitors of ours or enter into agreements with our competitors;
- our collaborators become unable or less willing to expend their resources on research and development or commercialization efforts due to general market conditions, their financial condition or other circumstances beyond our control; or
- our collaborators experience business difficulties, which could eliminate or impair their ability to effectively perform under our agreements.

Even after collaboration relationships expire or terminate, some elements of the collaboration may survive. For instance, certain rights, licenses and obligations of each party with respect to intellectual property and program materials may survive the expiration or termination of the collaboration. Disagreements or conflicts between and among the parties could develop even though the collaboration has ended. These disagreements or conflicts could result in expensive arbitration or litigation, which may not be resolved in our favor.

Finally, our business could be negatively affected if any of our collaborators or suppliers undergoes a change of control or were to otherwise assign the rights or obligations under any of our agreements.

Our biotherapeutic Biotherapeutic programs are early stage, highly regulated and expensive. Our expensive, and our enzyme products are complex and subject to quality control requirements. The ability to obtain additional development partners of our customers, future customers or additional funding for the programs, collaborators, including any company developing RNAi therapeutics, to advance our product candidates utilizing our products to clinical trials and to ultimately receive regulatory approvals is highly uncertain.

WeAlthough we are no longer developing and have developed novel our own portfolio of biotherapeutics product candidates, we continue to develop enzyme products, including our ECO Synthesis™ manufacturing platform, that may be used by our customers, future customers or collaborators in connection with their biotherapeutic candidates, including CDX-6114, the novel oral enzyme product candidate for the treatment of PKU that we licensed to Nestlé Health Science. We are also developing protein sequences for use in gene therapy products for Fabry Disease, Pompe Disease, an undisclosed blood factor deficiency and a certain undisclosed rare genetic disorder for Takeda. candidates. The successful development of biotherapeutic candidates involves many risks and uncertainties, requires long timelines and may lead to uncertain results. In addition, drug development is highly regulated

Our customers are subject to extensive regulations by the FDA and requires areas similar regulatory authorities in other countries for conducting clinical trials and commercializing products for therapeutic, vaccine or diagnostic use. These regulations result in our customers imposing quality requirements on us for the manufacture of expertise our enzyme products through supplier qualification processes and capital resources we do not currently possess. customer contracts and specifications

In order to market a biologic or drug product in the United States, we our customers, future customers or our collaborators must undergo the following process required by the FDA:

- completion of extensive preclinical laboratory tests and preclinical animal studies, all performed in accordance with GLP the FDA's Good Laboratory Practice requirements;
- submission to the FDA of an IND, Investigational New Drug Application ("IND"), which must become effective before human clinical studies may begin in the United States;
- approval by an independent IRB institutional review board ("IRB") representing each clinical site before the clinical study may be initiated at the site;
- performance of adequate and well-controlled human clinical studies (generally divided into three phases) in accordance with GCP Good Clinical Practice ("GCP") requirements to establish the safety, purity and potency (or efficacy) of the product candidate for each proposed indication;
- preparation of and submission to the FDA of a BLA Biologics License Application ("BLA") or New Drug Application ("NDA")after completion of all clinical studies;
- potential review of the product candidate by an FDA advisory committee;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities where the product candidate is produced to assess compliance with cGMP current Good Manufacturing Practice ("cGMP") requirements; and
- FDA review and approval of a BLA or NDA prior to any commercial marketing or sale of the product in the United States. States; and
- any post-approval requirements, if applicable.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and the results are inherently unpredictable. If we our customers, future customers or collaborators are ultimately unable to obtain regulatory approval for their biotherapeutic product candidates utilizing our enzyme products, our business may be harmed. In addition, if our customers, future customers or collaborators fail to comply with applicable FDA or other regulatory requirements at any time during the drug development process, clinical testing, the approval process or after approval, we they may become subject to administrative or judicial penalties, including the FDA's refusal to approve a pending application, withdrawal of an approval, warning letters, product recalls and additional enforcement actions. actions, any of which may have an adverse effect on our financial condition.

Our efforts to advance We believe our biotherapeutic candidates that we develop enzyme products are subject to numerous risks, including exempt from compliance with the following:

- The regulatory approval processes Food, Drug, and Cosmetic Act ("FDCA") and the current GMP ("cGMP") regulations of the FDA, as our products are further processed and comparable foreign authorities incorporated into final drug or biologic products by our customers and we do not make claims related to their safety or effectiveness. Our products are lengthy, time consuming manufactured following the voluntary quality standards of ISO 9001:2015. In the event we, or our suppliers, produce products that fail to comply with required quality standards, we may incur delays in fulfilling orders, write-downs, damages resulting from product liability claims and the results are inherently unpredictable. If we are ultimately unable harm to obtain regulatory approval for biotherapeutic product candidates, our business will be harmed. To obtain regulatory approval to market any product candidate, preclinical studies and costly and lengthy clinical trials are required, and the results of the studies and trials are highly uncertain. A failure of one or more preclinical or clinical trials can occur at any stage, and many companies that have believed their drug candidates performed satisfactorily in preclinical and clinical testing have nonetheless failed to obtain marketing approval of their product candidates.
- We may find it difficult to enroll patients in our clinical trials for product candidates. Any enrollment difficulties could delay clinical trials and any potential product approval.reputation.

- We may experience difficulty or delay in obtaining In the FDA's acceptance of an IND for product candidates we may seek future, our products could become subject to enter into clinical development, which would delay initiation of Phase 1 clinical testing. Delays in the commencement or completion of clinical testing could significantly affect our product development costs more onerous regulation, or the product development costs of FDA could disagree with our present and any future collaborators. We do not know whether planned clinical trials will begin on time or be completed on schedule, if at all. The commencement and completion of clinical trials can be delayed for a number of reasons. For example, a clinical trial may be suspended or terminated by us, by the IRB of the institution in which such trial is being conducted, or by assessment that our enzyme products are exempt from current GMP regulations. In addition, the FDA due could conclude that the products we provide to a number our customers are actually subject to the pharmaceutical,

drug or biologic quality-related regulations for manufacturing, processing, packing or holding of factors, drugs, biologics, or finished pharmaceuticals, and could take enforcement action against us, including unforeseen safety issues, changes in governmental regulations or lack of adequate funding to continue the clinical trial.

- We have limited experience in drug development or regulatory matters related to drug development. As a result, we rely or will rely on third parties to conduct our preclinical and clinical studies, assist us with drug manufacturing and formulation and perform other tasks for us. If these third parties do not successfully carry out their responsibilities or comply with regulatory requirements, we may receive lower quality products or services, suffer reputational harm and not be able to obtain regulatory approval for product candidates.
- Our efforts to use CodeEvolver® protein engineering technology platform to generate new lead biotherapeutic candidates, whether under our collaborations with Nestlé Health Science, Takeda or otherwise, may not be successful in creating candidates of value.
- We will be exposed to potential product liability risks through the testing of experimental therapeutics in humans, which may expose us to substantial uninsured liabilities.
- Third parties may develop intellectual property that could limit our ability to develop, market and commercialize product candidates.
- Changes in methods of treatment of disease, such as gene therapy, could cause requiring us to stop development distribution of our product candidates or products until we are in compliance with applicable regulations, which would reduce or eliminate potential demand for CDX-6114, if approved, or any other product candidates that we may develop in the future.

If either Nestlé Health Science or Takeda terminate their development programs under their respective license agreements with us, any potential our revenue, from those license agreements will be significantly reduced or non-existent, increase our costs and adversely affect our business, prospects, results of operations and financial condition will be materially and adversely affected.

We have invested significant time and financial resources in the development of CDX-6114 and other product candidates for the treatment of hyperphenylalaninemia now included in the Nestlé License Agreement as well as in the development of candidates for the treatment of Fabry disease and Pompe disease which are now included in the Takeda Agreement.

Under the Nestlé License Agreement, we are eligible to receive payments from Nestlé Health Science that include (i) development and approval milestones of up to $85.0 million, (ii) sales-based milestones of up to $250.0 million in the aggregate, which aggregate amount is achievable if net sales exceed $1.0 billion in a single year, and (iii) tiered royalties, at percentages ranging from the mid-single digits to low double-digits, of net sales of product. Under the Takeda Agreement, we are eligible to earn potential payments that include (i) reimbursement of research and development fees and preclinical development milestone payments for the three initial programs of $10.5 million, in aggregate, and $3.4 million for the fourth program, (ii) clinical development and commercialization-based milestone, per target gene, of up to $104.0 million, and (iii) tiered royalty payments based on net sales of applicable products at percentages ranging from the mid-single digits to low single-digits. While we have received milestone payments under the Nestlé License Agreement to date there is no guarantee that we will receive further milestone payments under the Nestlé Agreement or Takeda Agreement in the future.

Under the Nestle Agreement and the Takeda Agreement, either Nestlé Health Science and Takeda, as applicable, may each terminate the entire agreement or specified programs thereunder at will under certain circumstances as described in more detail under “Item 1. Business--Our Market Opportunities--Pharmaceutical Market--Our Solutions for the Pharmaceutical Market--Biotherapeutic Product Discovery and Development” in this Annual Report on Form 10-K.

If Nestlé Health Science terminates its rights and obligations with respect to the Nestlé License Agreement and/or Takeda terminates its rights and obligations with respect to the Takeda Agreement, then depending on the timing of such event:

- the development of our product candidates subject to the respective agreements may be terminated or significantly delayed;
- our cash expenditures could increase significantly if it is necessary for us to hire additional employees and allocate scarce resources to the development and commercialization of product candidates;
- we would bear all of the risks and costs related to the further development and commercialization of product candidates that were previously the subject of the respective agreements, including the reimbursement of third parties; and
- in order to fund further development and commercialization of new product candidates or programs, we may need to seek out and establish alternative collaboration arrangements with third-party partners; this may not be possible, or we may not be able to do so on terms which are acceptable to us, in which case it may be necessary for us to limit the size or scope of one or more of our programs or increase our expenditures and seek additional funding by other means.

We may need additional capital in the future in order to expand our business.

Our future capital requirements may be substantial, particularly as we continue to develop our business. Although we believe that, based on our current level of operations, our existing cash, cash equivalents and equity securities will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months, we may need additional capital if our current plans and assumptions change. Our need for additional capital will depend on many factors, including the financial success of our performance enzyme business, our spending to develop and commercialize new and existing products and the amount of collaboration funding we may receive to help cover the cost of such expenditures, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, including opportunities in the biotherapeutics markets, and the filing, prosecution, enforcement and defense of patent claims. If our capital resources are insufficient to meet our capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies.

In addition, we may choose to raise additional capital due to market conditions or strategic considerations, such as funding investments in our biotherapeutics business, even if we believe we have sufficient funds for our current or future operating plans. We may seek to obtain such additional capital through equity offerings, debt financings, credit facilities and/or strategic collaborations. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. If we raise debt financing or enter into credit facilities, we may be subject to restrictive covenants that limit our ability to conduct our business. Strategic collaborations may also place restrictions on our business. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited. If this happens, we may be forced to delay or terminate research or development programs or the commercialization of products resulting from our technologies, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require us to relinquish commercial rights, or

grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business. condition.

We are dependent on a limited number of customers.

Our Although we continue to expand our customer base, our current revenues are derived from a limited number of key customers. For the years ended December 31, 2022 December 31, 2023 and 2021, 2022, customers that each individually contributed 10% or more of our total revenue accounted for 56% 35% and 44% 56% of our total revenues, in 2022 and 2021, respectively. We expect a limited number of customers to continue to account for a significant portion of our revenues for the foreseeable future. This customer concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction of business from one or a combination of our significant customers could, materially adversely affect our revenues, financial condition and results of operations.

Our product supply agreements with customers have finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products.

Our product supply agreements with customers generally have a finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products. While our products are not considered commodities and may not be easily substituted for by our customers, particularly when our products are used in the manufacture of active pharmaceutical ingredients, our customers may nevertheless terminate or fail to renew their product supply agreements with us or significantly curtail their purchases thereunder under certain circumstances. We are working to develop new relationships with existing or new customers, but despite these efforts we may not, at the time that any of our existing product supply agreements expire or are terminated, or purchases thereunder curtailed, have other contracts in place generating similar or material revenue. Any such expiration, termination or reduction could materially adversely affect our revenues, financial condition and results of operations. For the year ended December 31, 2022 December 31, 2023, we derived a majority of our product revenue from these product supply agreements.

The demand for our products depends in part on our customers' research and development and the clinical and market success of their products. Our business, financial condition, and results of operations may be harmed if our customers spend less on, or are less successful in, these activities. In addition, customer spending may be affected by, among other things, general market and economic conditions beyond our control.

Our customers are engaged in research, development, production, and marketing of pharmaceutical products and intermediates. The amount our customers spend on research, development, production, and marketing, as well as the outcomes of such research, development, and marketing activities, have a large impact on our sales and profitability, particularly the amount our customers choose to spend on our offerings. Available resources, the need to develop new products, and consolidation in the industries in which our customers operate may have an impact on such spending. Our customers and potential customers finance their research and development spending from private and public sources. A reduction in available financing for and spending by our customers, for these reasons or because of continued unstable or unpredictable economic and marketplace conditions, could have a material adverse effect on our business, financial condition, and results of operations. If our customers are not successful in attaining or retaining product sales due to market conditions, reimbursement issues, or other factors, our results of operations may be materially adversely affected.

With respect to customers purchasing our products for the manufacture of active pharmaceutical ingredients ("API") APIs for which they have exclusivity due to patent protection, the termination or expiration of such patent protection and any resulting generic competition may materially and adversely affect our revenues, financial condition or results of operations.

With respect to customers purchasing our products for the manufacture of API, or lead to the manufacture of API, for which exclusivity due to patent protection has or is about to expire, we can expect that the quantity of our products sold to such customers for such products may decline as generic competition for the API increases. While we anticipate that we may, in some cases, also be able to sell products to these generic competitors for the manufacture of these APIs, or lead to the manufacture of these APIs, the overall effect on our revenues, financial condition and results of operations could be materially adverse.

We are dependent on a limited number of contract manufacturers for large scale production of substantially all of our enzymes, including CDX-616. enzymes. We are working to qualify new contract manufacturers to produce certain of our enzymes, including CDX-616, however those efforts may not be successful and therefore we may experience limitations on our ability to supply our enzymes to customers.

Manufacturing of our enzymes is conducted primarily in four locations: our in-house facility in Redwood City, California, and at three third-party contract manufacturing organizations, Lactosan GmbH & Co. KG ("Lactosan"), in Kapfenberg, Austria, ACS Dobfar S.p.A. ("ACSD") (formerly known as DPhar S.p.A.), ACSD (in Anagni, Italy, and Alphazyme LLC in Jupiter, Florida, United States. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to these contract manufacturers. We have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third-party manufacturers for the larger scale manufacturing of the enzymes used in our pharmaceutical and life sciences businesses.

Accordingly, we face risks of difficulties with, and interruptions in, performance by third party manufacturers, the occurrence of which could adversely impact the availability, launch and/or sales of our enzymes in the future. Enzyme manufacturing capacity limitations at our third-party manufacturers and manufacturing delays could negatively affect our business, reputation, results of operations and financial condition. The failure of any contract manufacturer to supply us our required volumes of enzyme on a timely basis, or to manufacture our enzymes in compliance with our specifications or applicable quality requirements or in volumes sufficient to meet demand, would adversely affect our ability to sell pharmaceutical and fine and complex chemicals products, could harm our relationships with our collaborators customers or customers collaborators and could negatively affect our revenues and operating results. We may be forced to secure alternative sources of supply, which may be unavailable on commercially acceptable terms, and could cause delays in our ability to deliver products to our customers, increase our costs and decrease our profit margins.

We currently have supply agreements in place with Lactosan, ACSD and Alphazyme. In the absence of a supply agreement, a contract manufacturer will be under no obligation to manufacture our enzymes and could elect to discontinue their manufacture at any time. If we require additional manufacturing capacity and are unable to obtain it in sufficient quantity, we may not be able to increase our product sales, or we may be required to make substantial capital investments to build that capacity or to contract with other manufacturers on terms that may be less favorable than the terms we currently have with our suppliers. If we choose to build our own additional manufacturing facility, it could take two several years or longer before our facility is able to produce commercial volumes of our enzymes. Any resources we expend on acquiring or building internal manufacturing capabilities could be at the expense of other potentially more profitable opportunities. In addition, if we contract with other manufacturers, we may experience delays of several months in qualifying them, which could harm our relationships with our collaborators customers or customers collaborators and could negatively affect our revenues or operating results.

We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products and achieving or sustaining profitability, and could lead to disagreements with our current or former collaborators.

Our ability to maintain and manage collaborations in our markets is fundamental to the success of our business. We currently have license agreements, research and development agreements, supply agreements and/or distribution agreements with various collaborators. For example, we have ongoing collaborations and agreements with GSK, Merck, Novartis, Roche and Aldevron that are important to our business and financial results. We may have limited or no control over the amount or timing of resources that any collaborator is able or willing to devote to our partnered products or collaborative efforts. Any of our collaborators may fail to perform its obligations. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. Further, our collaborators may not develop products arising out of our collaborative arrangements or devote sufficient resources to the development, manufacture, marketing or sale of these products. Moreover, disagreements with a collaborator could develop, and any conflict with a collaborator could lead to litigation, reduce our ability to enter into future collaboration agreements and negatively impact our relationships with one or more existing collaborators. If any of these events occur, especially if they occur in our collaborations with GSK, Merck or Novartis, or if we fail to maintain our agreements with our collaborators, we may not be able to commercialize our existing and potential products or grow our business or generate sufficient revenues to support our operations, we may not receive contemplated milestone payments and royalties under the collaboration, and we may be involved in litigation. Our collaboration opportunities could be harmed and our financial condition and results of operations could be negatively affected if:

- we do not achieve our research and development objectives under our collaboration agreements in a timely manner or at all;
- we develop products and processes or enter into additional collaborations that conflict with the business objectives of our other collaborators;
- our collaborators and/or our contract manufacturers do not receive the required regulatory and other approvals necessary for the commercialization of the applicable product;
- we disagree with our collaborators as to rights to intellectual property that are developed during the collaboration, or their research programs or commercialization activities;
- we are unable to manage multiple simultaneous collaborations;
- our collaborators or licensees are unable or unwilling to implement or use the technology or products that we provide or license to them;
- our collaborators become competitors of ours or enter into agreements with our competitors;
- our collaborators become unable or less willing to expend their resources on research and development or commercialization efforts due to general market conditions, their financial condition or other circumstances beyond our control; or
- our collaborators experience business difficulties, which could eliminate or impair their ability to effectively perform under our agreements.

Takeda recently confirmed that it will end research, discovery and preclinical work in certain rare disease areas that may overlap with the programs on which we collaborate under the Strategic Collaboration and License Agreement (the “Takeda Agreement”) we entered into with Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda, in March 2020. Takeda announced in April 2023 the discontinuance of these development programs.

Even after collaboration relationships expire or terminate, some elements of the collaboration may survive. For instance, certain rights, licenses and obligations of each party with respect to intellectual property and program materials may survive the expiration or termination of the collaboration. Disagreements or conflicts between and among the parties could develop even though the collaboration has ended. These disagreements or conflicts could result in expensive arbitration or litigation, which may not be resolved in our favor.

Finally, our business could be negatively affected if any of our collaborators or suppliers undergoes a change of control or were to otherwise assign the rights or obligations under any of our agreements.

If we are unable to develop and commercialize new products for the pharmaceutical, biotherapeutics, diagnostics and life science tools markets, our business and prospects will be harmed.

We plan to launch new products for the pharmaceutical, biotherapeutics, diagnostics and other life science tools markets. markets such as our ECO Synthesis™ manufacturing platform. These efforts are subject to numerous risks, including the following:

- customers in these markets may be reluctant to adopt new manufacturing processes that use our enzymes;
- we may be unable to successfully develop the enzymes or manufacturing processes for our products in a timely and cost-effective manner, if at all;
- we may face difficulties in transferring the developed technologies to our customers and the contract manufacturers that we may use for commercial scale production of intermediates and enzymes in these markets;
- the biotherapeutics products that use our tools may not receive regulatory approval or be commercially viable;
- the contract manufacturers that we may use may be unable to scale their manufacturing operations to meet the demand for these products and we may be unable to secure additional manufacturing capacity;
- customers may not be willing to purchase these products for these markets from us on favorable terms, if at all;
- we may face product liability litigation, unexpected safety or efficacy concerns and product recalls or withdrawals;
- our customers’ products may experience adverse events or face competition from new products, which would reduce demand for our products;

- we may face pressure from existing or new competitive products; and
- we may face pricing pressures from existing or new competitors, some of which may benefit from government subsidies or other incentives.

We have invested significant resources to enable fully enzymatic nucleic acid synthesis, which is based on novel ideas and technologies that are largely unproven.

Our ECO Synthesis™ manufacturing platform is currently in development to enable the commercial-scale manufacture of RNAi therapeutics through an enzymatic route. While we believe fully enzymatic nucleic acid synthesis will offer certain improvements over phosphoramidite chemistry, including with respect to required infrastructure investments, batch size limitations and waste disposal challenges, the enzymatic route is novel and has not yet been commercialized. As such, we may be faced with unforeseen results, delays and setbacks, in addition to the other foreseeable risks and uncertainties associated with the ongoing development of the ECO Synthesis™ manufacturing platform and other products.

Other challenges with a new technology such as our ECO Synthesis™ manufacturing platform include having an unknown and unproven regulatory path, uncertainly around the value that we can realize from the technology, uncertainty around the timeline for adoption of the technology by customers, and uncertainly around our ability to manufacture and partner with customers on manufacturing and utilizing the technology.

There can be no assurance that these events we may experience in the future related to enzymatic synthesis will not cause significant delays or unanticipated costs, or that such development problems can be solved. Any delay or difficulties in developing and commercializing our ECO Synthesis™ manufacturing platform or any of our other current or future products could adversely affect our business and operations.

Competitors and potential competitors who have greater resources and experience than we do may develop products and technologies that make ours obsolete or may use their greater resources to gain market share at our expense.

The biocatalysis industry and performance enzyme industries and each of our target markets are characterized by rapid technological change. Our future success will depend on our ability to maintain a competitive position with respect to technological advances. In addition, as we enter new markets, we will face new competition and will need to adapt to competitive factors that may be different from those we face today.

We are aware that other companies, including Royal DSM, N.V. (“DSM”), BASF, Bayer and Novozymes have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. Academic institutions such as the California Institute of Technology, the Max Planck Institute and the Austrian Centre of Industrial Biotechnology are also working in this field. Technological development by others may result in our technology, products and services, as well as products developed by our customers using our biocatalysts, becoming obsolete.

Our primary competitors in the performance enzymes for the pharmaceutical products are markets include (i) companies marketing either conventional, non-enzymatic processes or biocatalytic enzymes to enzymes; (ii) manufacturers of pharmaceutical intermediates and APIs, APIs; and also (iii) existing in-house technologies (both biocatalysts and conventional catalysts) within our client and potential client companies. The principal methods of competition and competitive differentiation in this market are price, product quality and performance, including manufacturing yield, safety and environmental benefits, and speed of delivery of product. Pharmaceutical manufacturers that use biocatalytic processes can face increased competition from manufacturers that use more conventional processes and/or manufacturers that are based in regions (such as India and China) with lower regulatory, safety and environmental costs.

The market for the manufacture and supply of APIs and intermediates is large with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Novartis, Pfizer, Bristol-Myers, Kyorin, Urovant, and Teva which have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates. The processes used by these companies include classical conventional organic chemistry reactions, chemo catalytic reactions, biocatalytic reactions or combinations thereof. Our biocatalytic based manufacturing processes must compete with these internally developed routes. Additionally, we also face competition from companies developing and marketing conventional catalysts such as Solvias Inc., BASF and Takasago International Corporation.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, such as Novozymes and DuPont, as well as subsidiaries of larger contract research/contract manufacturing organizations, such as DSM, Cambrex Corporation, Lonza, WuXi STA and Almac Group Ltd. Some fermentation pathway design companies, like Ginkgo Bioworks (who recently acquired Zymergen), whose traditional focus has been to design microorganisms that express small molecule chemicals, could extend into designing organisms that express enzymes. There is also competition in the enzyme customization and optimization area from several smaller companies, such as BRAIN AG, Arzeda, c-LEcta GmbH and Evocatal GmbH.

We entered the fine chemicals market in 2013, by applying our protein engineering technology in the food market. We face similar forms competitive challenges related to our ECO Synthesis™ manufacturing platform. Phosphoramidite chemistry is the current and long-established industry standard for the manufacture of competition RNA therapeutics. Primary competitors in this market space include CDMOs, such as in Agilent Technologies, which has made significant capital investment to expand their RNA manufacturing capabilities using phosphoramidite chemistry. In addition, CDMOs and large pharmaceutical companies are seeking to make incremental improvements to phosphoramidite chemistry, including the pharmaceutical markets with the exception that the risk development of losing opportunities to larger ligation-based approaches, liquid-phase synthesis, and solvent recycling. There are also multiple early-stage competitors in fine chemicals is greater given the larger scale of opportunities available in the fine chemicals market compared who are pursuing fully enzymatic approaches to the manufacture of RNA, including EnPlusOne, a private startup company, and a UK-based consortium led by CPI and consisting of multiple academic and research organizations, including The University of Manchester and large pharmaceutical market. Our significant competitors in the fine chemicals markets include companies, that have been in these marketplaces for many years, such as DuPont Industrial Biosciences (“DuPont Genencor”), DSM, Novozymes including AstraZeneca plc and A.B. Enzymes. These companies have greater resources in these markets than we do and have long-term supply arrangements already in place with customers. Our ability to compete in these markets may be limited by our relatively late entrance. We also face competition in both the fine chemicals and pharmaceutical markets from emerging companies offering whole cell metabolic pathway approaches to these markets.

There are numerous companies that participate in the biotherapeutics market generally and the PKU market specifically. Many of these companies are large, successful and well-capitalized. BioMarin Pharmaceutical Inc. (“BioMarin”) and Daiichi Sankyo Company market Kuvan® in the United States, Europe and Japan for the treatment of a certain type of PKU. In addition, BioMarin gained US FDA approval in 2018 and began commercial sales of Palynziq™ as an injectable enzyme substitution therapy for the potential treatment of PKU. Several companies, i.e., Synlogic, Homology Medicines and Rubius have reported clinical efforts to develop biotherapeutic candidates for PKU. Beyond targeting PKU,

Takeda (who acquired Shire Plc in 2019), Genzyme / Sanofi S.A., BioMarin and other companies market or are actively developing new enzyme therapeutics. There are numerous companies that are developing other forms of therapeutics, such as small molecules, gene therapies, as well as therapies based on gene editing, which could compete with biotherapeutics.Novartis.

Our ability to compete successfully in any of these markets will depend on our ability to develop proprietary products that reach the market in a timely manner and are technologically superior to and/or are less expensive than other products on the market. Many of our competitors have substantially greater production, financial, research and development, personnel and marketing resources than we do. They also started developing products earlier than we did, which may allow them to establish blocking intellectual property positions or bring products to market before we can. In addition, certain of our competitors may also benefit from local government subsidies and other incentives that are not available to us. As a result, our competitors may be able to develop competing and/or superior technologies and processes and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors. We cannot be certain that any products we develop in the future will compare favorably to products offered by our competitors or that our existing or future products will compare favorably to any new products that are developed by our competitors. As more companies develop new intellectual property in our markets, the possibility of a competitor acquiring patent or other rights that may limit our products or potential products increases, which and could additionally lead to litigation.

Our limited resources relative to many of our competitors may cause us to fail to anticipate or respond adequately to new developments and other competitive pressures. This failure could reduce our competitiveness and market share, adversely affect our results of operations and financial position, and prevent us from obtaining or maintaining profitability.

The ongoing COVID-19 pandemic has adversely affected and may continue in the future to, directly or indirectly, adversely affect our business, results of operations and financial condition.

The COVID-19 pandemic has had, and continues to have, a significant impact globally, prompting governments and businesses to take unprecedented measures in response. In the United States, the COVID-19 pandemic has and may continue in the future to, directly or indirectly, adversely affect our business, results of operations and financial condition, including as a result of compliance with governmental orders governing the operation of businesses during the pandemic, the temporary closure of our Redwood City, California facilities from mid-March 2020 through the end of April 2020 and disruption of our research and development operations.

In the future, our business could be materially adversely affected, directly or indirectly, by the widespread outbreak of contagious disease, including the ongoing COVID-19 pandemic. National, state and local governments in affected regions have implemented and may continue to implement safety precautions, including quarantines, border closures, increased border controls, travel restrictions, governmental orders and shutdowns, business closures, cancellations of public gatherings and other measures. Organizations and individuals are taking additional steps to avoid or reduce infection, including limiting travel and staying home from work. These measures are disrupting normal business operations both in and outside of affected areas and have had significant negative impacts on businesses and financial markets worldwide.

The potential impact and duration of COVID-19 or another pandemic or public health crisis has had and could continue to have, significant repercussions across regional, national and global economies and financial markets, and could trigger a period of regional, national and global economic slowdown or regional, national or global recessions. The outbreak of COVID-19 in many countries continues to adversely impact regional, national and global economic activity and has contributed to significant volatility and negative pressure in financial markets. As a result, we may experience difficulty accessing debt and equity capital on attractive terms, or at all, due to the severe disruption and instability in the global financial markets. In addition, our customers may terminate or amend their agreements for the purchase of our technology, products and services due to bankruptcy, lack of liquidity, lack of funding, operational failures or other reasons.

Revenues in in future years from our sales of CDX-616 to Pfizer are subject to a number of factors which are outside of our control and may not materialize.

Starting the first and second quarters of 2021, we began to receive purchase orders from Pfizer Inc. (“Pfizer”) for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary active pharmaceutical ingredient, nirmatrelvir. Pfizer markets, sells and distributes nirmatrelvir, in combination with the active pharmaceutical ingredient ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product, which received emergency use authorization (“EUA”) by the U.S. Food and Drug Administration (“FDA”) FDA approval in late 2021 May 2023 for the treatment of mild-to-moderate COVID-19 in adults and pediatric patients (12 years of age and older weighing at least 40 kg) with positive results of direct severe acute respiratory syndrome coronavirus 2 (“SARS-CoV-2”) viral testing, and who are at high risk for progression to severe COVID-19, including hospitalization or death.

The FDA has the authority to issue an EUA under certain circumstances, such as during a public health emergency, pursuant to a declaration by the Secretary of the Department of Health and Human Services (“HHS”), that an emergency exists justifying the issuance of EUAs for certain types of products (referred to as EUA declarations). On March 27, 2020, the Secretary of HHS declared that circumstances exist justifying authorization of drugs and biologics during the COVID-19 pandemic, subject to the terms of any EUA that is issued for a specific product. Once an EUA declaration has been issued, the FDA can issue EUAs for products that fall within the scope of that declaration. To issue an EUA, the FDA Commissioner must conclude that (1) the chemical, biological, radioactive or nuclear agent (“CBRN”) that is referred to in the EUA declaration can cause serious or life-threatening diseases or conditions; (2) based on the totality of scientific evidence available, it is reasonable to believe that the product may be effective in diagnosing, treating, or preventing the disease or condition attributable to the CBRN and that the product’s known and potential benefits outweigh its known and potential risks; and (3) there is no adequate, approved, and available alternative to the product. the authorization to market products under an EUA is limited to the period of time the EUA declaration is in effect, and the FDA can revoke an EUA in certain circumstances. The FDA’s policies regarding an EUA can change unexpectedly. We cannot predict how long Pfizer’s EUA will remain in place. The FDA’s policies regarding products used to diagnose, treat or mitigate COVID-19 remain in flux as the FDA responds to new and evolving public health information and clinical evidence. Therefore, it is possible that Pfizer’s EUA may be revoked, which could adversely affect our financial condition and results of operations.

Revenues in 2023 and Potential revenues in future years from our sales of CDX-616 to Pfizer and other potential customers (including sublicensees of Pfizer technology from The Medicines Patent Pool (the “MPP”)) are subject to a number of factors which are outside of our control, including, without limitation, the following, all of which could reduce or eliminate our sales of CDX-616, and therefore materially and adversely affect our business, results of operations and financial condition:

- Pfizer has no future binding commitment to purchase any particular quantity or quantities of CDX-616 from us, and we are dependent upon Pfizer continuing to place orders with us (whether on a spot basis or under a long term long-term agreement, when and if executed) for their requirements, if any, for CDX-616;
- to our knowledge, sublicensees of Pfizer technology from the MPP have no obligation to purchase CDX-616 from us under their sublicenses with the MPP;
- the EUA granted by the FDA for the use of PAXLOVID™ for the treatment of COVID-19 infections in humans could be withdrawn at any time;

- future vaccine development and usage and the development and usage of other new therapies for the treatment or elimination of COVID-19 may eliminate or reduce demand for PAXLOVID™;

- new variants of COVID-19 may emerge which PAXLOVID™ is not effective in treating;
- Pfizer may not ultimately receive full marketing authorization for PAXLOVID™ from the FDA and other international regulatory authorities;
- Pfizer could reformulate or make changes in the manufacturing process for nirmatrelvir which would eliminate or reduce demand for the use of CDX-616 in its manufacture;

- sublicensees of Pfizer technology for the manufacture, sale and distribution of PAXLOVID™ from the MPP may not utilize CDX-616 in the manufacture of nirmatrelvir;
- national and regional governmental authorities (including those of the United States government) may mandate that raw materials and intermediates used in the manufacture of PAXLOVID™ to be marketed, sold and distributed within the borders of that country be domestically produced, which could eliminate or reduce demand for the use of CDX-616 in such country; and
- we may be unable (because of lack of available manufacturing capacity at our contract manufacturers, supply chain disruptions or an inability to obtain applicable regulatory approvals) to manufacture the quantities of CDX-616 that Pfizer may desire to purchase from us.

We have investments in non-marketable securities, which may subject us to significant impairment charges.

We have investments in illiquid or non-marketable equity securities acquired in private transactions. At December 31, 2022 As of December 31, 2023, 8.2% 7.1% of our consolidated assets consisted of investment securities, which are illiquid investments. Investments in illiquid, or non-marketable, securities are inherently risky and difficult to value. We account for our non-marketable equity securities under the measurement alternative. Under the measurement alternative, the carrying value of our non-marketable equity investments is adjusted to fair value for observable transactions for identical or similar investments of the same issuer or impairment. We evaluate our investment in non-marketable securities when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an “other-than-temporary” decline in estimated fair value of the equity security compared to its carrying value. The impairment analysis requires significant judgment to identify events or circumstances that would likely have a material adverse effect on the fair value of the investment. Because over 5% of our total assets consisted of non-marketable investment securities, any future impairment charges from the write down in value of these securities could have a material adverse effect on our financial condition or results of operations.

Ethical, legal and social concerns about genetically engineered products and processes could limit or prevent the use of our technology, products and processes and limit our revenues.

Some of our technology, products and services, such as our ECO Synthesis™ manufacturing platform, are genetically engineered or involve the use of genetically engineered products or genetic engineering technologies. If we and/or our collaborators are not able to overcome the ethical, legal, and social concerns relating to genetic engineering, our technology, products and services may not be accepted. Any of the risks discussed below could result in increased expenses, delays, or other impediments to our programs or the public acceptance and commercialization of products and processes dependent on our technologies or inventions. Our ability to develop and commercialize one or more of our technologies, products, or processes could be limited by the following factors:

- public attitudes about the safety and environmental hazards of, and ethical concerns over, genetic research and genetically engineered products and processes, which could influence public acceptance of our technologies, products and processes;
- public attitudes regarding, and potential changes to laws governing ownership of, genetic material, which could harm our intellectual property rights with respect to our genetic material and and/or discourage collaborators from supporting, developing, or commercializing our technology, products and services; and
- governmental reaction to negative publicity concerning genetically modified organisms, which could result in greater government regulation of genetic research and derivative products.

The subject of genetically modified organisms has received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on imports of genetically altered products. The biocatalysts that we develop have significantly enhanced characteristics compared to those found in naturally occurring enzymes or microbes. While we produce our biocatalysts only for use in a controlled industrial environment, the release of such biocatalysts into uncontrolled environments could have unintended consequences. Any adverse effect resulting from such a release could have a material adverse effect on our business and financial condition, and we may have exposure damage our reputation, and/or expose us to liability for any resulting harm.

We have recently enhanced our strategic focus to concentrate on certain programs and business lines. As a result of this refined focus, we may fail to capitalize on other opportunities that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we have recently focused our efforts on developing certain programs and business lines. As a result, we may forego or delay pursuit of business opportunities that later prove to have greater commercial potential. Further our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. In addition, our spending on current and future research and development programs, such as ECO Synthesis™ manufacturing platform that is in development, may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular program or business line, our business and results of operations could be harmed.

Given our recent change in strategic direction, we may receive limited revenue or no future value from certain of our existing license agreements.

While we have historically invested significant time and financial resources in the development of biotherapeutics assets, including candidates for the treatment of Fabry disease and Pompe disease, which are included in the Takeda Agreement, in July 2023, we announced we are terminating investment in our biotherapeutics business and in other programs. As a result, we are renegotiating some of these, along with other license agreements for product candidates in our biotherapeutics, food and feed, and non-core life

science assets. For example, we entered into the Acquisition Agreement with Nestlé under which they acquired rights to our co-developed lipase enzyme CDX-7108 and we received an upfront payment and the right to downstream milestones and royalties, terminating our prior SCA and development agreement with Nestlé. While we are working to amend or terminate some of our agreements and enter into new agreements in such a way that we may be able to receive future revenue or other benefits, we may be unsuccessful in doing so. As a result, it remains uncertain as to whether we will receive any value or benefit from these license agreements going forward. Further, renegotiating these agreements may be costly and could divert management attention, which could have an adverse impact on our business and results of operations.

We use hazardous materials in our business and we must comply with environmental laws and regulations. Any claims relating to improper handling, storage or disposal of these materials or noncompliance of applicable laws and regulations could be time consuming and costly and could adversely affect our business and results of operations.

Our research and development and commercial processes involve the use of hazardous materials, including chemical, radioactive and biological materials. Our operations also produce hazardous waste. We cannot eliminate entirely the risk of accidental contamination or discharge and any resultant injury from these materials. Federal, state, local and foreign laws and regulations govern the use, manufacture, storage, handling and disposal of, and human exposure to, these materials. We may be sued face liability for any injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Although we believe that our activities comply in all material respects with environmental laws, there can be no assurance that violations of environmental, health and safety laws will not occur in the future as a result of human error, accident, equipment failure or other causes. Compliance with applicable environmental laws and regulations may be expensive, and the failure to comply with past, present or future laws could result in the imposition of fines, third party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production or a cessation of operations, and our liability may exceed our total assets. Liability under environmental laws can be joint and several and without regard to comparative fault. Environmental laws could become more stringent over time imposing greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business. In addition, we may have be required to indemnify some of our customers or suppliers for losses related to our failure to comply with environmental laws, which could expose us to significant liabilities.

Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended (the "Code"), a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating loss carryforwards ("NOLs"), to offset future taxable income. If the Internal Revenue Service challenges our analysis that our existing NOLs are not subject to limitations arising from previous ownership changes, our ability to utilize NOLs could be limited by Section 382 of the Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Code. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to utilize a material portion of the NOLs reflected in our financial statements, even if we attain profitability.

As a public reporting company, we are subject to rules and regulations established from time to time by the SEC and Nasdaq regarding our internal controls over financial reporting. We may not complete needed improvements to our internal controls over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our common stock and your investment.

We are subject to the rules and regulations established from time to time by the Securities and Exchange Commission, SEC and Nasdaq. These rules regulations require, among other things, that we establish and periodically evaluate procedures with respect to our internal controls over financial reporting. As part of these evaluations, material weaknesses in our internal controls over financial reporting may be identified. A material weakness is a deficiency, or a combination of deficiencies, in internal controls over financial reporting such that there is a reasonable possibility that a material misstatement of a company's annual or interim consolidated financial statements will not be prevented or detected on a timely basis. While we were able to remediate previously identified material weaknesses in our internal controls over financial reporting, there can be no guarantee we will not identify similar or other material weaknesses in the future and if such material weaknesses are identified, there can be no guarantee we would be able to remediate such material weaknesses. Any material weaknesses in our internal controls may adversely affect our ability to record, process, summarize and accurately report timely financial information and, as a result, our consolidated financial statements may contain material misstatements or omissions.

Reporting obligations as a public company place a considerable strain on our financial and management systems, processes and controls, as well as on our personnel. In addition, as a public company we are required to document and test our internal controls over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act so that our management can certify as to the effectiveness of our internal controls over financial reporting. Likewise, our independent registered public accounting firm is required to provide an attestation report on the effectiveness of our internal controls over financial reporting in our Annual Reports on Form 10-K. If our management is unable to certify the effectiveness of our internal controls or if our independent registered public accounting firm cannot deliver a report attesting to the effectiveness of our internal controls over financial reporting, or if we identify or fail to remediate material weaknesses in our internal controls, we could be subject to regulatory scrutiny and a loss of public confidence, which could seriously harm our reputation and the market price of our common stock. In addition, if we do not maintain adequate financial and management personnel, processes and controls, we may not be able to manage our business effectively or accurately report our financial performance on a timely basis, which could cause a decline in our common stock price and may seriously harm our business.

We may need additional capital in the future in order to expand our business.

Our future capital requirements may be substantial, particularly as we continue to develop our business. Although we believe that, based on our current level of operations, our existing cash, cash equivalents and equity securities will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months, we may need additional capital if our current plans and assumptions change. Our need for additional capital will depend on many factors, including the financial success of our performance enzyme business, our spending to develop and commercialize new and existing enzyme products and the amount of collaboration funding we may receive to help cover the cost of such expenditures, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, including the ongoing commercialization of our ECO Synthesis™ manufacturing platform, and the filing, prosecution, enforcement and defense of patent claims. If our capital resources are insufficient to meet our capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any enzyme products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies.

In addition, we may choose to raise additional capital due to market conditions or strategic considerations, such as funding the ongoing commercialization of our ECO Synthesis™ manufacturing platform, even if we believe we have sufficient funds for our current or future operating plans. We may seek to obtain such additional capital through equity offerings, including pursuant to the EDA, debt financings, credit facilities and/or strategic collaborations. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. In addition, under our Loan Agreement, we are subject to restrictive covenants that limit our ability to conduct our business and could be subject to additional covenants to the extent we seek other debt financing in the future. Strategic collaborations may also place restrictions on our business. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited. If this happens, we may be forced to delay or terminate research or development programs or the commercialization of products resulting from our technologies, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require us to relinquish commercial rights, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business.

Covenants and other provisions in our Loan Agreement with Innovatus restrict our business and operations in many ways, and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected. In addition, our operations may not provide sufficient cash to meet the repayment obligations of our debt incurred under the Loan Agreement.

Pursuant to the Loan Agreement, Innovatus has been granted a security interest in substantially all of our assets. If an event of default occurs under the Loan Agreement, Innovatus may foreclose on its security interest and liquidate some or all of these assets, which would harm our business, financial condition and results of operations.

In the event of a default in connection with our bankruptcy, insolvency, liquidation, or reorganization, Innovatus would have a prior right to substantially all of our assets to the exclusion of our general unsecured creditors. Only after satisfying the claims of Innovatus and any unsecured creditors would any amount be available for our equity holders.

The pledge of these assets and other restrictions imposed in the Loan Agreement may limit our flexibility in raising capital for other purposes. Because substantially all of our assets are pledged to secure the Loan Agreement obligations, our ability to incur additional indebtedness or to sell or dispose of assets to raise capital may be impaired, which could have an adverse effect on our financial flexibility.

In addition, if we are unable to comply with certain financial and operating restrictions in the Loan Agreement, we may be limited in our business activities and access to credit or may default under the Loan Agreement. Provisions in the Loan Agreement impose restrictions or require prior approval on our ability, and the ability of certain of our subsidiaries to, among other things:

- sell, lease or transfer certain parts of our business or property, including equity interests of our subsidiaries;
- engage in new lines of business;
- acquire new companies and merge or consolidate;
- incur additional debt or guarantee the indebtedness of others or our subsidiaries;
- create liens or encumbrances;
- pay cash dividends and make distributions or redeem or repurchase our capital stock;
- make certain investments;
- enter into transactions with affiliates; and
- terminate or, in certain cases, amend our material agreements.

The Loan Agreement also contains other customary covenants. We may not be able to comply with these covenants in the future. Our failure to comply with these covenants may result in the declaration of an event of default, which, if not cured or waived, may result in the acceleration of the maturity of indebtedness outstanding under the Loan Agreement and would require us to pay all amounts outstanding. If the maturity of our indebtedness is accelerated, we may not have sufficient funds then available for repayment or we may not have the ability to borrow or obtain sufficient funds to replace the accelerated indebtedness on terms acceptable to us or at all. Our failure to repay our obligations under the Loan Agreement would result in Innovatus foreclosing on all or a portion of our assets, which could force us to curtail or cease our operations.

If we engage in any acquisitions, we will incur a variety of costs and may potentially face numerous risks that could adversely affect our business and operations.

We have made acquisitions in the past, and if appropriate opportunities become available, we expect to acquire additional businesses, assets, technologies, or products to enhance our business in the future. For example, in October 2010, we acquired substantially all of the patents and other intellectual property rights associated with Maxygen's directed evolution technology.

In connection with any future acquisitions, we could:

- issue additional equity securities, which would dilute our current stockholders;
- incur substantial debt to fund the acquisitions;
- use our cash to fund the acquisitions; or
- assume significant liabilities including litigation risk.

Acquisitions involve numerous risks, including problems integrating the purchased operations, technologies or products, unanticipated costs and other liabilities, diversion of management's attention from our core businesses, adverse effects on existing business relationships with current and/or prospective collaborators, customers and/or suppliers, risks associated with entering markets in which we have no or limited prior experience and potential loss of key employees. We do not have extensive experience in managing the integration process and we may not be able to successfully integrate any businesses, assets, products, technologies or personnel that we might acquire in the future without a

significant expenditure of operating, financial and management resources, if at all. The integration process could divert management's time from focusing on operating our business, result in a decline in employee morale and cause retention issues to arise from changes in compensation, reporting relationships, future prospects or the direction of the business. Acquisitions may also require us to record goodwill and non-amortizable intangible assets that will be subject to impairment testing on a regular basis and potential periodic impairment charges, incur amortization expenses related to certain intangible assets, and incur large and immediate write offs and restructuring and other related expenses, all of which could harm our operating results and financial condition. In addition, we may acquire companies that have insufficient internal financial controls, which could impair our ability to integrate the acquired company and adversely impact our financial reporting. If we fail in our integration efforts with respect to any of our acquisitions and are unable to efficiently operate as a combined organization, our business and financial condition may be adversely affected.

COVID-19 has adversely affected, and any resurgence of COVID-19 pandemic or another global health epidemic may in the future, directly or indirectly, adversely affect our business, results of operations and financial condition.

COVID-19 has had a significant impact globally, prompting governments and businesses to take unprecedented measures in response. In the United States, COVID-19 has and may continue in the future to, directly or indirectly, adversely affect our business, results of operations and financial condition.

In the future, our business could be materially adversely affected, directly or indirectly, by the widespread outbreak of contagious disease, such as COVID-19 or any resurgence thereof. If national, state and local governments in affected regions implement safety precautions, similar to those implemented in response to COVID-19, including quarantines, border closures, increased border controls, travel restrictions, governmental orders and shutdowns, business closures, cancellations of public gatherings and other measures, such precautions could, and for COVID-19 did, disrupt normal business operations both in and outside of affected areas and could have significant negative impacts on businesses and financial markets worldwide.

The impact of COVID-19 has had, and any resurgence of the COVID-19 pandemic or another pandemic or public health crisis, could in the future have, significant repercussions across regional, national and global economies and financial markets, and could trigger a period of regional, national and global economic slowdown or regional, national or global recessions. The outbreak of COVID-19 in many countries adversely impacted regional, national and global economic activity and has continued to contribute to significant volatility and negative pressure in financial markets. As a result, we may experience difficulty accessing debt and equity capital on attractive terms, or at all, due to the severe disruption and instability in the global financial markets. In addition, our customers may terminate or amend their agreements for the purchase of our technology, products and services due to bankruptcy, lack of liquidity, lack of funding, operational failures or other reasons.

Risks Related to Government Regulation and Clinical Product Development

We or our customers may not be able to obtain regulatory approval for the use of our products in food and food ingredients, if required, and, even if approvals are obtained, complying on an ongoing basis with the numerous regulatory requirements applicable to these products will be time-consuming and costly.

The products that we develop for our food and food ingredient customers are, and any other products that we may develop for the food and food ingredients market will likely be, subject to regulation by various government agencies, including the FDA, state and local agencies and similar agencies outside the United States, as well as religious compliance certifying organizations. Food ingredients are regulated by the FDA either as food additives or as substances generally recognized as safe ("GRAS"). A substance can be listed or affirmed as GRAS by the FDA or self-affirmed by its manufacturer upon determination that independent qualified experts would generally agree that the substance is GRAS for a particular use. While we generally self-affirm GRAS status for the ingredients used in the products that we develop for the food market, our customer(s) may be required to submit a GRAS notification to FDA to establish that ingredients in a final commercial product may be considered GRAS. There can be no assurance that our customer(s) will not receive any objections from the FDA with respect to any GRAS notification our customer(s) may submit. If the FDA were to disagree with our customer's determination that their commercial product and/or its ingredients are GRAS or otherwise compliant, the FDA could ask such customer to voluntarily withdraw the final commercial product from the market or could initiate legal action to halt its sale. Such actions by the FDA could have an adverse effect on our business, financial condition, and results of our operations. Food ingredients that are not GRAS are regulated as food additives and require FDA approval prior to commercialization or must be the subject of an existing food additive regulation. The food additive petition process for ingredients that are not already authorized by regulation is generally expensive and time consuming, with approval, if secured, potentially taking years.

Our ongoing efforts to deploy our technology in the life science tools markets may fail.

We have recently begun to use used our CodeEvolver® protein engineering directed evolution technology platform to develop new products for customers using NGS and PCR/qPCR for *in vitro* molecular diagnostic applications. while While we have entered into some license agreements for products in this market, we do not know if we can successfully compete in this new market. This new market is well established and consists of numerous large, well-funded entrenched market participants who have long and established track records and customer relationships. In December 2019, we licensed our first proprietary enzyme for this market, EvoT4™ DNA

We have also developed a newly engineered ligase which is designed to improve library preparation for NGS users, to Roche. This enzyme, address sequencing challenges. These enzymes, and any additional products that we may develop in the future for this market, may not succeed in displacing current products. If we succeed in commercializing new products for this market, we may not generate significant revenues and cash flows from these activities. The failure to successfully deploy products on a timely basis in this space may limit our growth and have a material adverse effect on our financial condition, operating results and business prospects.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

We and any collaborators are not permitted to commercialize, market, promote or sell any product candidate in the United States without obtaining marketing approval from the FDA. Foreign regulatory authorities impose similar requirements. The time required to obtain approval by the FDA and comparable foreign authorities is unpredictable, but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including substantial discretion of the regulatory authorities. In addition, approval policies, regulations or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We and any collaborators must complete additional preclinical or nonclinical studies and clinical trials to demonstrate the safety, purity and potency (or efficacy) of our product candidates in humans to the satisfaction of the regulatory authorities before we will be able to obtain these approvals. Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our or our collaborators' clinical trials;

- we or our collaborators may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for its proposed indication;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we or our collaborators may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our or our collaborators' interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of product candidates may not be sufficient to support the submission of a BLA to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we or our collaborators contract for clinical and commercial supplies;
- the FDA or comparable foreign regulatory authorities may fail to approve the companion diagnostics we contemplate developing with collaborators; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our or our collaborators' clinical data insufficient for approval.

This lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, results of operations and prospects. In addition, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may impose significant limitations in the form of narrow indications, warnings, or a REMS. Regulatory authorities may not approve the price we or our collaborators intend to charge for products we may develop, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

Clinical trials are difficult to design and implement, expensive, time-consuming and involve an uncertain outcome, and the inability to successfully conduct clinical trials and obtain regulatory approval for our product candidates would substantially harm our business.

Clinical testing is expensive and usually takes many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process, and product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. We do not know whether planned clinical trials will begin on time, need to be redesigned, recruit and enroll patients on time or be completed on schedule, or at all. Clinical trials can be delayed, suspended or terminated for a variety of reasons, including in connection with:

- the inability to generate sufficient preclinical, toxicology or other *in vivo* or *in vitro* data to support the initiation of clinical trials;
- applicable regulatory authorities disagreeing as to the design or implementation of the clinical trials;
- obtaining regulatory authorization to commence a trial;
- reaching an agreement on acceptable terms with prospective contract research organizations ("CROs"), and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- obtaining IRB approval at each site;
- developing and validating the companion diagnostic to be used in a clinical trial, if applicable;
- insufficient or inadequate supply or quality of product candidates or other materials necessary for use in clinical trials, or delays in sufficiently developing, characterizing or controlling a manufacturing process suitable for clinical trials;
- recruiting and retaining enough suitable patients to participate in a trial;
- having enough patients complete a trial or return for post-treatment follow-up;
- adding a sufficient number of clinical trial sites;
- inspections of clinical trial sites or operations by applicable regulatory authorities, or the imposition of a clinical hold;
- clinical sites deviating from trial protocol or dropping out of a trial;
- the inability to demonstrate the efficacy and benefits of a product candidate;
- discovering that product candidates have unforeseen safety issues, undesirable side effects or other unexpected characteristics;
- addressing patient safety concerns that arise during the course of a trial; receiving untimely or unfavorable feedback from applicable regulatory authorities regarding the trial or requests from regulatory authorities to modify the design of a trial;
- non-compliance with applicable regulatory requirements by us or third parties or changes in such regulations or administrative actions;
- suspensions or terminations by IRBs of the institutions at which such trials are being conducted, by the Data Safety Monitoring Board for such trial or by the FDA or other regulatory authorities due to a number of factors, including those described above;
- third parties being unable or unwilling to satisfy their contractual obligations to us; or
- changes in our financial priorities, greater than anticipated costs of completing a trial or our inability to continue funding the trial.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. Additionally, we or our collaborators may experience unforeseen events during or resulting from clinical trials that could delay or prevent receipt of marketing approval for or commercialization of product candidates. For example, clinical trials of product candidates may produce negative, inconsistent or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon development programs. Regulators may also revise the requirements for approving the product candidates, or such requirements may not be as we anticipate. If we or our collaborators are required to conduct additional clinical trials or other testing of product candidates

beyond those that we or our collaborators currently contemplate, if we or our collaborators are unable to successfully complete clinical trials or other testing of such product candidates, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- incur unplanned costs;
- be delayed in obtaining or fail to obtain marketing approval for product candidates;
- obtain marketing approval in some countries and not in others;
- obtain marketing approval for indications or patient populations that are not as broad as intended or desired;
- obtain marketing approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to additional post-marketing testing requirements;
- be subject to changes in the way the product is administered;
- have regulatory authorities withdraw or suspend their approval of the product or impose restrictions on its distribution;
- be sued; or
- experience damage to our reputation.

If we or our collaborators experience delays in the commencement or completion of our clinical trials, or if we or our collaborators terminate a clinical trial prior to completion, we may experience increased costs, have difficulty raising capital and/or be required to slow down the development and approval process timelines. Furthermore, the product candidates that are the subject of such trials may never receive regulatory approval, and their commercial prospects and our ability to generate product revenues from them could be impaired or not realized at all.

Results of preclinical studies and early clinical trials of product candidates may not be predictive of results of later studies or trials. Our product candidates may not have favorable results in later clinical trials, if any, or receive regulatory approval.

Preclinical and clinical drug development is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the drug development process. Despite promising preclinical or clinical results, any product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates in our industry is high. The results from preclinical studies or early clinical trials of a product candidate may not be predictive of the results from later preclinical studies or clinical trials, and interim results of a clinical trial are not necessarily indicative of final results. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy characteristics despite having progressed through preclinical studies and initial clinical trials.

Many companies in the biopharmaceutical and biotechnology industries have suffered significant setbacks at later stages of development after achieving positive results in early stages of development, and we may face similar setbacks. These setbacks have been caused by, among other things, preclinical findings made while clinical trials were underway or safety or efficacy observations made in clinical trials, including previously unreported adverse events. Moreover, non-clinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain regulatory approval. Even if any product candidates progress to clinical trials, these product candidates may fail to show the safety and efficacy in clinical development required to obtain regulatory approval, despite the observation of positive results in animal studies. Our or our collaborators' failure to replicate positive results from early research programs and preclinical or greenhouse studies may prevent us from further developing and commercializing those or other product candidates, which would limit our potential to generate revenues from them and harm our business and prospects.

For the foregoing reasons, we cannot be certain that any ongoing or future preclinical studies or clinical trials will be successful. Any safety or efficacy concerns observed in any one of our preclinical studies or clinical trials in a targeted area could limit the prospects for regulatory approval of product candidates in that and other areas, which could have a material adverse effect on our business and prospects.

We may not be able to maintain orphan drug designations for certain of our product candidates, and may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.

Regulatory authorities in some jurisdictions, including the U.S. and Europe, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act of 1983, the FDA may designate a product candidate as an orphan product if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the U.S., or a patient population of greater than 200,000 individuals in the U.S., but for which there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the U.S. The FDA has granted orphan drug designation to CDX-6512 for the treatment of HCU and to CDX-6210 for the treatment of Maple Syrup Urine Disease (MSUD).

In the U.S., orphan designation entitles a party to financial incentives such as opportunities for grant funding for clinical trial costs, tax advantages and user-fee waivers. In addition, if a product candidate that has orphan designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including a BLA, to market the same drug for the same disease or condition for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity or where the manufacturer is unable to assure sufficient product quantity.

Even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same disease condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug for the same disease condition if such regulatory authority concludes that the later drug is clinically superior if it is shown to be safer, more effective our customers, future customers or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process.

We have obtained rare pediatric disease designation for CDX-6512 and CDX-6120, however, there is no guarantee that such designation will result in approval of CDX-6512 or CDX-6210, and even if we obtain approval of CDX-6512 or CDX-6210 for the indications for which we have been awarded rare pediatric disease designation, there is no guarantee that such approval will result in an aware of a rare pediatric disease priority review voucher.

In 2012, Congress authorized the FDA to award priority review vouchers to sponsors of certain rare pediatric disease product applications. This program is designed to encourage development of new drug and biological products for the prevention and treatment of certain rare pediatric diseases. Specifically, under this program, a sponsor who

receives an approval for a drug or biologic for a “rare pediatric disease” that meets certain criteria may qualify for a voucher that can be redeemed to receive a priority review of a subsequent marketing application for a different product, even if that subsequent marketing application would not otherwise qualify for priority review on its own. The sponsor of a rare pediatric disease product receiving a priority review voucher may transfer (including by sale) the voucher to another sponsor. The voucher may be further transferred any number of times before the voucher is used, as long as the sponsor making the transfer has not yet submitted the application. The FDA may also revoke any priority review voucher if the rare pediatric disease drug for which the voucher was awarded is not marketed in the U.S. within one year following the date of approval.

We have obtained rare pediatric disease designation for CDX-6512 for the treatment of HCU and for CDX-6210 for the treatment of MSUD. Even though we have obtained rare pediatric disease designations, there is no guarantee that we will be able to obtain a priority review voucher, even if CDX-6512 and/or CDX-6210 are approved by the FDA. Moreover, Congress included a sunset provision in the statute authorizing the rare pediatric disease priority review voucher program. On December 27, 2020, the Rare Pediatric Disease Priority Review Voucher Program was extended, and under the current statutory sunset provisions, after September 30, 2024, FDA may only award a voucher for an approved rare pediatric disease product application if the sponsor has rare pediatric disease designation for the drug, and that designation was granted by September 30, 2024. After September 30, 2026, FDA may not award any rare pediatric disease priority review vouchers (unless Congress amends the law to extend the program further).

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain, or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved, or commercialized in a timely manner, or at all, which could negatively impact our business.

The ability of the FDA and other government agencies to review and approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory and policy changes, a government agency's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the government agency's ability to perform routine functions. Average review times at the FDA and other government agencies have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies may also slow the time necessary for new drugs and biologics or modifications to approved drugs or biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, the United States government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities.

Separately, in response to the COVID-19 pandemic, the FDA postponed most inspections of domestic and foreign manufacturing facilities at various points. Even though the FDA has since resumed standard inspection operations of domestic facilities where feasible, the FDA has continued to monitor and implement changes to its inspectional activities to ensure the safety of its employees and those of the firms it regulates as it adapts to the evolving COVID-19 pandemic, and any resurgence of the virus or emergence of new variants may lead to further inspectional delays. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to hinder or prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Even if we collaborators obtain regulatory approval for any products that we develop alone or with collaborators, utilizing our enzymes, such products will remain subject to ongoing regulatory requirements, which may result in significant additional expense.

Even if Any products we develop alone or with collaborators receive regulatory that receives FDA approval they will be remain subject to ongoing regulatory requirements for manufacturing, labeling, packaging, distribution, storage, advertising, promotion, sampling, record-keeping and submission of safety and other post-market information, among other things. Any regulatory approvals received for such products may also be subject to limitations on the approved indicated uses for which they may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing and surveillance studies. For example, the holder of an approved NDA or BLA in the United States is obligated to monitor and report adverse events and any failure of a product to meet the specifications in the NDA or BLA. In the United States, the holder of an approved NDA or BLA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling or manufacturing process. Similar provisions apply in the European Union (the “EU”). Advertising and promotional materials must comply with FDA rules and are subject to FDA review, in addition to other potentially applicable federal and state laws. Similarly, in the EU any promotion of medicinal products is highly regulated and, depending on the specific jurisdiction involved, may require prior vetting by the competent national regulatory authority. In addition, product manufacturers and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements and adherence to commitments made in the NDA, BLA or foreign marketing application.

If we, our customers, future customers or our collaborators or a regulatory agency discovers previously unknown problems with a product such as adverse events of unanticipated severity or frequency or problems with the facility where the product is manufactured or disagrees with the promotion, marketing or labeling of that product, a regulatory agency may impose restrictions relative to that product, the manufacturing facility or us our customers or our collaborators, including requiring recall or withdrawal of the product from the market or suspension of manufacturing.

Moreover, In addition, if any of our product candidates are approved, our product labeling, advertising, promotion and distribution will be subject to regulatory requirements and continuing regulatory review. The FDA strictly regulates the promotional claims that may be made about drug products. In particular, a product may not be promoted for uses that are not approved by the FDA as reflected in the product's approved labeling. If we customers or our collaborators fail to comply with applicable regulatory requirements, following approval of any potential products we may develop, the FDA and other regulatory authorities may:

- issue an untitled enforcement letter or a warning letter asserting a violation of the law;
- seek an injunction, impose civil and or criminal penalties, and impose monetary fines, restitution or disgorgement of profits or revenues;
- suspend or withdraw regulatory approval;
- issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- mandate modification of promotional materials and labeling and issuance of corrective information;

- issue consent decrees or corporate integrity agreements, or debar or exclude from federal healthcare programs;
- suspend or terminate any ongoing clinical trials or implement requirements to conduct post-marketing studies or clinical trials;
- refuse to approve a pending NDA, BLA or comparable foreign marketing application (or any supplements thereto) submitted by us or our collaborators; ;
- restrict the labeling, marketing, distribution, use or manufacturing of products;
- seize or detain products or otherwise require the withdrawal or recall of products from the market;
- refuse to approve pending applications or supplements to approved applications that we or our collaborators submit; applications;
- refuse to permit the import or export of products; or
- refuse to allow us or our collaborators to enter into government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may also inhibit our customers or our collaborators' ability to commercialize products and our ability to generate revenues.

In addition, the FDA's policies, and policies of foreign regulatory agencies, may change, and additional regulations may be enacted that could prevent, limit or delay regulatory approval of product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action and we may not achieve or sustain profitability.

Our If we or our customers fail to comply with certain healthcare laws, including fraud and abuse laws, we could face substantial penalties and our business, results of operations, financial condition and future relationships with investigators, prospects could be adversely affected.

The healthcare professionals, consultants, third-party payors, patient organizations industry is highly regulated. We, and our customers, will be are subject to applicable healthcare various local, state, federal, national, and international laws and regulations, which include laws and regulations promulgated by the FDA, HHS, state boards of pharmacy, state health departments, and similar regulatory laws, which could expose us to penalties.

Our bodies in other countries. Additionally, our business operations and future arrangements with investigators, healthcare professionals, and consultants, third-party payors, patient organizations and customers, among others, may expose us and our customers to broadly applicable fraud and abuse and other healthcare laws and regulations. regulations, including, without limitation, the federal Anti-Kickback Statute, the federal civil False Claims Act, the federal Civil Monetary Penalties Law, and analogous state laws. These laws may constrain the business or financial arrangements and relationships through which we will conduct our operations, including how we research, market, sell and distribute our product candidates, if approved. Such laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe, or certain rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of, any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge operations. Because of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal false claims laws, including the civil False Claims Act, which, among other things, impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. In addition, the government may assert that a claim including items and services resulting from a violation breadth of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- the U.S. federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services; similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to the government information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain non-physician practitioners such as physician assistants and nurse practitioners, and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members; and
- analogous U.S. state these laws and regulations, including: state anti-kickback narrowness of available statutory and false claims laws, which may apply to our future business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It regulatory exceptions, it is possible that governmental authorities will conclude some of our business activities could be regulated by or subject to challenge under one or more of such laws. We cannot ensure that our business practices do not comply with current compliance controls, policies, and procedures will in every instance protect us from acts of our employees, agents, contractors, or future statutes, regulations, agency guidance collaborators that turn out to violate any of the laws described above. If we or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil criminal and administrative criminal penalties, damages, fines, exclusion from

government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, disgorgement, individual imprisonment contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations.

The successful commercialization operations, any of product candidates developed by us or our partners will depend in part on the extent to which governmental authorities and health insurers establish adequate coverage, reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for such product candidates, if approved, could limit our or our partners' ability to market those products and decrease materially adversely affect our ability to generate revenue. operate our business and our financial results.

The availability

Ongoing healthcare legislative and adequacy of coverage and reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford prescription medications such as our product candidates, assuming FDA approval. Our ability to achieve acceptable levels of coverage and reimbursement for products by governmental authorities, private health insurers and other organizations will regulatory reform measures may have an a material adverse effect on our ability to successfully commercialize our product candidates. Assuming we obtain coverage for our product candidates by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. We cannot be sure that coverage business and reimbursement in the United States, the EU or elsewhere will be available for our product candidates or any product that we may develop, and any reimbursement that may become available may be decreased or eliminated in the future.

Third-party payors increasingly are challenging prices charged for pharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs or biologics when an equivalent generic drug, biosimilar or a less expensive therapy is available. It is possible that a third-party payor may consider our product candidates as substitutable and only offer to reimburse patients for the less expensive product. Even if we show improved efficacy or improved convenience results of administration with our product candidates, pricing of existing third-party therapeutics may limit the amount we will be able to charge for our product candidates. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in our product candidates. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our product candidates, and may not be able to obtain a satisfactory financial return on our product candidates.

No uniform policy for coverage and reimbursement for products exists among third-party payors in the United States. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Furthermore, rules and regulations regarding reimbursement change frequently, in some cases on short notice, and we believe that changes in these rules and regulations are likely.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other countries have and will continue to put pressure on the pricing and usage of our product candidates. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our product candidates may be reduced compared with the United States and may be insufficient to generate commercially-reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates. We expect to experience pricing pressures in connection with the sale of our product candidates due to the trend toward managed health care, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and biologics and surgical procedures and other treatments, has become intense. As a result, increasingly high barriers are being erected to the entry of new products.

Recently enacted legislation, future legislation and healthcare reform measures may increase the difficulty and cost for our partners to obtain marketing approval for and commercialize product candidates developed by us. operations.

In the United States, and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative initiatives to contain healthcare costs. Some of these initiatives, such as ongoing healthcare reform, including with respect to reforming drug pricing, adverse changes in governmental or private funding of healthcare products and regulatory changes services, legislation or regulations governing patient access to care, and the healthcare system, including cost-containment measures that may reduce or limit delivery, coverage, pricing, and reimbursement for newly approved drugs of pharmaceuticals and affect healthcare services may cause our ability customers to profitably sell any product candidates for which we develop and change the amount of our partners obtain marketing approval. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels offerings that seek to reduce healthcare costs and improve the quality of healthcare.

For example, in March 2010, the Affordable Care Act (the "ACA") was enacted in the United States. The ACA established an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents; extended manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; expanded eligibility criteria for Medicaid programs; expanded the entities eligible for discounts under the 340B drug pricing program; increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program; established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research; and establishes a Center for Medicare & Medicaid Innovation at the Centers for Medicare & Medicaid Services to test innovative payment and service delivery models to lower Medicare and Medicaid spending.

Since its enactment, there have been executive, judicial and Congressional challenges to certain aspects of the ACA, and on June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA. Prior to the Supreme Court's decision, President Biden had issued an executive order to initiate a special enrollment period they purchase from February 15, 2021 through August 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that

create unnecessary barriers to obtaining access to health insurance coverage through Medicaid us or the ACA. It is unclear how the price they are willing to pay us for these offerings. If cost-containment efforts or other healthcare reform measures will impact limit our business.

In addition, other legislative changes have been proposed customers' profitability, they may decrease research and adopted since development spending, which could decrease the ACA was enacted. In March 2021, the American Rescue Plan Act of 2021 was signed into law, which eliminates the statutory cap on the Medicaid drug rebate, currently set at 100% of a drug's average manufacturer price, beginning January 1, 2024. Further, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs. Such scrutiny has resulted in several recent congressional inquiries demand for our products and proposed services and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient assistance programs, and reform government program reimbursement methodologies for products. Most recently, the Inflation Reduction Act of 2022 (the "IRA"), included a number of significant drug pricing reforms, which include the establishment of a drug price negotiation program within the U.S. Department of Health and Human Services ("HHS") (beginning in 2026) that requires manufacturers to charge a negotiated "maximum fair price" for certain selected drugs or pay an excise tax for noncompliance, the establishment of rebate payment requirements on manufacturers under Medicare Parts B and D to penalize price increases that outpace inflation (first due in 2023), and a redesign of the Part D benefit, as part of which manufacturers are required to provide discounts on Part D drugs (beginning in 2025). The IRA permits the HHS Secretary to implement many materially adversely affect our growth prospects. Any of these provisions through guidance, as opposed to regulation, for the initial years. Additional drug pricing proposals could appear in future legislation. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions factors could harm our customers' businesses, which, in turn, could materially adversely affect our business, financial condition, results of operations, cash flows, and prospects.

We cannot predict the likelihood, nature, or extent of other health reform initiatives that may arise from future legislative, administrative, or other action. Any substantial revision of applicable healthcare legislation could have a material adverse effect on the demand for our customers' products, which in turn could have a negative impact on our results of operations, financial condition, and prospects. In addition, regional or business. Changes in the healthcare authorities industry's pricing, selling, inventory, distribution, or supply policies or practices, or in public or government sentiment for the industry as a whole, could also significantly reduce our revenue and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for any product candidate we develop, if approved, or put pressure on our product pricing, which could negatively affect our business, results of operations, financial condition and prospects.

We expect that these new laws and other healthcare reform measures that may be adopted in the future may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize any product candidates we develop, if approved. operations.

Compliance with European Union chemical regulations could be costly and adversely affect our business and results of operations.

Some of our products are subject to the EU regulatory regime known as The Registration, Evaluation and Authorization of Chemicals ("REACH"). REACH mandates that certain chemicals manufactured in, or imported into, the EU be registered and evaluated for their potential effects on human health and the environment. Under REACH, we and our contract manufacturers located in the EU are required to register certain of our products based on the quantity of such product imported into or manufactured in the EU and on the product's intended end-use. The registration, evaluation and authorization process under REACH can be costly and time consuming. Problems or delays in the registration, evaluation or authorization process under REACH could delay or prevent the manufacture of some of our products in, or the importation of some of our products into, the EU, which could adversely affect our business and results of operations. In addition, if we or our contract manufacturers fail to comply with REACH, we may be subject to penalties or other enforcement actions, which could have a material adverse effect on our business and results of operations.

Risks Related to our Dependence on Third Parties

We rely on third parties to conduct our clinical trials and perform some of our research and preclinical studies. If these third parties do not satisfactorily carry out their contractual duties or fail to meet expected deadlines, our development programs may be delayed or subject to increased costs, each of which may have an adverse effect on our business and prospects.

We do not have the ability to conduct all aspects of our preclinical testing or clinical trials ourselves. As a result, we are and expect to remain dependent on third parties to conduct clinical trials of our product candidates. Specifically, we expect CROs, clinical investigators, and consultants to play a significant role in the conduct of these trials and the subsequent collection and analysis of data. However, we will not be able to control all aspects of their activities. Nevertheless, we are responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on the CROs and other third parties does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, clinical trial investigators and clinical trial sites. If we or any of our CROs or clinical trial sites fail to comply with applicable GCP requirements, the data generated in our clinical trials may be deemed unreliable, and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. In addition, our clinical trials must be conducted with product produced under cGMP regulations. Our failure to comply with these regulations may require us to stop and/or repeat clinical trials, which would delay the marketing approval process.

There is no guarantee that any such CROs, clinical trial investigators or other third parties on which we rely will devote adequate time and resources to our development activities or perform as contractually required. If any of these third parties fail to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, otherwise performs in a substandard manner, or terminates its engagement with us, the timelines for our development programs may be extended or delayed or our development activities may be suspended or terminated. If any of our clinical trial sites terminates for any reason, we may experience the loss of follow-up information on subjects enrolled in such clinical trials unless we are able to transfer those subjects to another qualified clinical trial site, which may be difficult or impossible. In addition, clinical trial investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA or comparable foreign regulatory authorities concludes that the financial relationship may have affected the interpretation of the trial, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be

jeopardized, which could result in the delay or rejection of any marketing application we submit by the FDA or any comparable foreign regulatory authority. Any such delay or rejection could prevent us from commercializing our product candidates.

We contract with third parties for the manufacturing and supply of product candidates for use in preclinical testing and clinical trials and related services, which supply may become limited or interrupted or may not be of satisfactory quality and quantity.

We do not have any manufacturing facilities. We produce in our laboratory relatively small quantities of products for evaluation in our research programs. We rely, and expect to continue to rely, on third parties for the manufacture of our product candidates for preclinical and clinical testing, as well as for commercial manufacture if any of our product candidates are approved. We currently have limited manufacturing arrangements and expect that each of our product candidates will only be covered by single source suppliers for the foreseeable future. This reliance increases the risk that we will not have sufficient quantities of our product candidates or products, if approved, or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

Furthermore, all entities involved in the preparation of therapeutics for clinical trials or commercial sale, including our existing contract manufacturers for our product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in clinical trials must be manufactured in accordance with cGMP requirements. These regulations govern manufacturing processes and procedures, including record keeping, and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of contaminants, or to inadvertent changes in the properties or stability of our product candidates that may not be detectable in final product testing. We or our contract manufacturers must supply all necessary documentation in support of a BLA on a timely basis and must adhere to the FDA's cGMP regulations enforced by the FDA through its facilities inspection program. Comparable foreign regulatory authorities may require compliance with similar requirements. The facilities and quality systems of our third-party contractor manufacturers must pass a pre-approval inspection for compliance with the applicable regulations as a condition of marketing approval of our product candidates. We do not control the manufacturing activities of, and are completely dependent on, our contract manufacturers for compliance with cGMP regulations.

In the event that any of our manufacturers fails to comply with such requirements or to perform its obligations to us in relation to quality, timing or otherwise, or if our supply of components or other materials becomes limited or interrupted for other reasons, we may be forced to manufacture the materials ourselves, for which we currently do not have the capabilities or resources, or enter into an agreement with another third party, which we may not be able to do on commercially reasonable terms, if at all. In particular, any replacement of our manufacturers could require significant effort and expertise because there may be a limited number of qualified replacements. In some cases, the technical skills or technology required to manufacture our product candidates may be unique or proprietary to the original manufacturer and we may have difficulty transferring such skills or technology to another third party and a feasible alternative may not exist. In addition, certain of our product candidates and our own proprietary methods have never been produced or implemented outside of our company, and we may therefore experience delays to our development programs if and when we attempt to establish new third party manufacturing arrangements for these product candidates or methods. These factors would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another third party manufacture our product candidates. If we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget.

Our or a third party's failure to execute on our manufacturing requirements, do so on commercially reasonable terms and comply with cGMP could adversely affect our business in a number of ways, including:

- an inability to initiate or continue clinical trials of our product candidates under development;
- delay in submitting regulatory applications, or receiving marketing approvals, for our product candidates;
- loss of the cooperation of future collaborators;
- subjecting third-party manufacturing facilities or our manufacturing facilities to additional inspections by regulatory authorities;
- requirements to cease development or to recall batches of our product candidates; and
- in the event of approval to market and commercialize our product candidates, an inability to meet commercial demands for our product or any other future product candidates.

Risks Related to Intellectual Property and Information Technology

Our efforts to prosecute, maintain, protect and/or defend our intellectual property rights may not be successful.

We will continue to file and prosecute patent applications and maintain trade secrets in an ongoing effort to protect our intellectual property rights. It is possible that our current patents, or patents which we may later acquire, may be successfully challenged or invalidated, in whole or in part. It is also possible that we may not obtain issued patents from our pending patent applications. We sometimes permit certain patents or patent applications to lapse or go abandoned under appropriate circumstances. Due to uncertainties inherent in prosecuting patent applications, sometimes patent applications are rejected, and we subsequently abandon them. It is also possible that we may develop proprietary technology, products or services in the future that are not patentable or that the patents of others will limit or altogether preclude our ability to conduct business. In addition, any patent issued to us or to our licensor may provide us with little or no competitive advantage, in which case we may abandon such patent, or license it to another entity or terminate the license agreement.

Our means of protecting our proprietary rights may not be adequate and our competitors may independently develop technologies, products or services that are identical or similar to ours or that compete with ours. Patent, trademark, copyright and trade secret laws afford only limited protection for our technology, products and services . The laws of many countries do not protect our proprietary rights to as great of an extent as do the laws of the United States. Despite our efforts to protect our proprietary rights, unauthorized parties have in the past attempted, and may in the future attempt, to operate under the aspects of our intellectual property rights, or proprietary technology, products or services or products, or to obtain and use information that we regard as proprietary. Third parties may also design around our proprietary rights, which may render our protected technology, services and products less valuable, if the design around is favorably received in the marketplace. In addition, if any of our technology, products and services is are covered by third-party patents or other intellectual property rights, we could be subject to various legal actions. We cannot assure that our technology products and/or services do not infringe, violate or misappropriate any patents or other intellectual property rights owned or controlled by others or that they will not in the future.

Litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement, invalidity, misappropriation, or other claims.

Any such litigation could result in substantial costs and diversion of our resources. Moreover, any settlement of or adverse judgment resulting from litigation relating to intellectual property rights could require us to obtain a license to continue to make, use, import, sell or offer for sale the technology, products or services that is the subject of the claim, or otherwise restrict or prohibit our use of the technology, products or services.

Our ability to compete may decline if we do not adequately prosecute, maintain, protect and/or defend our proprietary technology, products or services or our intellectual property rights.

Our success depends in part on our ability to obtain patents and maintain adequate protection of our intellectual property rights directed to our technology, products and services in the United States and other countries. We have adopted a strategy of seeking patent protection in the United States and in foreign countries with respect to certain of the technology used in or relating to our products, services, and processes. As such, as of December 31, 2022 December 31, 2023, we owned or controlled approximately 2,090 1,990 active issued patents and pending patent applications in the United States and in various foreign jurisdictions. Our As of December 31, 2023, our patents and patent applications, if issued, as of December 31, 2022, have terms that expire between 2023 2024 and approximately 2043. 2044. We also have license rights to a number of issued patents and pending patent applications in the United States and in various foreign jurisdictions. Our owned and licensed patents and patent applications include those directed to our enabling technology and to the methods and products that support our business in the biotherapeutics, pharma pharmaceutical manufacturing, life sciences, food oligonucleotide synthesis, and other markets. We intend to continue to apply for patents relating to our technology, methods, services and products as we deem appropriate.

Issuance of claims in patent applications and enforceability of such claims once issued involve complex legal and factual questions and, therefore, we cannot predict with any certainty whether any of our issued patents will survive invalidity claims asserted by third parties. Issued patents and patents issuing from pending applications may be challenged, invalidated, circumvented, rendered unenforceable or substantially narrowed in scope. In addition, the inventorship and ownership of the patents and patent applications may be challenged by others. Moreover, the United States Leahy-Smith America Invents Act ("AIA"), enacted in September 2011, brought significant changes to the United States patent system, which include a change to a "first to file" system from a "first to invent" system and changes to the procedures for challenging issued patents and disputing patent applications during the examination process, among other things. While interference proceedings are possible for patent claims filed prior to March 16, 2013, many of our filings will be subject to the post- and pre-grant proceedings set forth in the AIA, including citation of prior art and written statements by third parties, third party pre-issuance submissions, ex parte reexamination, inter partes review, post-grant review, and derivation proceedings. We may need to utilize the processes provided by the AIA for supplemental examination or patent reissuance. These proceedings could result in substantial cost to us even if the outcome is favorable. Even if successful, any proceeding may result in loss of certain claims. Any litigation or proceedings could divert our management's time and efforts. Even unsuccessful claims brought by third parties could result in significant legal fees and other expenses, diversion of management time, and disruption in our business. Uncertainties resulting from initiation and continuation of any patent or related litigation could harm our ability to compete.

Additional uncertainty may result from legal precedent handed down by the United States Federal Circuit Court and Supreme Court as they determine legal issues concerning the scope and construction of patent claims and inconsistent interpretation of patent laws by the lower courts. Accordingly, we cannot ensure that any of our pending patent applications will result in issued patents, or even if issued, predict the breadth of the claims upheld in our, our licensors', and other companies' patents. Given that the degree of future protection for our proprietary rights is uncertain, we cannot ensure that: (i) we or our licensors were the first to invent the inventions covered by each of our pending applications, (ii) we or our licensors were the first to file patent applications for these inventions, or (iii) the proprietary technology, products or services we develop will be patentable. In addition, unauthorized parties may attempt to copy or otherwise obtain and use our technology, products and services. Monitoring unauthorized use of our intellectual property rights is difficult, and we cannot be certain that the steps we have taken will prevent unauthorized use of our technology, products or services, particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the United States. Moreover, third parties could practice our inventions in territories where we do not have patent protection. Such third parties may then try to import products made using our inventions into the United States or other countries. If competitors are able to use our proprietary technology, products or services, our ability to compete effectively could be harmed. In addition, others may independently develop and obtain patents for technologies, products or services that are similar to or superior to our technologies, products or services. If that happens, we may need to license these technologies, products or services, and we may not be able to obtain licenses on reasonable terms, if at all, which could cause harm to our business.

Similarly, foreign courts have made, and will likely continue to make, changes in how the patent laws in their respective jurisdictions are interpreted. Changes in patent laws and regulations in other countries or jurisdictions, changes in the governmental bodies that enforce them, or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we own or may obtain in the future. For example, in some cases, we have filed for unitary patent protection under the rules implemented on June 1, 2023, in the European Patent Office. We will continue to assess this route of protection on a case-by-case basis, as applications are filed and patents are granted through the European Patent Office. This may alter our ability to protect our patents in some European countries. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. For example, in some foreign jurisdictions, governments have the right to compel patent owners to grant others licenses to their intellectual property under certain circumstances. In addition, any protection afforded by foreign patents may be more limited than that provided under U.S. patent and intellectual property laws. We may encounter significant problems in enforcing and defending our intellectual property both in the United States and abroad. For example, if the issuance in a given country of a patent covering an invention is not followed by the issuance in other countries of patents covering the same invention, or if any judicial interpretation of the validity, enforceability or scope of the claims or the written description or enablement in a patent issued in one country is not similar to the interpretation given to the corresponding patent issued in other countries, our ability to protect our intellectual property rights in those countries may be limited. Changes in either patent laws or in interpretations of patent laws in the United States and other countries may materially diminish the value of our intellectual property rights or narrow the scope of our patent protection. We cannot predict future changes in the interpretation of patent laws or changes to patent laws that might be enacted into law by U.S. and foreign legislative bodies. Those changes may materially affect our patents or patent applications and our ability to obtain additional patent protection in the future. Any of the foregoing could have a material adverse effect on our competitive position, business, financial condition, results of operations and prospects.

Third parties may claim that we are infringing, violating or misappropriating their intellectual property rights, which may subject us to costly and time consuming time-consuming litigation and prevent us from developing or commercializing our technology, products or services.

Our commercial success also depends in part on our ability to operate without infringing, violating or misappropriating patents and other intellectual property rights of third parties, and without breaching any licenses or other agreements that we have entered into with regard to our technologies, products or services. We cannot ensure that patents have not been issued, or will not be issued, to third parties that could block our ability to obtain patents or to operate as we would like. There may be patents in some countries that,

if valid, may block our ability to make, use, sell, or offer for sale our technology, products or services in those countries, or import our products into those countries, if we are unsuccessful in circumventing or acquiring rights to these patents. There also may be claims in patent applications filed in some countries that, if granted and valid, may also block our ability to commercialize technology, products, services or processes in these countries if we are unable to circumvent or obtain rights to them.

The industries in which we operate and the biotechnology industry, in particular, are characterized by frequent and extensive litigation regarding patents and other intellectual property rights. Many biotechnology companies have employed intellectual property litigation as a way to gain a competitive advantage. We are aware of some patents and patent applications relating to aspects of our technologies, products or services filed by, and issued to, third parties. We cannot assure that if such third-party patents rights are asserted against us that we would ultimately prevail. Any involvement in litigation or other intellectual property proceedings inside and and/or outside of the United States to defend against claims that we infringe, misappropriate or violate the intellectual property of the rights of others may divert our management's time from focusing on business operations and could cause us to spend significant amounts of money. Any potential intellectual property litigation also could force us to do one or more of the following:

- stop making, using, selling or importing our technologies, products and services that use the subject intellectual property;
- pay monetary damages to the third party asserting claims against us;
- grant or transfer rights to third parties relating to our patents or other intellectual property rights;
- obtain from the third party asserting its intellectual property rights a license to make, sell, offer for sale, import or use the relevant technology, product or service, which license may not be available on reasonable terms, or at all; or

- redesign those technologies, products, services or processes that use any allegedly infringing, misappropriating misappropriated or violating violated intellectual property rights, or relocate the operations relating to the allegedly infringing, misappropriating misappropriated or violating violated intellectual property rights to another jurisdiction, which may result in significant cost or delay to us, could be technically infeasible or could prevent us from making, selling, offering for sale, using or importing some of our technologies, products or services in the United States or other jurisdictions.

We are aware of some patents and patent applications relating to aspects of our technologies, products or services filed by, and issued to, third parties. We cannot assure that if such third party patents rights are asserted against us that we would ultimately prevail.

We may be involved in lawsuits to protect or enforce our intellectual property rights, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe, violate or misappropriate our intellectual property rights or those of our licensors. To prevent infringement, violation, misappropriation or other unauthorized use, we have in the past filed, and may in the future be required to file, enforcement claims, which can be expensive and time-consuming. In addition, in an enforcement proceeding, a court may decide that the intellectual property right that we own or control is not valid, is unenforceable and/or is not infringed, violated or misappropriated. In addition, in legal proceedings against a third party to enforce a patent directed at one of our technologies, products or services, the defendant could counterclaim that our patent is invalid and/or unenforceable in whole or in part. In patent enforcement litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a patent validity challenge include an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent withheld relevant information from the United States Patent and Trademark Office ("USPTO") or made a misleading statement during prosecution. Third parties may also raise similar claims before the USPTO, even outside the context of enforcement litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable, and prior art could render our patents or those of our licensors invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on the respective technology, products or services. Such a loss of patent protection could have a material adverse impact on our business.

Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our expenses and reduce the resources available for operations and research and development activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace. Furthermore, because of the substantial amount of discovery required in connection with U.S. intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries where we do business do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and enforcing intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property rights, particularly those relating to biotechnology technologies. Accordingly, our efforts to protect and enforce our intellectual property rights in such countries may be inadequate. This could make it difficult for us to stop the infringement, violation or misappropriation of our patents or other intellectual property rights. Additionally, proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

If our biocatalysts, or the genes that code for our biocatalysts, are stolen, misappropriated or reverse engineered, others could use these biocatalysts or genes to produce competing products.

Third parties, including our contract manufacturers, customers and those involved in shipping our biocatalysts, often have custody or control of our biocatalysts. If our biocatalysts, or the genes that code for our biocatalysts, were stolen, misappropriated or reverse engineered, they could be used by other parties who may be able to reproduce these biocatalysts for their own commercial gain. If this were to occur, it may be difficult for us to challenge this type of use, especially in countries with limited intellectual property rights protection or in countries in which we do not have patents covering the misappropriated biocatalysts.

Confidentiality and non-use agreements with employees, consultants, advisors and other third parties may not adequately prevent disclosures and non-use of trade secrets and other proprietary information.

In addition to patent protection, we also rely on other intellectual property rights, including protection of copyright, trade secrets, know-how and/or other proprietary information that is not patentable or that we elect not to patent. However, trade secrets can be difficult to protect, and some courts are less willing or unwilling to protect trade secrets. To maintain the confidentiality of our trade secrets and proprietary information, we rely in part on trade secret law and contractual agreements to protect our confidential and proprietary information and processes. We generally enter into confidentiality and invention assignment agreements with our employees, consultants and third parties working on our behalf upon their commencement of a relationship with us. However, trade secrets and confidential information are difficult to protect and we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes and we may not enter into such agreements with all employees, consultants and third parties who have been involved in the development of our intellectual property rights. Nevertheless, without our permission or awareness, our confidential and proprietary information may be disclosed to third parties, used by the respective individuals for purposes other than for the Company's business, or obtained through illegal means, such that third parties could reverse engineer our biocatalysts, product candidates, enzyme products and processes, to attempt to develop the same technology or develop substantially equivalent technology.

Costly and time-consuming litigation could be necessary to enforce and determine the scope of our confidential and proprietary rights, and failure to protect our trade secrets could adversely affect our competitive business position. If any of our trade secrets were lawfully obtained, we may be unable to prevent them, or those to whom they communicate it, from using that technology or information to compete with us or disclosing it publicly. Therefore, these events could have a material adverse effect ob on our business, financial condition and results of operations. In particular, a failure to protect our proprietary rights may allow competitors to copy our technology, which could adversely affect our pricing and market share.

In addition to contractual measures, we try to protect the confidential nature of our proprietary information by maintaining physical security of our premises and electronic security of our information technology systems. Such security measures may not, for example, in the case of misappropriation of a trade secret by an employee, consultant or other third party with authorized access or with unauthorized access but an intent to steal, provide adequate protection for our proprietary information. Our security measures may not prevent such employee, consultant or other third party from misappropriating our trade secrets and using them or providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. While we use commonly accepted security measures, trade secret violations are often a matter of state law in the United States, and the criteria for protection of trade secrets can vary among different jurisdictions. If the steps we have taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret.

Risks Related to Owning our Common Stock

We are subject to anti-takeover provisions in our certificate of incorporation and bylaws and under Delaware law that could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders.

Provisions in our amended and restated certificate of incorporation and our bylaws may delay or prevent an acquisition of us. the Company. Among other things, our amended and restated certificate of incorporation and bylaws provide for a board of directors which is divided into three classes, with staggered three-year terms and provide that all stockholder action must be effected at a duly called meeting of the stockholders and not by a consent in writing, and further provide that only our board of directors, the chairman of the board of directors, our chief executive officer or president may call a special meeting of the stockholders. In addition, our amended and restated certificate of incorporation allows our board of directors, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These provisions may also frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management team. Furthermore, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law ("DGCL") which prohibits, with some exceptions, stockholders owning in excess of 15% of our outstanding voting stock from merging or combining with us. Finally, our charter documents establish advanced notice requirements for nominations for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings. Although we believe these provisions together provide for an opportunity to receive higher bids by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer to acquire our company may be considered beneficial by some stockholders.

Our bylaws designate a state or federal court located within the State of Delaware as the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us our current or former directors, officers, stockholders, or other employees.

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of us under Delaware law, (ii) any action asserting a claim of breach of a fiduciary duty owed by any current or former director, officer, or other employee of the Company to us or our stockholders, (iii) any action asserting a claim against us or any of our directors, officers, or other employees arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws (as either may be amended from time to time), (iv) any action asserting a claim against us governed by the internal affairs doctrine, or (v) any other action asserting an "internal corporate claim," as defined under Section 115 of the DGCL. The forgoing provisions do not apply to any claims arising under the Securities Act and, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States will be the sole and exclusive forum for resolving any action asserting a claim arising under the Securities Act.

These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our current or former directors, officers, or other employees, which may discourage lawsuits with respect to such claims. There is uncertainty as to whether a court would enforce such provisions, and the enforceability of similar choice of forum provisions in other companies' charter documents has been challenged in legal proceedings. It is possible that a court could find these types of provisions to be inapplicable or unenforceable, and if a court were to find the choice of forum provision to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations or financial condition.

Our quarterly or annual operating results may fluctuate in the future. As a result, we may fail to meet or exceed the expectations of research analysts or investors, which could cause our stock price to decline.

Our financial condition and operating results have varied significantly in the past and may continue to fluctuate from quarter to quarter and year to year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these fluctuations include the following factors, as well as other factors described elsewhere in this report:

- our ability to achieve or maintain profitability;
- our relationships with, and dependence on, collaborators in our principal markets;
- our dependence on a limited number of customers,; customers;
- our product supply agreements with customers have finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products;
- with respect to customers purchasing our products for the manufacture of active pharmaceutical ingredients for which they have exclusivity due to patent protection, the termination or expiration of such patent protection and any resulting generic competition may materially and adversely affect our revenues, financial condition or results of operations;
- our dependence on a limited number of products in our performance enzymes business;
- our reliance on a limited number of contract manufacturers for large scale production of substantially all of our enzyme products;
- our relationships with, and dependence on, collaborators in our principal markets;
- our ability to successfully and timely develop and successfully commercialize new products, including our ECO Synthesis™ manufacturing platform, for the markets we serve;
- our ability to obtain additional development partners for our novel biotherapeutic programs;
- potential of Nestlé Health Science or Takeda terminating any development program under their license agreements with us;
- the potential of GSK, Merck, Novartis or any other performance enzyme customer terminating their agreements with us;
- the success of our customers' products in the market and the ability of such customers to obtain regulatory approvals for products and processes;
- our or our customers' ability to obtain regulatory approval for the sale and manufacturing of food products using our enzymes;
- our ability to deploy our technology platform in life science tools markets;
- our ability to successfully achieve domestic and foreign regulatory approval for product candidates;
- our ability to successfully design and execute clinical testing at a reasonable cost and on an acceptable time-frame;
- our dependence on our collaborators or customers' product candidates which could unexpectedly fail at any stage of preclinical or clinical development;
- our dependence on our collaborators or customers' product candidates which may lack the ability to work as intended or cause undesirable side effects;
- our dependency on third parties to conduct clinical trials, research, and preclinical studies;
- our ability to successfully prosecute and protect our intellectual property;
- our ability to compete if we do not adequately protect our proprietary technologies or if we lose some of our intellectual property rights;
- our ability to avoid infringing the intellectual property rights of third parties;
- our involvement in lawsuits to protect or enforce our patents or other intellectual property rights;
- our ability to enforce our intellectual property rights throughout the world;
- our dependence on, and the need to attract and retain, key management and other personnel;
- our ability to prevent the theft or misappropriation of our biocatalysts, the genes that code for our biocatalysts, know-how or technologies;
- our ability to protect our trade secrets and other proprietary information from disclosure by employees and others;
- our ability to obtain substantial additional capital that may be necessary to expand our business;
- our ability to comply with the terms of our credit facility; Loan Agreement;
- our ability to timely pay debt service obligations;
- our customers' ability to pay amounts owed to us in a timely manner;
- our ability to avoid charges to earnings as a result of any impairment of goodwill, intangible assets or other long-lived assets;
- changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and affect our reported results of operations;
- our ability to maintain effective internal control over financial reporting;
- our dependency on information technology systems, infrastructure and data;
- our ability to control and to improve product gross margins;
- our ability to protect against risks associated with the international aspects of our business;

- the cost of compliance with EU chemical regulations;
- potential advantages that our competitors and potential competitors may have in securing funding or developing products;
- our ability to accurately report our financial results in a timely manner;
- results of regulatory tax examinations;
- market and economic conditions may negatively impact our business, financial condition, and share price;
- business interruptions due to natural disasters, disease outbreaks or other events beyond our control;
- public concerns about the ethical, legal and social ramifications of genetically engineered products and processes;
- our ability to integrate our current business with any businesses that we may acquire in the future;
- our ability to properly handle and dispose of hazardous materials in our business;
- potential product liability claims;
- changes to tax law and related regulations could materially affect our tax obligations and effective tax rate; and
- our ability to use our NOLs to offset future taxable income.

Due to the various factors mentioned above, and others, the results of any prior quarterly or annual periods should not be relied upon as indications of our future operating performance.

We do not intend to pay cash dividends for the foreseeable future.

We currently intend to retain our future earnings, if any, to finance the further development and expansion of our business and do not intend to pay cash dividends in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, restrictions contained in future agreements and financing instruments, business prospects and such other factors as our board of directors deems relevant.

General Risk Factors

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock in a negative manner, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price or trading volume to decline.

We face risks associated with our international business.

While we have a limited number of employees located outside of the United States, we are and will continue to be dependent upon contract manufacturers located outside of the United States. In addition, we have customers and partners located outside of the United States. Conducting business internationally exposes us to a variety of risks, including:

- changes in or interpretations of U.S. or foreign laws or regulations that may adversely affect our ability to sell our products, repatriate profits to the United States or operate our foreign-located facilities;
- the imposition of tariffs;
- the imposition of limitations on, or increase of, withholding and other taxes on remittances and other payments by foreign subsidiaries or joint ventures;
- the imposition of limitations on genetically-engineered or other products or processes and the production or sale of those products or processes in foreign countries;
- currency exchange rate fluctuations;
- uncertainties relating to foreign laws, regulations and legal proceedings including pharmaceutical, tax, import/export, anti-corruption and exchange control laws;
- the availability of government subsidies or other incentives that benefit competitors in their local markets that are not available to us;
- increased demands on our limited resources created by our operations may constrain the capabilities of our administrative and operational resources and restrict our ability to attract, train, manage and retain qualified management, technicians, scientists and other personnel;
- economic or political instability in foreign countries;
- difficulties associated with staffing and managing foreign operations; and
- the need to comply with a variety of United States and foreign laws applicable to the conduct of international business, including import and export control laws and anti-corruption laws.

Market and economic conditions may negatively impact our business, financial condition, and share price.

Concerns about inflation, energy costs, geopolitical issues, the United States mortgage market and a declining real estate market, unstable global credit markets and financial conditions, and volatile oil prices have led to periods of significant economic instability, diminished liquidity and credit availability, declines in consumer confidence and discretionary spending, diminished expectations for the global economy and expectations of slower global economic growth going forward, increased unemployment rates, and increased credit defaults in recent years. Our general business strategy may be adversely affected by any such economic downturns, volatile business environments and continued unstable or unpredictable economic and market conditions.

Recently, the closures of Silicon Valley Bank ("SVB") and Signature Bank ("Signature") and their placement into receivership with the Federal Deposit Insurance Corporation, and the government-brokered sale of the deposits and majority of assets of First Republic Bank to JPMorgan Chase, created bank-specific and broader financial institution liquidity risk and concerns. Although government intervention ensured that depositors at these banks have access to their funds, future adverse developments with respect to specific financial institutions or the broader financial services industry may lead to market-wide liquidity shortages, impair the ability of companies to access near-term working capital needs, and create additional market and economic uncertainty. There can be no assurance that future credit and financial market instability and a deterioration in confidence in economic conditions will not occur, and we cannot predict the impact or follow-on effects of these insolvencies more broadly or on our business in particular. Further, we cannot guarantee that the government will intervene to provide depositors with access to funds if similar events occur in the future. If other banks and financial institutions enter receivership or become insolvent in the future, our ability to access our existing cash, cash equivalents, and investments may be threatened, which could have a material adverse effect on our business and financial condition.

In addition, if the market and economic conditions described above continue to deteriorate or do not improve, it may make any necessary debt or equity financing more difficult to complete, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance, and stock price. Additionally, rising rates of inflation have increased the costs associated with conducting our business, including by causing substantial increases in the costs of materials, including raw materials and consumables, equipment, services, and labor. Moreover, given the unpredictable nature of the current economic climate, including future changes in rates of inflation, it may be increasingly difficult for us to predict and control our future expenses, which may harm our ability to conduct our business.

Business interruptions resulting from disasters or other disturbances could delay us in the process of developing our products and could disrupt our sales. Our business continuity and disaster recovery plans may not adequately protect us from a serious disaster or other disturbance.

Our headquarters and other facilities are located in the San Francisco Bay Area, which in the past has experienced both severe earthquakes and wildfires. Earthquakes, wildfires or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects. We are also vulnerable to other types of disasters and other events that could disrupt our operations, such as riot, civil disturbances, war, terrorist acts, public health emergencies, domestic or foreign conflicts, infections in our laboratory or production facilities or those of our customers or contract manufacturers and other events beyond our control. If a natural disaster or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our enterprise financial systems or manufacturing resource planning and enterprise quality systems, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible, for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event. We event, and we may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity such plans. We do not carry insurance for earthquakes and we may not carry sufficient business interruption insurance to compensate us for losses that may occur. Any losses or damages we incur could have a material adverse effect on our cash flows and success as an overall business.

We are dependent on information technology systems, infrastructure and data, and any failure of these systems could harm our business. Security breaches, loss of data and other disruptions could compromise sensitive information related to our business or prevent us from accessing critical information and expose us to liability, which could adversely affect our business, results of operations and financial condition.

Information technology helps us operate efficiently, interface with customers, maintain financial accuracy and efficiency and accurately produce our financial statements. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology infrastructure, we could be subject to transaction errors, processing inefficiencies, the loss of customers, business disruptions or the loss of or damage to intellectual property through security breach. If our information technology systems do not effectively collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies, or human error, our ability to effectively plan, forecast and execute our business plan and comply with applicable laws and regulations will be impaired, perhaps materially. Our information technology systems and those of our external vendors, strategic partners and other contractors or consultants are vulnerable to attack and damage or interruption from computer viruses and malware (e.g. ransomware), malicious code, natural disasters, terrorism, war, telecommunication and electrical failures, hacking, cyberattacks, phishing attacks and other social engineering schemes, employee theft or misuse, human error, fraud, denial or degradation of service attacks, sophisticated nation-state and nation-state-supported actors or unauthorized access or use by persons inside our organization, or persons with access to systems inside our organization. Any such impairment could materially and adversely affect our financial condition, results of operations, cash flows and the timeliness with which we report our internal and external operating results.

Our business may require us to use and store personal information of our customers, employees, and business partners. This may include names, addresses, phone numbers, email addresses, contact preferences, tax identification numbers and payment account information. We require usernames and passwords in order to access our information technology systems. We also use encryption and authentication technologies to secure the transmission and storage of data. However, these security measures may be compromised as a result of security breaches by unauthorized persons, employee error, malfeasance, faulty password management or other irregularity, and result in persons obtaining unauthorized access to our data or accounts. Third parties may attempt to fraudulently induce employees or customers into disclosing usernames, passwords or other sensitive information, which may in turn be used to access our information technology systems. For example, our employees have received "phishing" emails and phone calls attempting to induce them to divulge passwords and other sensitive information.

In addition, unauthorized persons may attempt to hack into our products or systems to obtain personal data relating to employees and other individuals, our confidential or proprietary information or confidential information we hold on behalf of third parties. We also rely on external vendors to supply and/or support certain aspects of our information technology systems. The systems of these external vendors may contain defects in design or manufacture or other problems that could unexpectedly compromise information security of our own systems, and we are dependent on these third parties to deploy appropriate security programs to protect their systems. If we or our third-party vendors were to experience a significant cybersecurity breach of our or their information systems or data, the costs associated with the investigation, remediation and potential notification of the breach to counter-parties counterparties and data subjects could be material. Our remediation efforts may not be successful. Further, if such an event were to occur and cause

interruptions in our operations, it could result in a material disruption of our development programs and our business operations, whether due to a loss, corruption or unauthorized disclosure of our trade secrets, personal information or other proprietary or sensitive information or other similar disruptions. Attacks upon information technology systems are also increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise. As a result of the remote work policies we initiated in response to the COVID-19 pandemic, and our continued hybrid working environment, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. We have programs in place to detect, contain and respond to data security incidents, and we make ongoing improvements to our information-sharing products in order to minimize vulnerabilities, in accordance with industry and regulatory standards. However, because the techniques used to obtain unauthorized access to or sabotage systems change frequently and may be difficult to detect, we may not be able to anticipate and prevent these intrusions or mitigate them when and if they occur. Even if identified, we may be unable to adequately and timely investigate or remediate incidents or breaches due to attackers increasingly using tools and techniques that are designed to circumvent controls, to avoid detection and to remove or obfuscate forensic evidence.

We and certain of our external vendors are from time to time subject to cyberattacks and security incidents. While we do not believe that we have experienced any significant system failure, accident, or security breach to date, if such an event were to occur, it could result in the unauthorized access to or unauthorized use, disclosure, release or other processing of personal information, it may be necessary to notify individuals, governmental authorities, supervisory bodies, the media and other parties pursuant to privacy and security laws. Any security compromise affecting us, our service providers, vendors, strategic partners, other contractors, consultants or our industry, whether real or perceived, could harm our reputation, erode confidence in the effectiveness of our security measures and lead to regulatory scrutiny. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or systems, or inappropriate disclosure of confidential or proprietary or personal information, we could incur liability, including litigation exposure, penalties and fines, which may not be covered by insurance or may be in excess of our insurance coverage. Additionally, we could become the subject of regulatory action or investigation, our competitive position could be harmed and the further development of our products could be delayed. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our business. Furthermore, federal, state business and international laws and regulations can expose us to enforcement actions and investigations by regulatory authorities, and potentially result in regulatory penalties, fines and significant legal liability, if our information technology security efforts fail. We may also be exposed to a risk of loss or litigation and potential liability, which could materially and adversely affect our business, results of operations and financial condition.

Actual or perceived failures to comply with applicable data protection, privacy and security laws, regulations, standards and other requirements could adversely affect our business, results of operations and financial condition.

The global data protection landscape is rapidly evolving, and we are or may become subject to state, federal and foreign laws, regulations, decisions and directives governing the privacy, security, collection, storage, transmission, use, processing, retention and disclosure of personal information. Any failure or perceived failure by us to comply with applicable laws or regulations, our internal policies and procedures or our contracts governing our processing of personal information could result in negative publicity, government investigations and enforcement actions, claims by third parties and damage to our reputation, any of which could have a material adverse effect on our operations, financial performance and business.

In the United States, HIPAA imposes, among other things, certain standards relating to the privacy, security, transmission and breach reporting of certain individually identifiable health information. Certain states have also adopted comparable and continue to adopt new privacy and security laws and regulations, which govern the privacy, processing and protection of health-related and other personal information. Such laws and regulations will be subject to interpretation by various courts and other governmental authorities, thus creating potentially complex compliance issues for us and our future customers and strategic partners. For example, the California Consumer Privacy Act ("CCPA") went into effect on January 1, 2020 , and introduces new compliance burdens on organizations doing business in California that collect personal information about California residents. It . The CCPA creates individual privacy rights for California consumers and increases the privacy and security obligations of entities handling certain personal information. The CCPA also provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase (which has increased the likelihood of, and risks associated with, data breach litigation. litigation). Further, the California Consumer Privacy Rights Act ("CCPA" CPRA") recently passed significantly amended the CCPA, which went into effect in California. The CPRA will impose January 2023. It imposes additional data protection privacy obligations on covered businesses, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data and opt outs for certain uses of sensitive data. It will also create created a new California data privacy protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. The majority of the provisions went into effect on January 1, 2023, and additional Additional compliance investment and potential business process changes may also be required. Similar laws regulating personal information generally or health information in particular have passed in Virginia, Colorado, Connecticut and Utah more than a dozen states and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. These developments increase our compliance burden and our risk, including risks of regulatory fines, litigation and associated reputational harm. Any liability from failure to comply with the requirements of these laws could adversely affect our financial condition.

Furthermore, the Federal Trade Commission ("FTC") and many state Attorneys General continue to enforce federal and state consumer protection laws against companies for online the collection, use, dissemination sharing and security practices of personal information that appear to be unfair or deceptive. For example, according to the FTC, failing to take appropriate steps to keep consumers' personal information secure can constitute unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities.

In Europe, the European Union ("EU"), the EU General Data Protection Regulation ("EU GDPR") went into effect in May 2018 and imposes strict requirements for processing the personal data of individuals within the European Economic Area ("EEA"). The GDPR imposes stringent requirements for controllers and processors of personal data and increases our obligations, for example, by imposing higher standards when obtaining consent from individuals to process their personal data, requiring more robust disclosures to individuals, strengthening individual data rights, shortening timelines for data breach notifications, limiting retention periods and secondary use of information, increasing requirements pertaining to health data as well as pseudonymized (i.e., key-coded) data and imposing additional obligations when we contract with third-party processors in connection with governs the processing of personal data. The UK has implemented the EU GDPR as the UK GDPR which sits alongside the UK Data Protection Act 2018 (the "UK GDPR", and together with the EU GDPR, the "GDPR"). The GDPR imposes requirements for controllers, including (among others) specific requirements for obtaining valid consent where consent is the legal basis for processing, requirements around accountability and transparency, the obligation to consider data protection when any new products or services are developed, the obligation to comply with individuals' data protection rights, and the obligation to notify relevant data supervisory authorities of notifiable personal data breaches without undue delay (and no later than 72 hours) after becoming aware of the personal data breach (and affected data subjects where the personal data breach is likely to result in a high risk to their rights and freedoms). The EU GDPR provides that EEA EU member states may make enact their own additional national laws and regulations limiting regarding the processing of genetic, biometric or health data, which could limit affect our ability to use and share personal data or could cause our costs to increase and potentially harm our

business and financial condition. Failure to comply with the requirements of the GDPR can result in (among other things) fines of up to the greater of €20 million and (under the EU GDPR) or £17.5 million (under the UK GDPR) or 4% of the an organization's total worldwide annual turnover of the preceding financial year and other administrative penalties. If To the extent that we are required subject to comply the GDPR, compliance with the GDPR may require substantial amendments to our procedures and policies and these changes could adversely impact our business by increasing operational and compliance costs or impact business practices. Further, there is a risk that the amended policies and procedures will not be implemented correctly or that individuals within the business will not be fully compliant with the new procedures. There is a risk that we could be impacted by a cybersecurity incident that results in loss or unauthorized disclosure of personal data, protection rules imposed by GDPR, such compliance may be onerous and adversely affect our business, financial condition, and results of operations. potentially resulting in us facing harms similar to those described above.

Among other requirements, the EU GDPR regulates transfers prohibits the international transfer of personal data subject to the GDPR from the European Economic Area ("EEA") to third countries that have the European Commission does not recognize as having an 'adequate' level of data protection, unless a data transfer mechanism has been found to provide adequate protection to such personal data, including the United States, and the efficacy and longevity of current transfer mechanisms between put in place or a derogation under the EU and the United States remains uncertain. For example, in GDPR can be relied on. In July 2020, the Court of Justice of the EU ("CJEU") in its Schrems II judgement limited how organizations could lawfully transfer personal data from the EU/EEA to the United States by invalidating the EU-U.S. Privacy Shield for purposes of international transfers and imposing further restrictions on the use of standard contractual clauses ("EU SCCs"), including a requirement for companies to carry out a transfer privacy impact assessment ("TIA"). In March 2022, A TIA, among other things, assesses laws governing access to personal data in the recipient country and considers whether supplementary measures that provide privacy protections additional to those provided under the EU SCCs will need to be implemented to ensure an 'essentially equivalent' level of data protection to that afforded in the EEA.

On October 7, 2022, U.S. President Biden introduced an Executive Order to facilitate a new Trans-Atlantic Data Privacy Framework ("DPF") and in July 2023, the European Commission adopted its Final Implementing Decision granting the United States and EU announced a new regulatory regime intended to replace the invalidated regulations; however, this new EU-US Data Privacy Framework has not been implemented beyond an executive order signed by President Biden on October 7, 2022 on Enhancing Safeguards adequacy ("Adequacy Decision") for United States Signals Intelligence Activities. The European Commission issued revised SCCs on June 4, 2021 to account for the decision of the CJEU and recommendations made by the European Data Protection Board. The revised SCCs must be used for relevant new data EU-U.S. transfers from September 27, 2021; existing standard contractual clauses arrangements must be migrated to the revised clauses by December 27, 2022. The new SCCs apply only to the transfer of personal data outside for entities self-certified to the DPF. Entities relying on EU SCCs for transfers to the United States are also able to rely on the analysis in the Adequacy Decision as support for their TIA regarding the equivalence of U.S. national security safeguards and redress.

The UK GDPR also imposes similar restrictions on transfers of personal data from the UK to jurisdictions that the UK Government does not consider adequate, including the United States. The UK Government has published its own form of the EEA EU SCCs, known as the International Data Transfer Agreement and not an International Data Transfer Addendum to the United Kingdom; the United Kingdom's new EU SCCs. The UK Information Commissioner's Office launched has also published its own version of the TIA and guidance on international transfers, although entities may choose to adopt either the EU or UK-style TIA. Further, on September 21, 2023, the UK Secretary of State for Science, Innovation and Technology established a public consultation on its draft revised UK-U.S. data transfers mechanisms in August 2021. There is some uncertainty around whether bridge (i.e., a UK equivalent of the revised clauses can Adequacy Decision) and adopted UK regulations to implement the UK-U.S. data bridge ("UK Adequacy Regulations"). Personal data may now be used for all types of transferred from the UK under the UK-U.S. data transfers, particularly whether they can bridge through the UK extension to the DPF to organizations self-certified under the UK extension to DPF.

As we continue to expand into other foreign countries and jurisdictions, we may be relied on for data transfers to non-EEA entities subject to the GDPR. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the SCCs cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results.

Further, from January 1, 2021, companies have had to comply with the GDPR and also the United Kingdom GDPR ("UK GDPR"), which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law. The UK GDPR mirrors the fines under the GDPR, i.e., fines up to the greater of €20 million (or up to £17.5 million for UK) or 4% of global turnover. The relationship between the United Kingdom and the EU in relation to certain aspects of data protection law remains unclear, and it is unclear how United Kingdom data protection laws and regulations will develop in the medium to longer term. The European Commission has adopted an adequacy decision in favor of the United Kingdom, enabling data transfers from EU member states to the United Kingdom without additional safeguards. However, the UK adequacy decision will automatically expire in June 2025 unless the European Commission re-assesses and renews or extends that decision. In September 2021, the United Kingdom government launched a consultation on its proposals for wide-ranging reform of United Kingdom data protection laws following Brexit and the response to this consultation was published in June 2022. There is a risk that any material changes which are made to the United Kingdom data protection regime could result in the European Commission reviewing the United Kingdom adequacy decision, and the UK United Kingdom losing its adequacy decision if the European Commission deems the United Kingdom to no longer provide adequate protection for personal data.

may affect how we conduct business.

Although we work to comply with applicable laws, regulations and standards, our contractual obligations and other legal obligations, these requirements are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another or other legal obligations with which we must comply. Various federal, state and foreign legislative or regulatory bodies may enact new or additional laws and regulations concerning privacy, data-retention and data-protection issues, including laws or regulations mandating disclosure to domestic or international law enforcement bodies, which could adversely impact our business or our reputation with customers. For example, some countries have adopted laws mandating that certain personal information regarding customers in their country be maintained solely in their country. Having to maintain local data centers and redesign product, service and business operations to limit processing of personal information to within individual countries could increase our operating costs significantly. Any failure, or perceived failure, by us to comply with federal, state or international privacy, data-retention or data-protection-related laws, regulations, orders or industry self-regulatory principles could result in proceedings or actions against us by governmental entities or others, a loss of customer confidence, damage to our brand and reputation and a loss of customers, any of which could have an adverse effect on our business.

Evolving expectations around corporate responsibility practices, specifically related to environmental, social and governance ("ESG") matters, may expose us to reputational and other risks.

Investors, stockholders, customers, suppliers and other third parties are increasingly focusing on ESG and corporate social responsibility endeavors and reporting. Companies that do not adapt to or comply with the evolving investor or stakeholder expectations and standards, or which that are perceived to have not responded appropriately, may suffer

from reputational damage, and which could result in the business, financial condition and/or stock price of a company being materially and adversely affected. For example, certain customers have inquired about our ESG practices and may impose ESG guidelines, procurement policies, sustainability standards, mandates or reporting requirements for, and may scrutinize relationships more closely with, their suppliers, including us, which may lengthen sales cycles, increase our costs or impair our ability to attract and retain customers. Further, this increased focus on ESG issues may result in new regulations, international accords and/or third-party requirements that could adversely impact our business, or certain shareholders reducing or eliminating their holdings of our stock. Additionally, an An allegation or perception that we have not taken sufficient action in these areas could negatively harm our reputation. Additionally, the subjective nature and wide variety of methods and processes used by various stakeholders, including investors, to assess environmental, social, and governance criteria could result in a negative perception or misrepresentation of the company's sustainability policies and practices.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 1C. CYBERSECURITY

Risk Management and Strategy

In the normal course of business, we may collect and store personal information and other sensitive information, including proprietary and confidential business information, trade secrets, intellectual property, sensitive third-party information and employee information.We assess and identify cybersecurity risk to such information by maintaining cybersecurity policies that require continuous monitoring and detection programs and network security precautions. Our program incorporates industry-standard frameworks, policies and practices designed to protect the privacy and security of our sensitive information.

We manage cybersecurity risks by maintaining various protections designed to safeguard against cyberattacks, including firewalls and virus detection software, and periodic end user training on common cybersecurity threats (e.g. phishing exercises and interactive trainings). We have established our disaster recovery plan and we protect against business interruption by backing up our major systems. In addition, we periodically scan our environment for any vulnerabilities, perform penetration testing and engage third parties to assess effectiveness of our data security practices. A third party security consultant conducts regular network security reviews, scans and audits, and we may consult with other external experts as warranted by a particular cybersecurity incident or threat. In addition, we maintain insurance that includes cybersecurity coverage.

Areas of cybersecurity risk are assessed bi-annually, and updates are reported by our Vice President of Information Technology (“VP IT”) to the Board’s Audit Committee and senior management annually. Where our bi-annual cybersecurity risk assessment identifies areas for improvement, we document and track our remediation activities, which are also reported to the Audit Committee and senior management annually. In this way, our program to manage cybersecurity risk integrates with our overall risk management processes.

With respect to third parties who provide services affecting critical business management systems, we collect and maintain SOC2 type II reports (attestation of controls at a service organization over a minimum six-month period). For other third-party service providers, cybersecurity risk is addressed as appropriate.

As of the date of this report, we are not aware of any risks from cybersecurity threats that have materially affected or are reasonably likely to materially affect us, including our business strategy, results of operations and financial condition. Despite the implementation of our cybersecurity program, our security measures cannot guarantee that a significant cyberattack will not occur. A successful attack on our information technology systems could have significant consequences to the business. While we devote resources to our security measures to protect our systems and information, these measures cannot provide absolute security. See “Risk Factors – General Risk Factors” for additional information about the risks to our business associated with a breach or compromise to our information technology systems.

Governance

The Company’s Board of Directors has visibility into cybersecurity risks through its Audit Committee and through the process described below. The Audit Committee has oversight of the Company’s cybersecurity risk management programs and the design and operating effectiveness thereof, and reviews reports from Company management on cybersecurity, data privacy and other risks relevant to the Company’s computerized information system controls and security.

Areas of cybersecurity risk are assessed bi-annually, and updates are reported by the VP IT to the Audit Committee and senior management annually. Where our bi-annual cybersecurity risk assessment identifies areas for improvement, we document and track our remediation activities, which are also reported to the Audit Committee and senior management annually.

Senior management has appointed a Cybersecurity Council that is responsible for identifying, escalating, and facilitating the assessment and determination of the materiality of cybersecurity incidents and threats. The Cybersecurity Council is made up of representatives of IT, Legal and Finance, as well as ad hoc additional members depending on the circumstances of the incident or threat. The members of the Cybersecurity Council do not have specific expertise in cybersecurity risk other than the VP IT who has more than 20 years of experience, and engages with trusted third-party experts for support and guidance when additional expertise is required. Prior to joining Codexis, our VP IT has managed cybersecurity functions, where he was responsible for overseeing cybersecurity strategy and operations, including incident response, threat intelligence, security awareness training programs, risk assessments and remediation, and regulatory and compliance matters.

An actual or suspected cybersecurity incident that jeopardizes the confidentiality, integrity, or availability of Codexis' information systems or any information residing therein (or threat that presents significant risk to our information systems as identified by IT) is reported to the Cybersecurity Council by our IT Department. The focus of the Cybersecurity Council is on the investigation and facilitation of senior management’s assessment and determination of materiality of an incident or threat, and such investigation is separate but contemporaneous with the investigation(s) done under other applicable programs, policies, and plans regarding cybersecurity. The Cybersecurity Council will liaise directly with other investigation(s) and share information and assessments. Along with assistance from the Cybersecurity Council as necessary, senior management reports its materiality determination and analysis, including necessary facts to support its determination, to the Audit Committee of the Board of Directors. Pursuant to its charter, the Audit Committee may, along with senior management, report such determination to the Board of Directors.

ITEM 2. PROPERTIES

FACILITIES

Our headquarters are located in Redwood City, California, where we lease approximately 77,300 square feet of office and laboratory space.

Our lease (" (“RWC Lease" Lease”) with Metropolitan Life Insurance Company ("MetLife" (“MetLife”) includes approximately 28,200 square feet of space located at 200 and 220 Penobscot Drive, Redwood City, California (the "200/ “200/220 Penobscot Space" Space”), approximately 37,900 square feet of space located at 400 Penobscot Drive, Redwood City, California (the "400 “400 Penobscot Space" Space”) (the 200/220 Penobscot Space and the 400 Penobscot Space are collectively referred to as the "Penobscot Space" “Penobscot Space”), and approximately 11,200 square feet of space located at 501 Chesapeake Drive, Redwood City, California (the "Chesapeake Space" “Chesapeake Space”).

We entered into the initial lease with MetLife for our facilities in Redwood City in 2004 and the RWC lease has been amended multiple times since then to adjust the leased space and terms of the RWC Lease. In February 2019, we entered into an Eighth Amendment to the RWC Lease (the "Eighth Amendment" “Eighth Amendment”) with MetLife with respect to the Penobscot Space and the 501 Chesapeake Space to extend the term of the RWC Lease for additional periods. Pursuant to the Eighth Amendment, the term of the lease of the Penobscot Space has been extended through May 2027. The lease term for the 501 Chesapeake Space has been extended to May 2029. We have one (1) option to extend the term of the lease for the Penobscot Space for five (5) years, and one (1) separate option to extend the term of the lease for the 501 Chesapeake Space for five (5) years.

In January 2021, we entered into a lease agreement with ARE-San Francisco No. 63, LLC ("ARE" (“ARE”) to lease a portion of a facility comprising approximately 36,593 rentable square feet at 825 Industrial Road, San Carlos, California to serve as additional office and research and development laboratory space (the "San“San Carlos Space" Space”). In December 2021, we commenced occupancy of the San Carlos Space. The lease term for the San Carlos Space is was through the end of November 2031. We have 2031, with one (1) option to extend the term of the lease for the San Carlos Space for five (5) years.

In May 2021, July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. On September 1, 2023, the Company entered into an Assignment and Assumption of Lease (the “Assignment Agreement”) with Vaxcyte, Inc. (“Vaxcyte”) to assign to Vaxcyte all of the Company’s right, title and interest in, under and to the San Carlos Space and the Lease Agreement, dated as of January 29, 2021. On September 6, 2023, the Company, Vaxcyte and ARE entered into a short-term office Consent to Assignment and First Amendment (the “Consent”) pursuant to which ARE consented to the Assignment Agreement and the assignment by the Company and the assumption by Vaxcyte of the Company’s interest as tenant in the lease with and agreed to release the Company from all of its obligations under the lease that accrue from and after the assignment. The Inside Source, Inc., to sublease approximately 3,313 square feet effective date of office space in a building located at 985 Industrial Blvd. San Carlos, California. This lease expired in April 2022. the assignment was October 1, 2023.

We believe that the facilities facility that we currently lease in Redwood City, and San Carlos, California are is adequate for our needs for the immediate future and that, should it be needed, additional space can be leased to accommodate any future growth.

ITEM 3. LEGAL PROCEEDINGS

We are currently not a party to any material pending litigation or other material legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

MARKET INFORMATION

Our common stock is quoted on the Nasdaq Global Select Market ("Nasdaq" (“Nasdaq”), under the symbol "CDXS." “CDXS.”

As of February 22, 2023 February 23, 2024, there were approximately 125 stockholders of record. A substantially greater number of stockholders may be "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividend Policy

We have never declared or paid cash dividends on our common stock, and we currently do not plan to declare dividends on shares of our common stock in the foreseeable future. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. In addition, unless waived, the terms of our Credit Facility Loan Agreement prohibit us from paying any cash dividends or making other distributions. The payment of cash dividends in the future, if any, will be at the discretion of our board of directors and will depend upon such factors as earnings levels, capital requirements, our overall financial condition and any other factors deemed relevant by our board of directors.

Securities Authorized for Issuance under Equity Compensation Plans

The information required by this item concerning securities authorized for issuance under equity compensation plans is incorporated by reference from the information that will be set forth in the Definitive Proxy Statement to be filed with the Securities and Exchange Commission in connection with the Annual Meeting of Stockholders to be held in 2023 2024 (the "2023 “2024 Proxy Statement" Statement”) under the heading "Executive “Executive Compensation—Equity Compensation Plan Information."”

Stock Price Performance Graph

The following tabular information and graph compare our total common stock return with the total return for (i) the Nasdaq Composite Index and (ii) the Nasdaq Biotechnology Total Return Index for the period December 31, 2017 December 31, 2018 through December 31, 2022 December 31, 2023. The figures represented below assume an investment of $100 in our common stock at the closing price on December 31, 2017 December 31, 2018 and in the Nasdaq Composite Index and the Nasdaq Biotechnology Total Return Index on December 31, 2017 December 31, 2018 and the reinvestment of dividends into shares of common stock. The comparisons in the table and graph are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock. The tabular information and graph shall not be deemed "soliciting material" “soliciting

material" or to be "filed" "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act or the Exchange Act.

			December 31,									
			December 31,									
$100 investment in stock or index	$100 investment in stock or index	Ticker	2017	2018	2019	2020	2021	2022	$100 investment in stock or index	Ticker	2018
Codexis, Inc.	Codexis, Inc.	CDXS	$ 100.00	$ 200.00	$ 191.50	$ 261.44	$ 374.49	$ 55.81			
Nasdaq Composite Total Return	Nasdaq Composite Total Return	XCMP	$ 100.00	$ 97.16	$ 132.81	$ 192.48	$ 235.16	$ 158.65			
Nasdaq Biotechnology (Total Return) Index	Nasdaq Biotechnology (Total Return) Index	XNBI	$ 100.00	$ 91.14	$ 114.02	$ 144.14	$ 144.17	$ 129.58			

Unregistered Sales of Equity Securities and Use of Proceeds

Unregistered Sales of Equity Securities

During the year ended December 31, 2022 December 31, 2023, we did not issue or sell any unregistered securities not previously disclosed in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

Issuer Purchases of Equity Securities

None.

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF

FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following management's discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited Consolidated Financial Statements consolidated financial statements and the related notes thereto included elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements include, but are not limited to, expectations regarding our strategy, business plans, financial performance and developments relating to our industry. These statements are often identified by the use of words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate," or "continue," and similar expressions or variations. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in Part I, Item IA:"Risk "Risk Factors," of this Annual Report on Form 10-K and elsewhere in this report. The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report on Form 10-K.

Business Overview

We are a leading enzyme engineering company leveraging our proprietary CodeEvolver® technology platform to discover, develop, enhance, and enhance commercialize novel, high performance enzymes and other classes of proteins. Enzymes are naturally occurring biological molecules critical to almost all biochemical reactions that sustain life. They can be precisely engineered and optimized for specific functions, and to have particular characteristics, such as an ability to survive environments in which natural enzymes cannot, or to perform (bio)chemical transformations different than those for which they naturally evolved. The We focus on leveraging our capacity to enhance the properties and performance of enzymes has led to drive pivotal improvements across three healthcare industry pillars: two key focus areas: our foundational, revenue-generating pharmaceutical manufacturing life sciences, business and biotherapeutics. The enzymes we produce solve for real-world challenges associated with small molecule pharmaceuticals our Enzyme-Catalyzed Oligonucleotide (ECO) Synthesis™ ("ECO Synthesis™") manufacturing nucleic acid synthesis and genomic sequencing, and – as biotherapeutic candidates – they haveplatform, which is currently in development to enable the potential to treat challenging diseases. commercial scale manufacture of RNA interference (RNAi) therapeutics. Our unique enzymes drive improvements such as higher yields, increased purity, reduced energy usage and waste generation, and improved efficiency in manufacturing. In July 2023, we announced that we discontinued investment in certain development programs, primarily in our novel biotherapeutics business segment and that we are actively exploring options to drive value by potentially monetizing other non-core assets within our Life Sciences portfolio.

Within the pharmaceutical manufacturing greater sensitivity business, we utilize our CodeEvolver® technology platform to develop optimized enzymes that are used by some of the world's largest pharmaceutical companies to reduce their costs and improve the efficiency and productivity of their manufacturing processes for small molecule therapeutics. We also use the CodeEvolver® technology platform to develop enzymes for the synthesis of nucleic acids such as DNA/RNA, including our ECO Synthesis™ manufacturing platform. We demonstrated gram-scale synthesis with the ECO Synthesis™ manufacturing platform in genomic December 2023 and diagnostic applications, expect to begin pre-commercial customer testing in 2024. We anticipate that this will be followed by early commercial licenses to the ECO Synthesis™ manufacturing platform in 2025 and potentially more efficacious therapeutics, a full commercial launch in 2026.

Recent Developments

Announcement On February 13, 2024, we entered into a five-year loan and security agreement with Innovatus Life Sciences Lending Fund I, LP, an affiliate of interim results from Phase 1 trial Innovatus Capital Partners, LLC (“Innovatus”), for an aggregate principal amount of CDX-7108 for Exocrine Pancreatic Insufficiency (“EPI” up to $40.0 million (the “Loan Agreement”)

On February 23, 2023, we and our partner, Nestlé Health Science announced interim results from a Phase 1 clinical trial consisting of CDX-7108 for two tranches, of which the treatment first tranche of EPI. Data from the proof-of-concept arm indicated improved lipid absorption when patients are administered CDX-7108 versus placebo. Importantly, no safety issues were noted in the 48 subjects that participated in the single ascending dose and multiple ascending dose portion $30.0 million was completed on execution of the study. Loan Agreement. We believe will be eligible to draw on the interim data support further development second tranche of CDX-7018 in partnership with Nestlé Health Science, with potential for $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The two tranches collectively are referred to as the initiation of a Phase 2 study in early 2024.“Term Loans.”

Presentation of pre-clinical data from the Fabry disease transgene program

On February 22, 2023, we announced that Takeda Pharmaceutical Company Limited (Takeda) presented pre-clinical data from the Fabry disease transgene program, part of its Strategic Collaboration and License Agreement with Codexis, at the 19th Annual WORLD*Symposium*™. The gene therapy candidate is being developed to encode the codon optimized, CodeEvolver® engineered -GAL enzyme, which is designed to have improved serum and lysosomal stability and a predicted reduced immunogenicity.

Strengthened management team and Board of Directors with new appointments

On January 23,2023, we announced the appointment of Sri Ryali as Chief Financial Officer and on December 20, 2022, we announced the appointment of H. Stewart Parker to our Board of Directors.

Recent Investing and Financing Activities

In March 2022, we entered into a Stock Purchase Agreement with seqWell Inc. ("seqWell" (“seqWell”), a privately held biotechnology company, pursuant to which we purchased 1,000,000 shares of seqWell's Series C preferred stock for $5.0 million. In September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and 44,128 common stock warrants for $0.4 million. As of December 31, 2023, we have 1,293,535 shares of seqWell's Series C and C-1 preferred stock that we have earned or purchased since executing the Stock Purchase Agreement with seqWell.

In May 2021, we filed a Registration Statement on Form S-3 with the SEC, that automatically became effective upon its filing, under which we may sell common stock, preferred stock, debt securities, warrants, purchase contracts, and units from time to time in one or more offerings. On the date of this filing, February 27, 2023, we also filed a post-effective amendment to that Registration Statement on Form S-3. Pursuant to that post-effective amendment, we registered an aggregate $200.0 million $200.0 million of securities. In May 2021, we entered into an Equity Distribution Agreement ("EDA" (“EDA”) with Piper Sandler & Co ("PSC" (“PSC”), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. Under the terms of the EDA, PSC may sell the shares at market prices by any method that is deemed to be an "at “at the market offering" offering” as defined in Rule 415 under the Securities Act of 1933, as amended. During the year ended December 31, 2023, 3,079,421 shares of our common stock were issued and sold pursuant to the EDA for gross proceeds of $8.7 million, or $7.9 million in net proceeds after PSC's commissions and direct offering expenses of $0.7 million. As of December 31, 2023, $41.3 million of shares remained available for sale under the EDA. During the year ended December 31, 2022, no shares of our common stock were issued sold pursuant to the EDA.

In December 2020, we completed an underwritten public offering of 4,928,572 shares of our common stock at a public offering price of $17.50 per share. The net proceeds to us were approximately $80.8 million after deducting offering costs, underwriting discounts and commissions and other offering expenses of $5.5 million.

In June 2020, we entered into a Stock Purchase Agreement with MAI, a privately held life sciences company, pursuant to which we purchased 1,587,050 shares of MAI's Series A preferred stock for $1.0 million. In connection with the transaction, John Mr. Nicols, our former President and Chief Executive Officer, CEO until August 2022, also joined MAI’s board of directors. directors in June 2020 and remained on MAI's board until September 2023. Concurrently with our initial equity investment, we entered into the a Master Collaboration and Research Agreement with MAI Agreement (the “MAI Agreement”), pursuant to which we performed services utilizing our CodeEvolver® protein engineering directed evolution technology platform technology to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock. In April 2021, we purchased an additional 1,000,000 shares of MAI's Series A preferred stock for $0.6 million. In September 2021, we purchased 9,198,423 shares of MAI's Series B preferred stock for $7.0 million. As of December 31, 2022 December 31, 2023, we have 18,292,369 held 19,277,914 shares of MAI's Series A and B preferred stock that we have earned or purchased since executing the Stock Purchase Agreement with MAI.

In November 2020, we invested $1.0 million in Arzeda Corp., a privately-held computational protein design company that focuses on computational approaches

Business Impact of COVID-19 and Sales of CDX-616 to designing novel enzyme functionality, and received a convertible subordinated note issued by Arzeda Corp. In July 2021, we converted the non-marketable debt security with a carrying value of $1.3 million into 207,070 shares of Series B-2 preferred stock of Arzeda Corp.

Recent Accounting Pronouncements

For information on recent accounting pronouncements, see Note 2, "Summary of Significant Accounting Policies" in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

Business Update Regarding COVID-19 Pfizer for PAXLOVID™

In March 2020, the World Health Organization declared COVID-19 a global pandemic and recommended containment and mitigation measures worldwide. The spread impact of COVID-19 has affected segments of the global economy and its continuing impacts may affect our operations, including the potential interruption of our supply chain. We are monitoring this situation closely, and although operations have not been materially affected by On May 11, 2023, the COVID-19 outbreak Public Health Emergency ("PHE") declared under the Public Health Service Act expired. While COVID-19 is no longer considered a PHE, future surges or actions taken in response to date, the ultimate duration and severity of the outbreak and its impact on the economic environment and COVID-19 or other PHEs may materially affect our business is uncertain. products, supply chain or operations.

As a result of the COVID-19 pandemic, in 2021 and 2022 we have received purchase orders from Pfizer Inc. ("Pfizer") for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary API, nirmatrelvir, used by Pfizer in combination with the API ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product for the treatment of COVID-19 infections in humans. We are a party to an Enzyme Supply Agreement with Pfizer Ireland Pharmaceuticals, a subsidiary of Pfizer, Inc. (the "Pfizer Supply Agreement"), covering the manufacture, sale and purchase of CDX-616 for use by Pfizer in the manufacture of nirmatrelvir. Under the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million in August 2022 which was recorded as deferred revenue. Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and (ii) fees associated with any new development and licensing agreements with Pfizer entered into prior to April 4, 2023. On March 31, 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue during the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. Up to 50% of any portion of the $25.9 million which has not been credited under items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates in 2024. its PAXLOVID™. The sale of CDX-616 to Pfizer had a substantial impact on our revenue for the year ended December 31, 2022. Revenues revenues in 2023 2021 and 2022, and to a lesser extent in 2023. Potential revenues in future years from our sales of CDX-616 to Pfizer and other potential customers (including sublicensees of Pfizer technology from The Medicine Patent Pool) are subject to a number of factors which are outside of our control and could reduce or eliminate our sales of CDX-616, and therefore materially and adversely affect our business, results of operations and financial conditions. CDX-616.

For additional information on the various risks posed by the COVID-19 pandemic, please read Item 1A. Risk Factors included in this Annual Report on Form 10-K.

RESULTS OF OPERATIONS

The following table shows the amounts from our consolidated statements of operations for the periods presented (in thousands, except percentages):

	Year Ended December 31,			% of Total Revenues			Year Ended Decer
	2022	2021	2020	2022	2021	2020	2023
Revenues:							
Product revenue	$ 116,676	$ 70,657	$ 30,220	84 %	67 %	44 %	
Product revenue							$ 42,906
Research and development revenue	21,914	34,097	38,836	16 %	33 %	56 %	27,237
Total revenues	138,590	104,754	69,056	100 %	100 %	100 %	70,143
Costs and operating expenses:							
Cost of product revenue	38,033	22,209	13,742	27 %	21 %	20 %	
Cost of product revenue							12,809
Research and development	80,099	55,919	44,185	58 %	53 %	64 %	58,885
Selling, general and administrative	52,172	49,323	35,049	38 %	47 %	51 %	53,250
Restructuring charges	3,167	—	—	2 %	— %	— %	3,284

	2022	2021	2020	%	%	%	2023	2022
Asset impairment and other charges							9,984	
Total costs and operating expenses	173,471	127,451	92,976	125 %	121 %	135 %	138,212	173,471
Loss from operations	(34,881)	(22,697)	(23,920)	(25) %	(21) %	(35) %	(68,069)	(34,881)
Interest income	1,441	459	405	1 %	— %	1 %	4,172	1,441
Other income (expense), net	124	1,148	(156)	— %	1 %	— %	(12,274)	124
Loss before income taxes	(33,316)	(21,090)	(23,671)	(24) %	(20) %	(34) %	(76,171)	(33,316)
Provision for income taxes	276	189	339	— %	— %	— %	69	276
Net loss	$ (33,592)	$ (21,279)	$ (24,010)	(24) %	(20) %	(34) %	$ (76,240)	$

Revenues

Our revenues consist of product revenue and research and development revenue as follows:

- Product revenue consist of sales of biocatalysts, pharmaceutical intermediates, and Codex® biocatalyst panels and kits.
- Research and development revenue include license, technology access and exclusivity fees, research services fees, milestone payments, royalties, optimization and screening fees.

Revenues are as follows (in thousands, except percentages):

	Year Ended December 31,			Change					
				2022		2021			
	2022	2021	2020	$	%	$	%	2023	
Product revenue	$ 116,676	$ 70,657	$ 30,220	$ 46,019	65 %	$ 40,437	134 %	$ 42,906	$
Research and development revenue	21,914	34,097	38,836	(12,183)	(36) %	(4,739)	(12) %	27,237	
Total revenues	$ 138,590	$ 104,754	$ 69,056	$ 33,836	32 %	$ 35,698	52 %	$ 70,143	$

Revenues typically fluctuate on a quarterly basis due to the variability in our customers' manufacturing schedules and the timing of our customers' clinical trials. In addition, we have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third party manufacturers for the commercial scale manufacturing of the enzymes used in our pharmaceutical and fine chemicals business.

We accept purchase orders for deliveries covering periods from one day up to 14 months from the date on which the order is placed. However, some of our purchase orders can be revised or cancelled by the customer without penalty. Considering these industry practices and our experience, we do not believe the total of customer purchase orders outstanding (backlog) provides meaningful information that can be relied on to predict actual sales for future periods.

2023 compared to 2022

Total revenues decreased by $68.4 million in 2023 to $70.1 million, as compared to 2022. The decrease was driven by lower product revenue as compared to the prior year.

Product revenue was $42.9 million in 2023, a decrease of 63% compared with $116.7 million in 2022. The decrease in product revenue was primarily due to decreased sales of CDX-616 to Pfizer. This decrease was partially offset by $8.2 million release of prior year's deferrals related to Pfizer's fee, $3.2 million release of prior periods' product revenue

deferrals due to early termination of the enzyme supply obligations to a customer and $1.3 million of product revenue recognized as settlement fee pursuant to the enzyme supply agreement with the same customer.

Research and development revenue increased by $5.3 million in 2023 to $27.2 million, or 24% compared with $21.9 million in 2022, primarily due to higher revenue from the Pfizer license agreement and from Nestlé Health Science under the Nestlé SCA and development agreement and the Acquisition Agreement, which was partially offset by lower research and development fees from existing collaboration agreements being recognized in 2023 as compared to the prior year.

2022 compared to 2021

Total revenues increased by $33.8 million in 2022 to $138.6 million, as compared to 2021. The increase was driven by growth in product revenue of $46.0 million, or 65%, but partially offset by a decrease in research and development revenue of $12.2 million, or 36%.

Product revenue which consist primarily of sales of biocatalysts, pharmaceutical intermediates, and Codex® biocatalyst panels and kits, was $116.7 million in 2022, an increase of 65% compared with $70.7 million in 2021. The increase in product revenue was primarily due to $40.9 million higher revenue from Pfizer sales related to the purchase of CDX-616.

Research and development revenue decreased by $12.2 million in 2022 to $21.9 million, or 36% compared with $34.1 million in 2021, primarily due to lower license fees from Takeda, decreased revenue from milestone payments received from GSK in 2021 and lower research and development fees from other existing collaboration agreements being recognized in 2022 as compared to the prior year. A portion of our research and development revenue in 2022 and 2021 was paid to us by MAI in the form of additional shares of MAI Series A and Series B preferred stock. We received an aggregate of 1,587,049 and 3,491,505 shares of MAI's Series A and B preferred stock for the years ended December 31, 2022 and 2021, respectively.

2021 compared to 2020

Total revenues increased by $35.7 million in 2021 to $104.8 million, as compared to 2020. The increase was driven by growth in product revenue of $40.4 million, or 134%, but partially offset by a decrease in research and development revenue of $4.7 million, or 12%.

Product revenues were $70.7 million in 2021, an increase of 134% compared with $30.2 million in 2020. The increase in product revenue was primarily due to $34.5 million in revenue from Pfizer and an increase in demand for enzymes used in the manufacture of branded pharmaceutical products.

Research and development revenue decreased by $4.7 million in 2021 to $34.1 million, or 12% compared with $38.8 million in 2020, primarily due to lower license and research and development fees from Takeda and lower revenues from Novartis recognized in 2021 compared to the prior year, which was partially offset by higher license fees from other existing collaboration agreements. A portion of our research and development revenue in 2020 was paid to us by MAI in the form of additional shares of MAI Series A preferred stock. We received an aggregate of 714,171 shares of MAI's Series A preferred stock for the year ended December 31, 2020.

Costs and Operating Expenses (in thousands, except percentages):

		Year Ended December 31,			Change					
					2022		2021			
	2023	2022	2021	2020	$	%	$	%		
Cost of product revenue	Cost of product revenue	$ 38,033	$ 22,209	$ 13,742	$ 15,824	71 %	$ 8,467	62 %	Cost of product revenue	$ 12,
Research and development	Research and development	80,099	55,919	44,185	24,180	43 %	11,734	26 %	Research and development	58,
Selling, general and administrative	Selling, general and administrative	52,172	49,323	35,049	2,849	6 %	14,274	41 %	Selling, general and administrative	53,
Restructuring charges	Restructuring charges	3,167	—	—	$ 3,167	100 %	$ —	— %	Restructuring charges	3,
Asset impairment and other charges									Asset impairment and other charges	9,
Total costs and operating expenses	Total costs and operating expenses	$ 173,471	$ 127,451	$ 92,976	$ 46,020	36 %	$ 34,475	37 %	Total costs and operating expenses	$ 138,

Costs of Product Revenue and Product Gross Margin

Our product revenues are derived entirely from our Performance Enzymes segment. Revenues from the Novel Biotherapeutics segment are only from collaborative research and development activities.

The following table shows the amounts of our product revenue, cost of product revenue, product gross profit and product gross margin from our consolidated statements of operations (in thousands, except percentages):

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2022	2021	$	%	2021	2020	$	
	Year Ended December 31,							
	2023							
Product revenue	Product revenue	$ 116,676	$ 70,657	$ 46,019	65 %	$ 70,657	$ 30,220	$ 40,437	134
Cost of product revenue (1)	Cost of product revenue (1)	38,033	22,209	15,824	71 %	22,209	13,742	8,467	62
Product gross profit	Product gross profit	$ 78,643	$ 48,448	$ 30,195	62 %	$ 48,448	$ 16,478	$ 31,970	194
Product gross margin (%) (2)	Product gross margin (%) (2)	67 %	69 %			69 %	55 %		

(1) Cost of product revenue comprises both internal and third-party fixed and variable costs, including materials and supplies, labor, facilities and other overhead costs associated with our product revenue.

(2)Product gross margin is used as a performance measure to provide additional information regarding our results of operations on a consolidated basis.

2023 compared to 2022

Cost of product revenue decreased by $25.2 million in 2023 to $12.8 million, as compared to 2022. The decrease was primarily due to lower volume of product sales as compared to prior year. Product gross margins increased to 70% in 2023 as compared to 67% in 2022, primarily due to product revenue recognized with no related costs in 2023 related to the utilization of Pfizer's fee and early termination of an enzyme supply agreement with a customer, and was partially offset by variability in the product mix.

2022 compared to 2021

Cost of product revenue increased by $15.8 million in 2022 to $38.0 million, as compared to 2021. The increase was primarily due to a higher volume of product sales and variations in product mix. Product gross margins decreased to 67% in 2022 as compared to 69% in 2021, primarily due to variations in product mix, variation in prices per volume sold and higher shipping costs. Some of these cost increases are a result of the impact of inflation and supply chain pressures seen in 2022.

2021 compared to 2020

Cost of product revenue increased by $8.5 million in 2021 to $22.2 million, as compared to 2020. The increase was primarily due to a higher volume of product sales and variations in product mix. The product gross margin increased to 69% in 2021 as compared to 55% in 2020, primarily due to the sale of higher margin branded products.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects as well as collaborative research and development activities. These costs primarily consist of (i) employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation), (ii) various allocable expenses, which include occupancy-related costs, supplies, depreciation of facilities and laboratory equipment, and (iii) external costs. Research and development expenses are expensed when incurred.

2023 compared to 2022

Research and development expenses were $58.9 million in 2023 compared to $80.1 million in 2022, a decrease of $21.2 million, or 26%. This decrease was primarily due $10.0 million decrease in costs associated with lower headcount, $6.4 million decrease in outside services and Chemistry, Manufacturing and Controls (“CMC”) and regulatory expense, $4.1 million in lower lab supplies expense, $1.3 million in lower stock comp expense, and $1.0 million decrease in lease costs due to the assignment of our San Carlos facility lease. These were partially offset by $1.7 million in higher allocable costs.

2022 compared to 2021

Research and development expenses were $80.1 million in 2022 compared to $55.9 million in 2021, an increase of $24.2 million, or 43%. The increase was primarily due to an increase of $7.4 million in costs associated with higher headcount, $4.8 million in higher facilities and repair and maintenance expenses, $5.3 million increase in outside services and Chemistry, Manufacturing and Controls (“CMC”) CMC and regulatory expenses, $2.6 million in higher lab supplies, $2.1 million in higher depreciation expenses, $1.1 million in higher stock-based compensation expenses and $0.7 million in higher allocable expenses. Some of these cost increases are a result of the impact of inflation seen in 2022.

2021 compared to 2020

Research and development expenses were $55.9 million in 2021 compared to $44.2 million in 2020, an increase of $11.7 million, or 26%. The increase was primarily due to $7.6 million in costs associated with higher headcount, $0.8 million in higher stock-based compensation expenses, $2.6 million in higher lab supplies, $2.2 million in higher allocable expenses, $1.1 million increase in outside services, and $1.0 million in higher depreciation expenses, which was partially offset by a $3.7 million decrease in costs associated with outside services related to CMC and regulatory expenses.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist of employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation), hiring and training costs, consulting and outside services expenses (including audit and legal counsel related costs), marketing costs, building lease costs, and depreciation expenses and amortization expenses.

2023 compared to 2022

Selling, general and administrative expenses were $53.3 million in 2023 compared to $52.2 million in 2022, an increase of $1.1 million, or 2%. This increase was primarily due to $3.6 million higher in payroll-based expenses, $0.6 million in higher legal expense, $0.4 million in higher repairs and maintenance expense, and $0.3 million in higher consulting and outside services. This was partially offset by $3.2 million lower stock based compensation expense and $0.4 million in lower allocable expenses.

2022 compared to 2021

Selling, general and administrative expenses were $52.2 million in 2022 compared to $49.3 million in 2021, an increase of $2.8 million, or 6%. The increase was primarily due to an increase of $6.0 million in costs associated with higher headcount, $1.8 million in higher stock-based compensation costs, $0.8 million in higher outside and temporary services, which was partially offset by a decrease of $3.5 million in allocable expenses due to higher expenses allocated to research and development activities in 2022 and $3.3 million in lower legal fees. Some of these cost increases are a result of the impact of inflation seen in 2022.

2021 compared to 2020

Selling, general and administrative expenses were $49.3 million in 2021 compared to $35.0 million in 2020, an increase of $14.3 million, or 41%. The increase was primarily due to an increase of $6.6 million in costs associated with higher headcount to support our growth, $3.1 million in higher stock-based compensation costs, $5.1 million increase in legal fees, $1.1 million in higher outside and temporary services, $1.0 million in higher facilities cost, and $0.4 million increase in allowance for credit losses, which was partially offset by a decrease of $3.0 million in allocable expenses due to higher expenses allocated to research and development activities in 2021.

Restructuring Charges

Restructuring charges in 2022 consist of one-time employee severance and other termination benefits due to a workforce reduction plan plans that occurred were initiated during the third quarter of 2023 and in the fourth quarter of 2022. Restructuring charges were $3.3 million and $3.2 million for the years ended December 31, 2023 and 2022, respectively.

Asset Impairment and Other Charges

Asset impairment and other charges for the year ended December 31, 2023 were $10.0 million, consisting of a $9.2 million long-lived asset impairment charge and a $0.8 million goodwill impairment charge, all of which are non-cash charges. No asset impairment charges were recorded for the years ended December 31, 2022 or 2021.

Interest Income and Other Income (Expense), net (in thousands, except percentages):

	Year Ended December 31,			Change			
				2022		2021	
	2022	2021	2020	$	%	$	%
Interest income	$ 1,441	$ 459	$ 405	$ 982	214 %	$ 54	13 %
Other income (expense), net	124	1,148	(156)	(1,024)	89 %	1,304	836 %
Total other income (expense), net	$ 1,565	$ 1,607	$ 249	$ (42)	(3) %	$ 1,358	545 %

Interest Income

Interest income increased by $2.7 million in 2023 compared to 2022, primarily due to higher average interest rates on cash balances. Interest income increased by $1.0 million in 2022 compared to 2021, primarily due to higher average interest rates on cash balances, and was partially offset by earned interest income on a non-marketable debt security in the prior year. Interest income increased by $0.1 million in 2021 compared to 2020, primarily due to earned interest income on a non-marketable debt security, which was partially offset by a reduction in interest income from lower average interest rates on lower average cash balances

Other Income (Expense), net

Other income (expense), net, decreased by $12.4 million in 2023 compared to 2022, primarily due to impairment of our investments in MAI, seqWell and Arzeda. Other income (expense), net, decreased by $1.0 million in 2022 compared to 2021, primarily due to a higher lower gain from remeasurement on the carrying value of our investment in MAI recognized in the prior year 2022 as compared to this year 2021. Other income (expense), net increased by $1.3 million in 2021 compared to 2020, primarily due to a $1.0 million gain from remeasurement on the carrying value of our investment in MAI.

Provision for Income Taxes (in thousands, except percentages):

	Year Ended December 31,			Change			
				2022		2021	
	2022	2021	2020	$	%	$	%
Provision for income taxes	$ 276	$ 189	$ 339	$ 87	46 %	(150)	(44)%

	Year Ended December 31,			Change			
				2023		2022	
	2023	2022	2021	$	%	$	%
Provision for income taxes	$ 69	$ 276	$ 189	$ (207)	(75)%	$ 87	46 %

The provision for income taxes in 2023 was primarily for current year state income taxes and the accrual of interest and penalties on historic uncertain tax positions.

The provision for income taxes in 2022 was primarily due to the income tax withholding imposed by foreign taxing authorities on income earned in certain countries outside of the Unites Stated and remitted to the United States and the accrual of interest and penalties on historic uncertain tax positions, as well as current year state income taxes.

Starting in 2022, changes to Internal Revenue Code Section 174 made by the Tax Cuts and Jobs Act of 2017 no longer permit an immediate deduction for research and development expenditures in the tax year that such costs are incurred. As a result, the Company capitalized such costs in its 2022 income tax provision resulting in an increase in deferred tax assets and state income taxes. However, as we have recorded a full valuation allowance on our deferred tax assets, this did not have an impact on our net deferred tax assets.

The provision for income taxes in 2021 was primarily due to the income tax withholding imposed by foreign taxing authorities on income earned in certain countries outside of the Unites Stated and remitted to the United States and the accrual of interest and penalties on historic uncertain tax positions. The provision for income taxes in 2020 was primarily due to foreign withholding taxes on certain sales to non-U.S. customers. positions.

Net Loss

Net loss for 2023 was $76.2 million, or a net loss per basic and diluted share of $1.12. This compared to a net loss of $33.6 million, or $0.51 per basic and diluted share for 2022. The increase in net loss was primarily related to lower product revenues from CDX-616 and one-time charges recognized during 2023 related to asset impairment, including impairment in our investments in non-marketable equity securities, and restructuring charges, which was partially offset by lower operating expenses in 2023.

Net loss for 2022 was $33.6 million, or a net loss per basic and diluted share of $0.51. This compared to a net loss of $21.3 million, or $0.33 per basic and diluted share for 2021. The increase in net loss was primarily related to lower research and development revenues and higher operating expenses.

Net loss for 2021 was $21.3 million, or a net loss per basic and diluted share of $0.33. This compared to a net loss of $24.0 million, or $0.40 per basic and diluted share for 2020. The decrease in net loss was primarily related to an increase in product revenue with higher margins, which was partially offset by higher operating expenses and lower research and development revenues.

Results of Operations by Segment (in thousands, except percentages)

Revenues by segment

	Year Ended December 31, 2022			Year Ended December 31, 2021			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Revenues:										
Product revenue	$ 116,676	$ —	$ 116,676	$ 70,657	$ —	$ 70,657	$ 46,019	65 %	$ —	— %
Research and development revenue	9,936	11,978	21,914	19,858	14,239	34,097	(9,922)	(50)%	(2,261)	(16)%
Total revenues	$ 126,612	$ 11,978	$ 138,590	$ 90,515	$ 14,239	$ 104,754	$ 36,097	40 %	$ (2,261)	(16)%

	Year Ended December 31, 2021			Year Ended December 31, 2020			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Revenues:										
Product revenue	$ 70,657	$ —	$ 70,657	$ 30,220	$ —	$ 30,220	$ 40,437	134 %	$ —	— %

Research and development revenue	19,858	14,239	34,097	17,886	20,950	38,836	1,972	11 %	(6,711)	(32)%
Total revenues	$ 90,515	$ 14,239	$ 104,754	$ 48,106	$ 20,950	$ 69,056	$ 42,409	88 %	$ (6,711)	(32)%

2022 compared to 2021

Revenues from the Performance Enzymes segment increased by $36.1 million, or 40%, to $126.6 million in 2022, compared to $90.5 million in 2021. The increase in product revenue of $46.0 million, or 65%, to $116.7 million in 2022, compared to $70.7 million in 2021 was primarily due to $40.9 million higher revenue from Pfizer sales related to the purchase of CDX-616. The decrease in research and development revenue of $9.9 million, or 50%, to $9.9 million in 2022, compared to $19.9 million in 2021 was primarily due to lower revenues from Novartis under the Novartis CodeEvolver® Agreement as we completed the technology transfer to Novartis during the third quarter of 2021, decreased revenue from milestone payments received from GSK, and lower research and development fees from other existing collaboration agreements compared to 2021.

Revenues from the Novel Biotherapeutics segment decreased by $2.3 million, or 16%, to $12.0 million in 2022, compared to $14.2 million in 2021. The decrease in revenue was primarily due to lower research and development fees from Takeda and lower research and development revenue from Nestlé Health Science recognized this year compared to the prior year.

2021 compared to 2020

Revenues from the Performance Enzymes segment increased by $42.4 million, or 88%, to $90.5 million in 2021, compared to $48.1 million in 2020. The increase in product revenue of $40.4 million, or 134%, to $70.7 million in 2021, compared to $30.2 million in 2020 was primarily due to $34.5 million in revenue from Pfizer and higher customer demand for enzymes used in the manufacture of branded pharmaceutical products. The increase in research and development revenue of $2.0 million, or 11%, to $19.9 million in 2021, compared to $17.9 million in 2020 was primarily due to higher licenses fees from existing collaboration arrangements, which was partially offset by lower revenues from Novartis.

Revenues from the Novel Biotherapeutics segment decreased by $6.7 million, or 32%, to $14.2 million in 2021, compared to $21.0 million in 2020. The decrease in revenue was primarily due to lower license and research and development fees from Takeda and a decrease in research and development revenue from Nestlé Health Science in 2021 compared to 2020.

Costs and operating expenses by segment

	Year Ended December 31, 2022			Year Ended December 31, 2021			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Cost of product revenue	$ 38,033	$ —	$ 38,033	$ 22,209	$ —	$ 22,209	$ 15,824	71%	$ —	—%
Research and development(1)	25,786	49,770	75,556	23,140	30,219	53,359	2,646	11%	19,551	65%
Selling, general and administrative(1)	14,724	2,421	17,145	12,105	2,755	14,860	2,619	22%	(334)	(12)%
Restructuring Charges	$ 1,708	$ 966	2,674	$ —	$ —	—	$ 1,708	100%	$ 966	100%
Total segment costs and operating expenses	$ 80,251	$ 53,157	133,408	$ 57,454	$ 32,974	90,428	$ 22,797	40%	$ 20,183	61%
Corporate costs(2)			34,645			33,808				
Unallocated depreciation and amortization			5,418			3,215				
Total costs and operating expenses			$ 173,471			$ 127,451				

(1) Research and development expenses and selling, general and administrative expenses exclude depreciation and amortization of finance leases.

(2) Corporate costs include unallocated selling, general and administrative expense and restructuring charges.

	Year Ended December 31, 2021			Year Ended December 31, 2020			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Cost of product revenue	$ 22,209	$ —	$ 22,209	$ 13,742	$ —	$ 13,742	$ 8,467	62%	$ —	—%
Research and development(1)	23,140	30,219	53,359	20,923	21,705	42,628	2,217	11%	8,514	39%
Selling, general and administrative(1)	12,105	2,755	14,860	9,597	2,355	11,952	2,508	26%	400	17%
Total segment costs and operating expenses	$ 57,454	$ 32,974	90,428	$ 44,262	$ 24,060	68,322	$ 13,192	30%	$ 8,914	37%
Corporate costs(2)			33,808			22,555				

Unallocated depreciation and amortization	3,215	2,099
Total costs and operating expenses	$ 127,451	$ 92,976

(1) Research and development expenses and selling, general and administrative expenses exclude depreciation and amortization of finance leases.

(2) Corporate costs include unallocated selling, general and administrative expenses.

For a discussion of product cost of revenue, see *"Results of Operations"*.

2022 compared to 2021

Research and development expense in the Performance Enzymes segment increased by $2.6 million, or 11%, to $25.8 million in 2022, compared to $23.1 million in 2021. The increase was primarily due to an increase in costs associated with outside services and higher headcount but partially offset by lower allocable expenses.

Selling, general and administrative expense in the Performance Enzymes segment increased by $2.6 million, or 22%, to $14.7 million in 2022, compared to $12.1 million in 2021. The increase was primarily due to an increase in costs associated with higher headcount and higher outside services expenses.

Research and development expense in the Novel Biotherapeutics segment increased by $19.6 million, or 65%, to $49.8 million in 2022, compared to $30.2 million in 2021. The increase was primarily due to higher costs associated with higher headcount, higher facilities cost and lab supplies, increase in outside services related to CMC and regulatory expenses and higher allocable expenses.

Selling, general and administrative expense in the Novel Biotherapeutics segment decreased by $0.3 million, or 12%, to $2.4 million in 2022, compared to $2.8 million in 2021. The decrease was primarily due to lower outside services expenses.

2021 compared to 2020

Research and development expense in the Performance Enzymes segment increased by $2.2 million, or 11%, to $23.1 million in 2021, compared to $20.9 million in 2020. The increase was primarily due to an increase in costs associated with higher headcount, higher outside services expenses, and higher lab supplies, which was partially offset by lower allocable expenses.

Selling, general and administrative expense in the Performance Enzymes segment increased by $2.5 million, or 26%, to $12.1 million in 2021, compared to $9.6 million in 2020. The increase was primarily due to an increase in costs associated with higher headcount and allocable expenses, which was partially offset by lower outside services expenses.

Research and development expense in the Novel Biotherapeutics segment increased by $8.5 million, or 39%, to $30.2 million in 2021, compared to $21.7 million in 2020. The increase was primarily due to higher costs associated with higher headcount and allocable expenses but partially offset by reduction in costs associated with outside services relating to CMC and regulatory expenses.

Selling, general and administrative expense in the Novel Biotherapeutics segment increased by $0.4 million, or 17%, to $2.8 million in 2021, compared to $2.4 million in 2020. The increase was primarily due to increase in costs associated with higher headcount and higher allocable expenses, which was partially offset by lower outside services expenses.

Income (loss) from operations by segment

	Year Ended December 31, 2022			Year Ended December 31, 2021			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Income (loss) from operations	$ 46,361	$ (41,179)	$ 5,182	$ 33,061	$ (18,735)	$ 14,326	$ 13,300	40%	$ (22,444)	(120)%

	Year Ended December 31, 2021			Year Ended December 31, 2020			Change			
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes		Novel Biotherapeutics	
							$	%	$	%
Income (loss) from operations	$ 33,061	$ (18,735)	$ 14,326	$ 3,844	$ (3,110)	$ 734	$ 29,217	760%	$ (15,625)	(502)%

2022 compared to 2021

Income from operations in the Performance Enzymes segment increased by $13.3 million, or 40%, to $46.4 million, in 2022, compared to $33.1 million in 2021. The increase in income from operations was primarily due to higher product revenue from Pfizer sales partially offset by lower research and development revenue and higher costs and operating expenses.

Loss from operations in the Novel Biotherapeutics segment increased by $22.4 million, or 120%, to $41.2 million in 2022 compared to a loss from operations of $18.7 million in 2021, primarily due to lower research and development revenue from Takeda and Nestlé Health Science and higher research and development expenses associated with higher headcount, higher facilities cost and lab supplies and higher allocable expenses.

2021 compared to 2020

Income from operations in the Performance Enzymes segment increased by $29.2 million, or 760%, to $33.1 million, in 2021, compared to $3.8 million in 2020. The increase in income from operations was primarily due to higher product revenue and research and development revenue, which was partially offset by higher costs and operating expenses.

Loss from operations in the Novel Biotherapeutics segment increased by $15.6 million, or 502%, to $18.7 million in 2021 compared to a loss from operations of $3.1 million in 2020. The increase in loss from operations was primarily due to lower research and development revenue from Takeda and decrease in research and development revenue from Nestlé Health Science, and higher research and development expenses associated with higher headcount and allocable expenses.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity is the measurement of our ability to meet working capital needs and to fund capital expenditures. We have historically funded our operations primarily through cash generated from operations, stock option exercises and public and private offerings of our common stock. We also have In addition, pursuant to the ability Loan Agreement, we received $30.0 million from Innovatus, as Lender, on February 13, 2024 and may become eligible to borrow up to $5.0 million under our Credit Facility (defined below). an additional $10.0 million upon the achievement of certain financial milestones. We actively manage our cash usage and investment of liquid cash to ensure the maintenance of sufficient funds to meet our working capital needs. Our cash and cash equivalents are held in U.S U.S. banks.

Our primary uses of capital are, and we expect will continue to be for the near foreseeable future, including the next 12 months, are for compensation and related expenses, research and development expenses including costs related to the potential clinical development of our product candidates, manufacturing costs, laboratory and related supplies, legal and other regulatory expenses, and general overhead costs. We expect our cash requirements to increase in the near term as we continue to invest in high potential research and development activities with long-term commercial potential, if approved, and see less cash revenue from sales of CDX-616 to Pfizer for PAXLOVID™.

The following summarizes our cash and cash equivalents balance and working capital as of December 31, 2022 December 31, 2023, 2021 2022 and 2020 2021 (in thousands):

		December 31,			December 31,		
		2022	2021	2020			
2023					2023	2022	2021
Cash and cash equivalents	Cash and cash equivalents	$ 113,984	$ 116,797	$ 149,117			
Working capital	Working capital	$ 113,828	$ 128,517	$ 159,442			

Sources of Capital

In addition to our existing cash and cash equivalents and revenue generated through our existing operations, we are eligible to earn milestone and other contingent payments for the achievement of defined collaboration objectives and certain royalty payments under our collaboration agreements with Merck, NovartisNestlé, and NovartisNestlé Health Science of up to $439.0 $59.0 million in aggregate. In addition, under the GSK CodeEvolver® Agreement, we have the potential to receive additional contingent payments that range from $5.8 million to $38.5 million per project. Our ability to earn these milestone and contingent payments and the timing of achieving these milestones is primarily dependent upon the outcome of our collaborators' research and development activities and is uncertain at this time.

In addition, pursuant to the terms of the Pfizer Supply Agreement, we received Pfizer paid us a fee of $25.9 million in August 2022. The 2022 which was recorded as deferred revenue. Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and for (ii) fees associated with any new development and licensing agreements with Pfizer entered into prior to March 31, 2023 that are invoiced prior April 4, 2023. Subsequent to the end of the first quarter of 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue during the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. Up to 50% of any portion of the fee $25.9 million which has not been credited pursuant to credits granted under the preceding sentence items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates prior to December 31, 2024. In the fourth quarter of 2022, we in 2024, and Pfizer agreed to adjust the terms of certain existing non-cancelable purchase orders of CDX-616 issued under the Pfizer Supply Agreement pursuant to which Pfizer will pay us $36.8 million in lieu any portion of the delivery of certain quantities of CDX-616 under those purchase orders, upon which we collected $19.8 million in December 2022 fee that is not utilized within the specific period will be forfeited and the remaining amount is expected to be received in the first quarter of 2023. recognized as revenue.

We are actively collaborating with new and existing customers. We believe that we can utilize our current products and services, and develop new products and services, to increase our revenues and gross margins in future periods.

We have historically experienced negative cash flows from operations as we continue to invest in key technology development projects and improvements to our CodeEvolver® protein engineering technology platform, develop and commercialize new and existing products including our ECO Synthesis™ manufacturing platform and expand our business development and collaboration with new customers. Our cash flows from operations will continue to be affected principally by product sales and product gross margins, sales from licensing our technology to major pharmaceutical companies, and collaborative research and development services provided to customers, as well as our headcount costs, primarily in research and development. Our primary source of cash flows from operating activities is cash receipts from our customers for purchases of products, collaborative research and development services, and licensing our technology to major pharmaceutical companies. Our largest uses of cash from operating activities are for employee-related expenditures, rent payments, inventory purchases to support our product sales and non-payroll research and development costs.

Loan Agreement and Term Loans

On February 13, 2024, we entered into the Loan Agreement with Innovatus consisting of two tranches, of which the first tranche of $30.0 million was completed upon execution of the Loan Agreement. We will be eligible to draw on the second tranche of $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The Term Loan carries an interest-only period of 36 months and will bear an interest at a floating rate of the sum of (a) the greater of (i) prime rate and (ii) 7.50%, plus (b) 3.25%.

Equity Distribution Agreement

In May 2021, we entered into an Equity Distribution Agreement ("EDA" ("EDA") with Piper Sandler & Co ("PSC" ("PSC"), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. During the year ended December 31, 2022 December 31, 2023, no 3,079,421 shares of our common stock were issued and sold pursuant to the EDA, all during the first half of 2023, and as we received net proceeds of December 31, 2022 $7.9 million. As of December 31, 2023, $50.0 million worth $41.3 million of shares remained available for sale under the EDA. Sales of our common stock under this arrangement could be subject to business, economic or competitive uncertainties uncertainties and contingencies, many of which may be beyond our control, and which could cause actual results from the sale of our common stock to differ materially from expectations.

Credit Facility Liquidity

In June 2017, we entered into the Credit Facility with Western Alliance Bank consisting of term loans up to $10.0 million, and advances under a revolving credit facility up to $5.0 million with accounts receivable borrowing base of 80% of eligible accounts receivable. Our right to take draws on the term debt expired on December 31, 2021. On October 1, 2024, loans drawn, if any, under the Revolving Line of Credit terminate.

The Credit Facility requires us to maintain compliance with certain financial covenants including attainment of certain lender-approved projections or maintenance of certain minimum cash levels. Restrictive covenants in the Credit Facility restrict the payment of dividends or other distributions. As of December 31, 2022, no amounts were borrowed under the Credit Facility and we were in compliance with the covenants for the Credit Facility. For additional information about our contractual obligations, see Note 13, “Commitments and Contingencies” in the Notes to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K.

We believe that our existing cash and cash equivalents, combined with our future expectations for product revenues, research and development revenue, and expense management will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements requirements for at least the next twelve 12 months. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our capital resources sooner than we expect.

However, we may need additional capital if our current plans and assumptions change. In addition, we may choose to seek other sources of capital even if we believe we have generated sufficient cash flows to support our operating needs. Our need for additional capital will depend on many factors, including the financial success of our business, the spending required to develop and commercialize new and existing products including our ECO Synthesis™ manufacturing platform, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, and the potential costs for the filing, prosecution, enforcement and defense of patent claims, if necessary. If our capital resources are insufficient to meet our longer term capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. If In addition, under our Loan Agreement, we raise debt financing or enter into credit facilities, we may be are subject to restrictive covenants that limit our ability to conduct our business. business and could be subject to additional covenants to the extent we seek other debt financing in the future. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited. If this happens, we may be forced to delay or terminate research development of new products or development programs services, such as our ECO Synthesis™ manufacturing platform, or the commercialization of products resulting from our technologies, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require us to relinquish commercial rights, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business.

Cash Flows

The following is a summary of cash flows for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020 2021 (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Net cash provided by (used in) operating activities	$ 11,284	$ (14,267)	$ (16,464)
Net cash used in investing activities	(13,578)	(21,422)	(5,748)
Net cash provided by (used in) financing activities	(575)	3,767	80,808
Net increase (decrease) in cash, cash equivalents and restricted cash	$ (2,869)	$ (31,922)	$ 58,596

	Year Ended December 31,		
	2023	2022	2021
Net cash provided by (used in) operating activities	$ (52,638)	$ 11,284	$ (14,267)
Net cash used in investing activities	(4,858)	(13,578)	(21,422)
Net cash provided by (used in) financing activities	8,167	(575)	3,767
Net decrease in cash, cash equivalents and restricted cash	$ (49,329)	$ (2,869)	$ (31,922)

Cash Flows from Operating Activities

The $63.9 million decrease in net cash provided by operating activities in 2023 as compared to 2022 was primarily due to the net effect of decreases in cash received from our customers due to lower revenue in 2023 and with 2022 benefiting from the receipt of a $25.9 million fee from Pfizer that is creditable against future orders, partially offset by decreases in cash paid for cost of revenues and operating expenses.

The $25.6 million increase in net cash provided by operating activities in 2022 as compared to 2021 was primarily due to the receipt of a $25.9 million fee from Pfizer in August 2022 creditable against future orders and increases in cash received from revenue, which was partially offset by increased payments associated with higher operating costs.

Cash Flows from Investing Activities

The $2.2 million $8.7 million decrease in net cash used by operating in investing activities in 2021 2023 as compared to 2020 2022 was primarily due to increases higher cash utilized for additional investments in cash received from revenue, which was partially offset by increased payments associated with higher operating costs.

Cash Flows from Investing Activities

equity securities and purchases of property and equipment in the prior year.

The $7.8 million decrease in net cash used in investing activities in 2022 as compared to 2021 was primarily due to higher cash utilized for additional investments in equity securities and purchases of property and equipment in 2021.

The $15.7 million increase in net cash used in investing activities in 2021 as compared to 2020, was primarily due to higher cash utilized for the additional investments in MAI's Series A and B preferred stock for $7.6 million and higher purchases of property and equipment during 2021.

Cash Flows from Financing Activities

The $8.7 million increase in net cash provided by financing activities in 2023 as compared to 2022 was primarily due to proceeds from issuance of common stock under the EDA and lower cash paid on taxes related to net share settlement of equity awards.

The $4.3 million decrease in net cash provided by financing activities in 2022 as compared to 2021 was primarily due to higher cash paid on taxes related to net share settlement of equity awards and lower proceeds from exercises of stock options.

The $77.0 million decrease in net cash provided by financing activities in 2021 as compared to 2020 was primarily due to the receipt of $80.8 million in net proceeds from our offering of common stock in 2020.

OFF-BALANCE SHEET ARRANGEMENTS

As of December 31, 2022 December 31, 2023, we had no off-balance sheet arrangements as defined in Item 303 of Regulation S-K as promulgated by the SEC.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Management's discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements. The consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States and include our accounts and the accounts of our wholly owned subsidiaries. The preparation of our consolidated financial statements requires our management to make estimates, assumptions, and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the applicable periods. Management bases its estimates, assumptions and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our consolidated financial statements, which, in turn, could change the results from those reported. Our management evaluates its estimates, assumptions and judgments on an ongoing basis.

The critical accounting policies requiring estimates, assumptions, and judgments that we believe have the most significant impact on our consolidated financial statements are described below.

Revenue Recognition

Our revenues are derived primarily from product revenue and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services.

The majority of our collaborative contracts contain multiple revenue streams such as upfront and/or annual license fees, research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage, among others. We determine the stand-alone selling price ("SSP" (“SSP”) and allocate consideration to distinct performance obligations.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

Product Revenue

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us

to exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the range of discounts that we typically give for that product or service, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We primarily account for options which provide material rights using the alternative approach available under ASC the Accounting Standards Codification ("ASC") 606, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimate of future goods to be ordered by customers change. Estimating expected consideration to be received under the alternative approach involves significant judgment.

Research and Development Revenue

The majority of our research and development agreements are based on a contractual rate per dedicated project team working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress either based on hours incurred or based on stage output of progress under the project. services provided.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. If we determine that the customer cannot benefit from the license without our services, the license will be accounted for as combined with the other performance obligations. If we determine that a license is distinct, we would recognize an allocable portion of the transaction price when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success.

At the inception of each arrangement that includes variable consideration such as development milestone payments, we evaluate whether the milestones are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received.

Our CodeEvolver® platform technology transfer collaboration agreements typically include license fees, upfront fees, and variable consideration in the form of milestone payments, and sales or usage-based royalties. We have recognized revenues from our platform technology transfer agreements over time.

We also have an agreement under which we have granted a functional license to some elements of our biocatalyst technology. We will recognize revenues for the functional license at a point in time when the control of the license transfers to the customer.

For license agreements that include sales or usage-based royalty payments to us for which the license is the predominant item to which the royalty relates, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

Investment in Non-Marketable Securities

Investment in Non-Marketable Equity Securities

We measure investments in non-marketable equity securities without a readily determinable fair value using a measurement alternative that measures these securities at the cost method minus impairment, if any, plus or minus changes resulting from observable price changes on a non-recurring basis. Gains and losses on these securities are recognized in other income (expense), net.

We evaluate equity securities for impairment when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an "other-than-temporary" "other-than-temporary" decline in estimated fair value of the debt or equity security compared to its carrying value. We calculate the estimated fair value of these securities using information from the investee, which may include:

- Audited and unaudited financial statements;
- Projected technological developments of the company;
- Projected ability of the company to service its debt obligations;
- If a deemed liquidation event were to occur;
- Current fundraising transactions;
- Current ability of the company to raise additional financing if needed;
- Changes in the economic environment which may have a material impact on the operating results of the company;
- Contractual rights, obligations or restrictions associated with the investment; and
- Other factors deemed relevant by our management to assess valuation.

The valuation may be reduced if the company's potential has deteriorated significantly. If the factors that led to a reduction in valuation are overcome, the valuation may be readjusted.

Impairment of Long-Lived Assets

We evaluate the carrying values of long-lived assets, which include property and equipment and right-of-use assets, whenever events, changes in business circumstances or our planned use of long-lived assets indicate that their carrying amounts may not be fully recoverable or that their useful lives are no longer appropriate. If these facts and circumstances exist, we assess for recovery by comparing the carrying values of long-lived assets with the future net undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measure by the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Recent Accounting Pronouncements

See Note 2, “Basis of Presentation and Summary of Significant Accounting Policies” in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K for a full description of recent accounting standards, including the respective dates of adoption and effects on our consolidated financial position, results of operations and cash flows.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Sensitivity

Our unrestricted cash and cash equivalents total $114.0 million $65.1 million at December 31, 2022 December 31, 2023. We primarily invest these amounts in money market funds which are held for working capital purposes. We do not enter into investments for trading or speculative purposes. As of December 31, 2022 December 31, 2023, the effect of a hypothetical 10% decrease in market interest rates would have an $316 thousand $0.3 million impact on a potential loss in future interest income and cash flows.

In June 2017, we entered into a Credit Facility with Western Alliance Bank consisting of term loans up to $10.0 million, and advances under a revolving line of credit up to $5.0 million. Our right to take draws on the long term debt expired on December 31, 2021. On October 1, 2024, loans drawn, if any, under the Revolving Line of Credit terminate. Advances made under the Revolving Line of Credit bear interest at a variable annual rate equal to the greater of (i) 4.25% or (ii) the sum of (A) the prime rate plus (B) 1.00%. Increases in these variable interest rates will increase our future interest expense and decrease our results of operations and cash flows. Our exposure to interest rates risk relates to our 2017 Credit Facility with variable interest rates, where an increase in interest rates may result in higher borrowing costs. Since we have no outstanding borrowings under our 2017 Credit Facility as of December 31, 2022, the effect of a hypothetical 10% change in interest rates would have an impact of nil on our interest expense.

Foreign Currency Risk

Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. In periods when the USD United States dollar (“USD”) declines in value as compared to the foreign currencies in which we incur expenses, our foreign-currency based expenses increase when translated into United States dollars. USD. Although substantially all of our sales are denominated in United States dollars, USD, future fluctuations in the value of the USD may affect the price competitiveness of our products outside the United States. Our most significant foreign currency exposure is due to non-functional currency denominated monetary assets, primarily currencies denominated in other than their functional currency. These non-functional currency denominated monetary assets are subject to re-measurement which may create fluctuations in other expense, net, a component in our consolidated statement of operations and in the fair value of the assets in the consolidated balance sheets. As of December 31, 2022 December 31, 2023, the effect of a hypothetical 10% unfavorable change in exchange rates on currencies denominated in other than their functional currency would result in a potential loss in future earnings in our consolidated statement of operations and a reduction in the fair value of the assets of approximately $42 $41 thousand. We did not engage in hedging transactions in 2022, 2021 and 2020.

Investment in Non-Marketable Equity Securities

We own investments in non-marketable equity securities without readily determinable fair values. We may value these equity securities based on significant recent arms-length equity transactions with sophisticated non-strategic unrelated investors, providing the terms of these security transactions are substantially similar to the security transactions terms between the investors and us. The impact of the difference in transaction terms on the market value of the portfolio company may be difficult or impossible to quantify.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Codexis, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Codexis, Inc.
Redwood City, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Codexis, Inc. (the "Company") as of December 31, 2022 December 31, 2023 and 2021, 2022, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022 December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 December 31, 2023 and 2021, 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2022 December 31, 2023, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated February 27, 2023 February 28, 2024 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matters matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition

As described in Notes 2, 3 and 35 to the consolidated financial statements, the Company enters into contracts with customers that include enzyme supply, licensing, and collaborative research and development agreements. Certain contracts with customers may contain multiple performance obligations, options, up-front and/or annual license fees, fees for research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage. The Company recognizes revenue in a manner that best depicts the transfer of promised goods or services to the customer when control of the product or service is transferred to a customer. The Company's contracts with customers include enzyme supply, licensing, and collaborative research and development agreements. Contracts with customers may contain multiple performance obligations, options, up-front or annual license fees, fees for full time employee research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage. The Company makes significant judgments in determining revenue recognition for certain customer contracts.

We identified the evaluation of management's significant judgments accounting for revenue from certain new and estimates related to revenue recognition for amended contracts with customers as a critical audit matter. Auditing matter due to significant judgments and estimates involved in the evaluation identification of distinct performance obligations, allocation of transaction price to distinct performance obligations, determination and estimation of material rights, determination of the pattern of transfer of control for each distinct performance obligation and estimation of variable consideration required significant consideration. Auditing these elements involved especially subjective and complex auditor judgments due to the nature and extent of audit effort and subjective judgments in evaluating management's estimates. required.

The primary procedures we performed to address this critical audit matter included:

- Testing the design, implementation and operating effectiveness of internal controls relating to the Company's accounting for certain new and amended revenue contracts, including controls over identification of distinct performance obligations and material rights, the determination of the timing of revenue recognition, allocation of transaction price to distinct performance obligations, and the estimation of variable consideration.
- Examining a sample of revenue these contracts and other source documents to test management's identification of significant terms for completeness, including the identification of distinct performance obligations, material rights and variable consideration including sending confirmations to a sample of customers to confirm our understanding of the parties' rights and obligations. consideration.
- Evaluating the reasonableness and accuracy of management's judgments and estimates used in identification and accounting for identified material rights.
- Assessing the reasonableness of management's judgments and estimates to calculate variable consideration, and the timing of recognizing the related revenue subject to any constraints.
- Evaluating the appropriateness of management's allocation of the transaction price to the distinct performance obligation obligations and determination of whether identified performance obligations meet the criteria for over-time revenue recognition.

/s/ BDO USA, LLP P.C.

We have served as the Company's auditor since 2013.

San Jose, Francisco, California
February 27, 2023 28, 2024

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Codexis, Inc.
Redwood City, California

Opinion on Internal Control over Financial Reporting

We have audited Codexis, Inc.'s (the "Company's") internal control over financial reporting as of December 31, 2022 December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022 December 31, 2023, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2022 December 31, 2023 and 2021, 2022, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2022 December 31, 2023, and the related notes and our report dated February 27, 2023 February 28, 2024 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A, Controls and Procedures". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, LLP P.C.

San Jose, Francisco, California
February 27, 2023 28, 2024

Codexis, Inc.
Consolidated Balance Sheets
(In Thousands, Except Per Share Amounts)

		December 31,			December 31,	
		2022	2021		2023	2022
Assets	**Assets**					
Current assets:	Current assets:					
Current assets:						

Current assets:			
Cash and cash equivalents			
Cash and cash equivalents			
Cash and cash equivalents	Cash and cash equivalents	$113,984	$116,797
Restricted cash, current	Restricted cash, current	521	579
Financial assets:	Financial assets:		
Accounts receivable			
Accounts receivable			
Accounts receivable	Accounts receivable	31,904	24,953
Contract assets	Contract assets	2,116	4,557
Unbilled receivables	Unbilled receivables	7,016	8,558
Total financial assets	Total financial assets	41,036	38,068
Less: allowances	Less: allowances	(163)	(416)
Total financial assets, net	Total financial assets, net	40,873	37,652
Inventories	Inventories	2,029	1,160
Prepaid expenses and other current assets	Prepaid expenses and other current assets	5,487	5,700
Total current assets	Total current assets	162,894	161,888
Restricted cash	Restricted cash	1,521	1,519
Investment in non-marketable equity securities ($13,921 and $12,713 with a related party)		20,510	14,002
Investment in non-marketable equity securities ($0 and $13,921 with a related party)			
Right-of-use assets - Operating leases, net	Right-of-use assets - Operating leases, net	39,263	44,095
Right-of-use assets - Finance leases, net		—	17
Property and equipment, net	Property and equipment, net	22,614	21,345
Goodwill	Goodwill	3,241	3,241
Other non-current assets	Other non-current assets	350	276
Total assets	Total assets	$250,393	$246,383
Liabilities and Stockholders' Equity	**Liabilities and Stockholders' Equity**		
Current liabilities:	Current liabilities:		
Current liabilities:			
Current liabilities:			
Accounts payable			
Accounts payable			
Accounts payable	Accounts payable	$ 3,246	$ 2,995
Accrued compensation	Accrued compensation	11,453	11,119

Other accrued liabilities	Other accrued liabilities	15,279	12,578
Current portion of lease obligations - Operating leases	Current portion of lease obligations - Operating leases	5,360	4,093
Deferred revenue ($0 and $245 to a related party)		13,728	2,586
Deferred revenue			
Total current liabilities	Total current liabilities	49,066	33,371
Deferred revenue, net of current portion	Deferred revenue, net of current portion	16,881	3,749
Long-term lease obligations - Operating leases	Long-term lease obligations - Operating leases	38,278	43,561
Other long-term liabilities	Other long-term liabilities	1,371	1,311
Total liabilities	Total liabilities	105,596	81,992
Commitments and contingencies (Note 13)	Commitments and contingencies (Note 13)		Commitments and contingencies (Note 13)
Stockholders' equity:	Stockholders' equity:		
Preferred stock, $0.0001 par value per share; 5,000 shares authorized, none issued and outstanding	Preferred stock, $0.0001 par value per share; 5,000 shares authorized, none issued and outstanding	—	—
Common stock, $0.0001 par value per share; 100,000 shares authorized; 65,811 and 65,109 shares issued and outstanding at December 31, 2022 and December 31, 2021, respectively		6	6
Preferred stock, $0.0001 par value per share; 5,000 shares authorized, none issued and outstanding			
Preferred stock, $0.0001 par value per share; 5,000 shares authorized, none issued and outstanding			
Common stock, $0.0001 par value per share; 200,000 shares authorized; 69,905 and 65,811 shares issued and outstanding at December 31, 2023 and December 31, 2022, respectively			
Additional paid-in capital	Additional paid-in capital	566,081	552,083
Accumulated deficit	Accumulated deficit	(421,290)	(387,698)
Total stockholders' equity	Total stockholders' equity	144,797	164,391

Total liabilities and stockholders' equity	Total liabilities and stockholders' equity	$250,393	$246,383

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Operations
(In Thousands, Except Per Share Amounts)

		Year Ended December 31,			Year Ended December 31,		
		2022	2021	2020	2023	2022	2021
Revenues:	**Revenues:**						
Product revenue ($514, $0 and $0 from a related party)		$116,676	$ 70,657	$ 30,220			
Research and development revenue ($1,245, $1,955 and $900 from a related party)		21,914	34,097	38,836			
Product revenue ($0, $514 and $0 from a related party)							
Product revenue ($0, $514 and $0 from a related party)							
Product revenue ($0, $514 and $0 from a related party)							
Research and development revenue ($0, $1,245 and $1,955 from a related party)							
Total revenues	Total revenues	138,590	104,754	69,056			
Costs and operating expenses:	**Costs and operating expenses:**						
Cost of product revenue							
Cost of product revenue							
Cost of product revenue	Cost of product revenue	38,033	22,209	13,742			
Research and development	Research and development	80,099	55,919	44,185			
Selling, general and administrative	Selling, general and administrative	52,172	49,323	35,049			
Restructuring charges	Restructuring charges	3,167	—	—			
Asset impairment and other charges							
Total costs and operating expenses	Total costs and operating expenses	173,471	127,451	92,976			

Loss from operations	Loss from operations	(34,881)	(22,697)	(23,920)
Interest income	Interest income	1,441	459	405
Other income (expense), net ($208, $983 and $0 from a related party)		124	1,148	(156)
Other income (expense), net ($0, $208 and $983 from a related party)				
Loss before income taxes	Loss before income taxes	(33,316)	(21,090)	(23,671)
Provision for income taxes	Provision for income taxes	276	189	339
Net loss	Net loss	$ (33,592)	$(21,279)	$(24,010)
Net loss per share, basic and diluted	Net loss per share, basic and diluted	$ (0.51)	$ (0.33)	$ (0.40)
Net loss per share, basic and diluted				
Net loss per share, basic and diluted				
Weighted average common stock shares used in computing net loss per share, basic and diluted	Weighted average common stock shares used in computing net loss per share, basic and diluted	65,344	64,568	59,360

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Stockholders' Equity
(In Thousands)

		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity	
		Shares	Amount				Accumulated Deficit
December 31, 2019		58,877	$ 6	$ 447,920	$ (342,409)	$ 105,517	
Exercise of stock options		210	—	1,323	—	1,323	
Release of stock awards		370	—	—	—	—	
Employee stock-based compensation		—	—	7,622	—	7,622	
Non-employee stock-based compensation		—	—	106	—	106	
Taxes paid related to net share settlement of equity awards		(103)	—	(1,257)	—	(1,257)	
Issuance of common stock, net of issuance costs of $5,448		4,929	—	80,802	—	80,802	
Net loss		—	—	—	(24,010)	(24,010)	
					Common Stock	Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity
December 31, 2020								
December 31, 2020								
December 31, 2020	**December 31, 2020**	64,283	6	536,516	(366,419)	170,103		

Exercise of stock options	Exercise of stock options	699	—	5,180	—	5,180
Release of stock awards	Release of stock awards	181	—	—	—	—
Employee stock-based compensation	Employee stock-based compensation	—	—	11,346	—	11,346
Non-employee stock-based compensation	Non-employee stock-based compensation	—	—	247	—	247
Taxes paid related to net share settlement of equity awards	Taxes paid related to net share settlement of equity awards	(54)	—	(1,206)	—	(1,206)
Net loss	Net loss	—	—	—	(21,279)	(21,279)
December 31, 2021	**December 31, 2021**	65,109	6	552,083	(387,698)	164,391
Exercise of stock options	Exercise of stock options	410	—	955	—	955
Release of stock awards	Release of stock awards	373	—	—	—	—
Employee stock-based compensation	Employee stock-based compensation	—	—	14,398	—	14,398
Non-employee stock-based compensation	Non-employee stock-based compensation	—	—	133	—	133
Taxes paid related to net share settlement of equity awards	Taxes paid related to net share settlement of equity awards	(81)	—	(1,488)	—	(1,488)
Net loss	Net loss	—	—	—	(33,592)	(33,592)
December 31, 2022	**December 31, 2022**	65,811	$ 6	$ 566,081	$ (421,290)	$ 144,797
Exercise of stock options						
Release of stock awards						
Employee stock-based compensation						
Non-employee stock-based compensation						
Issuance of common stock, net of issuance costs of $721						

Taxes paid related to net share settlement of equity awards	
Net loss	
December 31, 2023	

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Cash Flows
(In Thousands)

	Year Ended December 31,		
	2022	**2021**	**2020**
Operating activities:			
Net loss	$ (33,592)	$ (21,279)	$ (24,010)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation	5,402	3,113	1,950
Amortization expense - right-of-use assets - operating and finance leases	4,849	2,834	2,604
Stock-based compensation	14,531	11,593	7,728
Provision for credit losses	4	342	40
Equity securities earned from research and development activities from a related party	(1,245)	(1,955)	(900)
Unrealized gain on non-marketable securities (($208) and ($983) from a related party)	(208)	(1,272)	—
Other non-cash items	(29)	(19)	15
Changes in operating assets and liabilities:			
Financial assets ($0, $0 and ($450) from a related party)	(3,225)	(9,156)	(8,723)
Inventories	(869)	(196)	(593)
Prepaid expenses and other assets	181	(2,268)	(1,012)
Accounts payable	207	268	101
Accrued compensation and other accrued liabilities	5,983	6,575	6,175
Other long-term liabilities	(5,223)	(4,147)	(2,586)
Deferred revenue ($0, $245, $0 to a related party)	24,518	1,300	2,747
Net cash provided by (used in) operating activities	11,284	(14,267)	(16,464)
Investing activities:			
Purchase of property and equipment	(8,307)	(13,828)	(3,748)
Proceeds from sale of property and equipment	29	36	—
Investment in non-marketable securities ($0, ($7,630) and ($1,000) in a related party)	(5,300)	(7,630)	(2,000)
Net cash used in investing activities	(13,578)	(21,422)	(5,748)
Financing activities:			
Proceeds from exercises of stock options	955	5,180	1,323
Proceeds from issuance of common stock in connection with public offering	—	—	86,250
Costs incurred in connection with equity financing	(42)	(207)	(5,448)
Payments of lease obligations - Finance leases	—	—	(60)
Taxes paid related to net share settlement of equity awards	(1,488)	(1,206)	(1,257)
Net cash provided by (used in) financing activities	(575)	3,767	80,808
Net increase (decrease) in cash, cash equivalents and restricted cash	(2,869)	(31,922)	58,596
Cash, cash equivalents and restricted cash at the beginning of the year	118,895	150,817	92,221
Cash, cash equivalents and restricted cash at the end of the year	$ 116,026	$ 118,895	$ 150,817
Supplemental disclosure of cash flow information:			
Interest paid	$ 34	$ 14	$ 52
Income taxes	$ 100	$ 102	$ 312

Supplemental non-cash investing and financing activities:			
Capital expenditures incurred but not yet paid	$ 897	$ 2,533	$ 1,750

	Year Ended December 31,		
	2023	**2022**	**2021**
Operating activities:			
Net loss	$ (76,240)	$ (33,592)	$ (21,279)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation	5,518	5,402	3,113
Amortization expense - right-of-use assets - operating and finance leases	4,405	4,849	2,834
Stock-based compensation	9,971	14,531	11,593
Provision (recovery) for credit losses	(65)	4	342
Equity securities earned from research and development activities ($0, ($1,245), and ($1,955) from a related party)	(213)	(1,245)	(1,955)
Unrealized gain on non-marketable securities ($0, ($208), and ($983) from a related party)	—	(208)	(1,272)
Asset impairment and other charges	9,984	—	—
Impairment of investment in non-marketable securities	12,215	—	—
Other non-cash items	4	(29)	(19)
Changes in operating assets and liabilities:			
Financial assets	20,247	(3,225)	(9,156)
Inventories	(656)	(869)	(196)
Prepaid expenses and other assets	(865)	181	(2,268)
Accounts payable	2,287	207	268
Accrued compensation and other accrued liabilities	(14,041)	5,983	6,575
Other long-term liabilities	(5,341)	(5,223)	(4,147)
Deferred revenue ($0, $0, $245 to a related party)	(19,848)	24,518	1,300
Net cash provided by (used in) operating activities	(52,638)	11,284	(14,267)
Investing activities:			
Purchase of property and equipment	(4,418)	(8,307)	(13,828)
Proceeds from sale of property and equipment	751	29	36
Investment in non-marketable securities ($0, $0, and ($7,630) in a related party)	(1,191)	(5,300)	(7,630)
Net cash used in investing activities	(4,858)	(13,578)	(21,422)
Financing activities:			
Proceeds from exercises of stock options	422	955	5,180
Proceeds from issuance of common stock in connection with public offering	8,652	—	—
Costs incurred in connection with issuance of common stock at public offering	(503)	(42)	(207)
Taxes paid related to net share settlement of equity awards	(404)	(1,488)	(1,206)
Net cash provided by (used in) financing activities	8,167	(575)	3,767
Net decrease in cash, cash equivalents and restricted cash	(49,329)	(2,869)	(31,922)
Cash, cash equivalents and restricted cash at the beginning of the year	116,026	118,895	150,817
Cash, cash equivalents and restricted cash at the end of the year	$ 66,697	$ 116,026	$ 118,895
Supplemental disclosure of cash flow information:			
Interest paid	$ 44	$ 34	$ 14
Income taxes	$ 194	$ 100	$ 102
Supplemental non-cash investing and financing activities:			
Capital expenditures incurred but not yet paid	$ 1,068	$ 897	$ 2,533

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets to the total of the same such amounts shown above (in thousands):

Year Ended December 31,			Year Ended December 31,		
2022	**2021**	**2020**	**2023**	**2022**	**2021**

Cash and cash equivalents	Cash and cash equivalents	$113,984	$116,797	$149,117
Restricted cash, current and non-current	Restricted cash, current and non-current	2,042	2,098	1,700
Total cash, cash equivalents and restricted cash at the end of the period	Total cash, cash equivalents and restricted cash at the end of the period	$116,026	$118,895	$150,817

See accompanying notes to consolidated financial statements

Codexis, Inc.

Notes to Consolidated Financial Statements

Note 1. Description of Business

In these notes to the Consolidated Financial Statements, consolidated financial statements, the "Company," "we," "us," "Company," "we," "us," and "our" "our" refers to Codexis, Inc. and its subsidiaries on a consolidated basis.

We discover, develop, enhance, and sell commercialize novel, high performance enzymes and other classes of proteins that deliver value to leveraging our clients in a growing set of industries to commercialize an increasing number of novel enzymes, both as proprietary Codexis products and in partnership with our customers. CodeEvolver® directed evolution technology platform.

We report previously managed our financial results based on business as two reportable segments: business segments, Performance Enzymes and Novel Biotherapeutics. The segment information aligns During the fourth quarter of 2023, we made changes to the structure of our organization in connection with the restructuring of our business that we announced in July 2023, including the discontinuation of investment in certain development programs, primarily in our biotherapeutics business, consolidation of operations to our Redwood City, California headquarters, and headcount reduction. In connection with these organizational structure changes, corresponding changes were made to how the our business is managed, how results are reported internally and how our Chief Executive Officer ("CEO"), our chief operating decision maker, (CODM), who is our Chief Executive Officer (CEO), reviews assesses performance and manages the business.

Business Update Regarding COVID-19

In March 2020, the World Health Organization declared COVID-19 a global pandemic and recommended containment and mitigation measures worldwide. The spread of COVID-19 has affected segments of the global economy and may affect our operations, including the potential interruption of our supply chain. We are monitoring this situation closely, and although operations have not been materially affected by the COVID-19 outbreak to date, the ultimate duration and severity of the outbreak and its impact on the economic environment and our business is uncertain.

allocates resources. As a result of these changes, our previous Performance Enzymes and Novel Biotherapeutics operating segments were combined into a single reportable segment. Effective October 1, 2023, the COVID-19 pandemic, we have received purchase orders from Pfizer Inc. ("Pfizer") for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in Company's operations are managed and reported to the manufacture of CEO on a critical intermediate for its proprietary API, nirmatrelvir, used by Pfizer in combination with consolidated basis. The CEO assesses performance and allocates resources based on the API ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product for the treatment of COVID-19 infections in humans. In July 2022, we entered into an Enzyme Supply Agreement with Pfizer Ireland Pharmaceuticals, a subsidiary of Pfizer, Inc. (the "Pfizer Supply Agreement"), covering the manufacture, sale and purchase of CDX-616 for use by Pfizer in the manufacture of nirmatrelvir. Under the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million in August 2022 which is creditable against future orders of CDX-616 used to manufacture PAXLOVID™. Revenues in 2023 and in future years from our sales of CDX-616 to Pfizer and other potential customers (including sublicensees of Pfizer technology from The Medicine Patent Pool) are subject to a number of factors which are outside of our control and could reduce or eliminate our sales of CDX-616.

The near-and-long term impact of COVID-19 to our financial condition, liquidity, or consolidated results of operations remains uncertain. Although some operations. We believe that these changes better align internal resources and external go to market activities in order to create a more efficient and effective organizational structure. Under this new organizational and reporting structure, we managed our business as one reportable segment as of December 31, 2023. Comparative prior period disclosures that reflected the government orders that were enacted to control the spread of COVID-19 previous two segments' information have been scaled back and the vaccine rollout has expanded, surges revised to conform to this change in the spread of COVID-19 due to the emergence of new more contagious or virulent variants or the ineffectiveness of the vaccines against such strains, may result in the reimplementation of certain government orders, which could adversely impact our business. The extent to which the COVID-19 pandemic may materially impact our financial condition, liquidity, or results of operations in the future is uncertain. reportable segment.

Note 2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP" ("GAAP") and the applicable rules and regulations of the Securities and Exchange Commission ("SEC" ("SEC") and include the accounts of Codexis, Inc. and its wholly-owned subsidiaries.

The consolidated financial statements include the accounts of Codexis, Inc. and its wholly owned wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of our consolidated financial statements in conformity with GAAP requires us to make estimates, judgments and assumptions that may affect the reported amounts of assets, liabilities, equity, revenues and expenses and related disclosure of contingent assets and liabilities. We regularly assess these estimates which primarily affect revenue recognition, deferred revenue, inventories, valuation of equity investments, goodwill arising out of business acquisitions, accrued liabilities, stock awards, and the valuation allowances associated with deferred tax assets. Actual results could differ from those estimates and such differences may be material to the consolidated financial statements. The full extent to which the COVID-19 pandemic will directly or indirectly impact our business, results of operations and financial condition, including sales, expenses, reserves and allowances, manufacturing, research and development costs and employee-related amounts, will depend on future developments that are highly uncertain, and may not be accurately predicted, including as a result of new information that may emerge concerning COVID-19 and the actions taken to contain or treat COVID-19, as well as the economic impact on local, regional, national and international customers, markets and economies.

Segment Reporting

We report two business segments, Performance Enzymes and Novel Biotherapeutics, which are based on our operating segments. Operating segments are defined as components of an enterprise about which separate financial information is available that is evaluated regularly by the CODM, in deciding how to allocate resources, and in assessing performance. Our business segments are primarily based on our organizational structure and our operating results as used by our CODM in assessing performance and allocating resources for the Company. We do not allocate or evaluate assets by segment.

The Novel Biotherapeutics segment focuses on new opportunities in the pharmaceutical industry to discover or improve novel biotherapeutic drug candidates that will target human diseases that are in need of improved therapeutic interventions. Similarly, we believe that we can deploy our platform technology to improve specific characteristics of a customer's pre-existing biotherapeutic drug candidate, such as its activity, stability, or immunogenicity. The Performance Enzymes segment consists of biocatalyst products and services with focus on pharmaceutical, molecular diagnostics, and other industrial markets.

Foreign Currency Translation

The USD is the functional currency for our operations outside the United States. Accordingly, non-monetary assets and liabilities originally acquired or assumed in other currencies are recorded in USD at the exchange rates in effect at the date they were acquired or assumed. Monetary assets and liabilities denominated in other currencies are translated into United States dollars at the exchange rates in effect at the balance sheet date. Translation adjustments are recorded in other expense in the consolidated statements of operations. Gains and losses realized from non-USD transactions, including intercompany balances not considered as permanent investments, are included in other expense in the accompanying consolidated statements of operations.

Revenue Recognition

Our revenues are derived primarily from product revenue and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services. We account for individual products and services separately if they are distinct-that is, if a product or service is separately identifiable from other items in the contract and if a customer can benefit from it on its own or with other resources that are readily available to the customer.

In determining the appropriate amount of revenue to be recognized as we fulfill our obligations under our product revenue and collaborative research and development agreements, we perform the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) we satisfy each performance obligation.

The majority of our collaborative contracts contain multiple revenue streams such as upfront and/or annual license fees, fees for research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage, among others. We determine the stand-alone selling price ("SSP") and allocate consideration to distinct performance obligations. Typically, we base our SSPs on our historical sales. If an SSP is not directly observable, then we estimate the SSP taking into consideration market conditions, forecasted sales, entity-specific factors and available information about the customer. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, including a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success.

We account for a contract with a customer when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Non-cancellable purchase orders received from customers to deliver a specific quantity of product, when combined with our order confirmation, in exchange for future consideration, create enforceable rights and obligations on both parties and constitute a contract with a customer.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

The following is a description of principal activities from which we generate revenue:

Product Revenue

Product revenue consist of sales of biocatalysts, pharmaceutical intermediates and Codex® biocatalyst panels and kits. A majority of our product revenue is made pursuant to purchase orders or supply agreements and is recognized either at a point in time when the control of the product has been transferred to the customer typically upon shipment or over time as the product is manufactured because we have a right to payment from the customer under a binding, non-cancellable purchase order, and there is no alternate use of the product for us as it is specifically made for the customer's use.

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us to exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the range of discounts that we typically give for that product or service for the same class of customer, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We primarily account for options which provide material rights using the alternative approach available pursuant to the applicable accounting guidance, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide under the contract. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimates of future goods to be ordered by customers change.

Research and Development Revenue

We perform research and development activities as specified in each respective customer agreement. We identify each performance obligation in our research and development agreements at contract inception. We allocate the consideration to each distinct performance obligation based on the SSP of each performance obligation. Performance obligations included in our research and services agreements typically include research and development services for a specified term, periodic reports and small samples of enzyme produced.

The majority of our research and development agreements are based on a contractual rate per dedicated project team working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress either based on hours incurred or based on stage output of progress under the project. services provided.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. We must first determine whether the license is distinct from other promises, such as our promise to manufacture a product. If we determine that the customer cannot benefit from the license without our manufacturing capability, the license will be accounted for as combined with the other performance obligations. If we determine that a license is distinct and has significant standalone functionality, we recognize revenues from a functional license at a point in time when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, including a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success. For licenses that have been previously sold to other customers, we use historical information to determine SSP.

At the inception of each arrangement that includes variable consideration such as development milestone payments, we evaluate whether the milestones are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis, for which we recognize revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, we re-evaluate the probability of achievement of such development milestones and any related constraint, and if necessary, adjust our estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect license, collaboration and other revenues and earnings in the period of adjustment.

Our CodeEvolver® technology platform technology transfer collaboration agreements typically include license fees, upfront fees, and variable consideration in the form of milestone payments, and sales or usage-based royalties. We have recognized revenues from our platform technology transfer agreements over time as our customer uses our technology.

For license agreements that include sales or usage-based royalty payments to us, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

Practical Expedients, Elections, and Exemptions

We apply certain practical expedients available which permit us not to adjust the amount of consideration for the effects of a significant financing component if, at contract inception, the expected period between the transfer of promised goods or services and customer payment is one year or less.

We perform monthly services under our research and development agreements, and we use a practical expedient permitting us to recognize revenue at the same time that we have the right to invoice our customer for monthly services completed to date.

We have elected to treat shipping and handling activities as fulfillment costs.

We have elected to record revenue net of sales and other similar taxes.

Contract Assets

Contract assets include amounts related to our contractual right to consideration for completed performance obligations not yet invoiced. Contract assets are reclassified to receivables when the rights become unconditional.

Contract Liabilities

Contract liabilities are recorded as deferred revenues and include payments received in advance of performance under the contract. Contract liabilities are realized when the development services are provided to the customer or control of the products has been transferred to the customer. A portion of our contract liabilities relate to supply arrangements that contain material rights that are recognized using the alternative method, under which the aggregate amount invoiced to the customer for shipped products, including contractual fees, is higher than the amount of revenue recognized based on the transaction price allocated to the shipped products.

Contract Costs

We recognize a non-current asset for the incremental costs of obtaining a contract with a customer if the entity expects to recover such costs and if those costs would not have been incurred if the contract had not been obtained, such as commissions paid to sales personnel. We do not typically incur significant incremental costs because the compensation of our salespeople is not based on contracts closed but on a mixture of company goals, individual goals, and sales goals. If a commission paid is directly related to obtaining a specific contract, our policy is to capitalize and amortize such costs on a systematic basis, consistent with the pattern of transfer of the good or service to which the asset relates, and over a period beyond 12 months. Contract costs are reported in other non-current assets and were not significant in any of the periods presented.

Cost of Product Revenue

Cost of product revenue comprises both internal and third party fixed and variable costs including materials and supplies, labor, facilities, and other overhead costs associated with our product sales. Shipping costs are included in our cost of product revenue. Shipping costs were $1.0 million, $3.0 million, $1.8 million, and $0.1 $1.8 million for the years ended December 31, 2022 December 31, 2023, 2021, 2022, and 2020, 2021, respectively.

Fulfillment costs, such as shipping and handling, are recognized at a point in time and are included in cost of product revenue.

Cost of Research and Development Services

Cost of research and development services related to services under research and development agreements approximate the research funding over the term of the respective agreements and is included in research and development expense. Costs of services provided under license and platform technology transfer agreements are included in research and development expenses and are expensed in the periods in which such costs are incurred.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects and partner-funded collaborative research and development activities, as well as license and platform technology transfer agreements, as mentioned above. These costs include our direct and research-related overhead expenses, which include salaries and other personnel-related expenses (including stock-based compensation), occupancy-related costs, supplies, and depreciation of facilities and laboratory equipment, as well as external costs, and are expensed as incurred. Costs to acquire technologies that are utilized in research and development and that have no alternative future use are expensed when incurred.

Advertising

Advertising costs are expensed as incurred and included in selling, general and administrative expenses in the consolidated statements of operations. Advertising costs were $0.3 million for each of the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model to estimate the fair value of stock options granted under our equity incentive plans. plans and for our employee stock purchase plan (“ESPP”). The Black-Scholes-Merton option pricing model requires the use of assumptions, including the expected term of the award and the expected stock price volatility. The expected term is based on historical exercise behavior for similar awards, giving consideration to the contractual terms, vesting schedules and expectations of future employee behavior. We use historical volatility to estimate expected stock price volatility. The risk-free rate assumption is based on United States Treasury instruments whose terms are consistent with the expected term of the stock options. The expected dividend assumption is based on our history and expectation of dividend payouts.

Restricted Stock Units ("RSUs" (“RSUs”), Restricted Stock Awards (" (“RSAs”) and performance-contingent restricted stock units (" (“PSUs”) are measured based on the fair market values of the underlying stock on the dates of grant. Performance based options ("PBOs" (“PBOs”) are measured using the Black-Scholes-Merton option pricing model. The vesting of PBOs and PSUs awarded is conditioned upon the attainment of one or more performance objectives over a specified period and upon continued employment through the applicable vesting date. At the end of the performance period, shares of stock subject to the PBOs and PSUs vest based upon both the level of achievement of performance objectives within the performance period and continued employment through the applicable vesting date.

Stock-based compensation expense is calculated based on awards ultimately expected to vest and is reduced for estimated forfeitures at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The estimated annual forfeiture rates for stock options, RSUs, PSUs, PBOs, and RSAs are based on historical forfeiture experience.

The estimated fair value of stock options, RSUs, RSAs and RSAs shares to be issued under the ESPP are expensed on a straight-line basis over the vesting term of the grant and the estimated fair value of PSUs and PBOs are expensed using an accelerated method over the term of the award once management has determined that it is probable that the performance objective will be achieved. Compensation expense is recorded over the requisite service period based on management's best estimate as to whether it is probable that the shares awarded are expected to vest. Management assesses the probability of the performance milestones being met on a continuous basis.

Cash and Cash Equivalents

We consider all highly liquid investments with maturity dates of three months or less at the date of purchase to be cash equivalents. Cash and cash equivalents consist of cash on deposit with banks and money market funds. The majority of cash and cash equivalents is maintained with major financial institutions in the United States. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits.

Restricted Cash

In 2016, we began the process of liquidating our Indian subsidiary. The local legal requirements for liquidation required us to maintain our subsidiary's cash balance in an account managed by a legal trustee to satisfy our financial obligations. This balance is recorded as current restricted cash on the consolidated balance sheets of $0.5 million and $0.6 million as of December 31, 2022 December 31, 2023 and 2021, respectively. 2022.

Pursuant to the terms of the our lease agreements, for our Redwood City and San Carlos facilities, we obtained letters of credit collateralized by cash deposit balances of $1.5 million $1.1 million and $1.5 million as of December 31, 2022 December 31, 2023 and 2021. 2022, respectively. These cash deposits balances are recorded as non-current restricted cash on the consolidated balance sheets. For additional information, see Note 13, "Commitments "Commitments and Contingencies". Contingencies."

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, we utilize valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible and we consider counterparty credit risk in our assessment of fair value. Carrying amounts of financial instruments, including cash equivalents, accounts receivable, accounts payable, and accrued liabilities, approximate their fair values as of the balance sheet dates because of their short maturities.

The fair value hierarchy distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, giving the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

- Level 1: Inputs that are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2: Inputs that are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.
- Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities and which reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date.

Concentrations of Credit Risk

Financial instruments that potentially subject us to significant concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable and unbilled receivables, contract assets, non-marketable securities, and restricted cash. Cash that is not required for immediate operating needs is invested principally in money market funds. Cash and cash equivalents are invested through banks and other financial institutions in the United States India, and the Netherlands. India. Such deposits in those countries may be in excess of insured limits. The Company has not experienced material losses on its deposits of cash and cash equivalents.

We perform ongoing credit evaluations of our customer's financial condition whenever deemed necessary. We maintain an allowance for doubtful accounts based on the expected collectability of all financial assets, which takes into consideration an analysis of historical bad debts, specific customer creditworthiness and current economic trends. As of December 31, 2022 December 31, 2023, we had two four customers that accounted for 63% 58% of our accounts receivable balance. As of December 31, 2021 December 31, 2022, one customer two customers accounted for 62% 63% of our accounts receivable balance. We believe the accounts receivable balances from our largest customers do not represent a significant credit risk, based on cash flow forecasts, balance sheet analysis, and past collection experience.

Financial Assets and Allowances

We currently sell enzymes primarily to pharmaceutical and fine chemicals companies throughout the world by the extension of trade credit terms based on an assessment of each customer's financial condition. Trade credit terms are generally offered without collateral and may include an insignificant discount for prompt payment for specific customers. To manage our credit exposure, we perform ongoing evaluations of our customers' financial conditions. In addition, accounts receivable include amounts owed to us under our collaborative research and development agreements.

We recognize accounts receivable at invoiced amounts and we maintain a valuation allowance for credit losses using an impairment model (known as the "current "current expected credit loss model" model" or "CECL" "CECL") based on estimates and forecasts of future conditions requiring recognition of a lifetime of expected credit losses at inception on our financing receivables measured at amortized costs which consisted of accounts receivable, contract assets, and unbilled receivables. We have determined that our financing receivables share similar risk characteristics including: (i) customer origination in the pharmaceutical and fine chemicals industry, (ii) similar historical credit loss pattern of customers (iii) no meaningful trade receivable differences in terms, (iv) similar historical credit loss experience and (v) our belief that the composition of certain assets are comparable to our historical portfolio used to develop loss history. As a result, we measured the allowance for credit loss ("ACL" ("ACL") on a collective basis. Our ACL methodology considers how long the asset has been past due, the financial condition of the customers, which includes ongoing quarterly evaluations and assessments of changes in customer credit ratings, and other market data that we believe are relevant to the collectability of the assets. Nearly all financing receivables are due from customers that are highly rated by major rating agencies and have a long history of no credit loss. We derive our ACL by establishing an impairment rate attributable to assets not yet identified as impaired.

Unbilled Receivable

The timing of revenue recognition may differ from the timing of invoicing to our customers. When we satisfy (or partially satisfy) a performance obligation, prior to being able to invoice the customer, we recognize an unbilled receivable when the right to consideration is unconditional.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using a weighted-average approach, assuming full absorption of direct and indirect manufacturing costs, or based on cost of purchasing from our vendors. If inventory costs exceed expected net realizable value due to obsolescence or lack of demand, valuation adjustments are recorded for the difference between the cost and the expected net realizable value.

Concentrations of Supply Risk

We rely on a limited number of suppliers for our products. We believe that other vendors would be able to provide similar products; however, the qualification of such vendors may require substantial start-up time. In order to mitigate any adverse impacts from a disruption of supply, we attempt to maintain an adequate supply of critical single-sourced materials. For certain materials, our vendors maintain a supply for us. We outsource the large-scale manufacturing of our products to contract manufacturers with facilities in Austria and Italy.

Property and Equipment

Property, equipment and leasehold improvements are stated at cost less accumulated depreciation and amortization calculated using the straight-line method over their estimated useful lives as follows:

Asset classification	Estimated useful life
Laboratory equipment	5 years
Computer equipment and software	3 to 5 years
Office equipment and furniture	5 years
Leasehold improvements	Lesser of useful life or lease term

Property and equipment classified as construction in process includes equipment that has been received but not yet placed in service. Normal repairs and maintenance costs are expensed as incurred.

Impairment of Long-Lived Assets

We have not identified property and equipment by segment since these assets are shared or commingled. We evaluate the carrying values of long-lived assets, which include property and equipment and right-of-use assets, whenever events, changes in business circumstances or our planned use of long-lived assets indicate that their carrying amounts may not be fully recoverable or that their useful lives are no longer appropriate. If these facts and circumstances exist, we assess for recovery by comparing the carrying values of long-lived assets with their future net undiscounted cash flows. flows expected to be generated by the asset. If the comparison indicates that impairment exists, long-lived such assets are written down considered to their respective fair values based on discounted cash flows. Management judgment be impaired, the impairment to be recognized is required in measured by the forecast of future operating results that are used in the preparation of undiscounted cash flows.

As of December 31, 2022 and 2021, there were no events or changes in circumstances amount by which indicated that the carrying amount of our the asset group might not be recoverable. exceeds the fair value of the asset. For additional information on the impairment charge recorded for the year ended December 31, 2023, see Note 8, “Balance Sheets Details” and Note 13, “Commitments and Contingencies.” No impairment charges for long-lived assets were recorded during the years year ended December 31, 2022, 2021 and 2020.

Investment in Non-Marketable Securities.

Investment in Non-Marketable Equity Securities

We measure investments in non-marketable equity securities without a readily determinable fair value using a measurement alternative that measures these securities at the cost method minus impairment, if any, plus or minus changes resulting from observable price changes on a non-recurring basis. Gains and losses on these securities are recognized in other income (expense), net.

Investment in Non-Marketable Debt Securities

We measure available-for-sale investments in non-marketable debt securities at fair value. Unrealized gains and losses on these securities are recognized in other comprehensive income until realized. Non-marketable debt securities are classified as available-for-sale securities.

We classify non-marketable debt securities as Level 3 in the fair value hierarchy because we estimate the fair value based on a qualitative analysis using the most recent observable transaction price and other significant unobservable inputs including volatility, rights, and obligations of the securities we hold. Significant changes to the unobservable inputs may result in a significantly higher or lower fair value estimate. We may value these securities based on significant recent arms-length transactions with sophisticated non-strategic unrelated new investors.

We evaluate both equity and debt securities for impairment when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an "other-than-temporary” decline in the estimated fair value of the debt or equity security compared to its carrying value. We calculate the estimated fair value of these securities using information from the investee, which may include:

- Audited and unaudited financial statements;
- Projected technological developments of the company;
- Projected ability of the company to service its debt obligations;
- If a deemed liquidation event were to occur;
- Current fundraising transactions;
- Current ability of the company to raise additional financing if needed;

- Changes in the economic environment which may have a material impact on the operating results of the company;
- Contractual rights, obligations or restrictions associated with the investment; and
- Other factors deemed relevant by our management to assess valuation.
- The valuation may be reduced if the company's potential has deteriorated significantly. If the factors that led to a reduction in valuation are overcome, the valuation may be readjusted. For additional information on the impairment charge recorded for the year ended December 31, 2023, see Note 6, “Investments in Non-Marketable Securities.”

Goodwill

Goodwill represents the excess of the consideration transferred over the fair value of net assets of businesses acquired and is assigned to reporting units. We test goodwill for impairment considering amongst other things, whether there have been sustained declines in our share price. If we conclude it is more likely than not that the fair value of a reporting unit is less than its carrying amount, a quantitative fair value test is performed. We manage our business Goodwill had a carrying value of $2.5 million and $3.2 million as two reporting units of December 31, 2023 and we test goodwill for impairment at the reporting unit level. We allocated goodwill to the two reporting units using a relative fair value allocation methodology that primarily relied on our estimates of revenue and future earnings for each reporting unit. Using the relative fair value allocation methodology, we have determined that approximately $2.4 million, or 76%, of the goodwill is allocated to the Performance Enzymes segment and $0.8 million, or 24%, is assigned to the Novel Biotherapeutics segment. 2022, respectively.

We test goodwill for impairment annually, on a reporting unit basis, on the last day of the fourth fiscal quarter, and between annual tests if events and circumstances indicate it is more likely than not that the fair value of a reporting unit is less than its carrying amount. The annual impairment test is completed using either: a qualitative "Step 0" assessment based on reviewing relevant events and circumstances; or a quantitative "Step 1" assessment, which determines the fair value of the reporting unit. value. To the extent the carrying amount of a reporting unit is less than its estimated fair value, an impairment charge is recorded. Using the a relative fair value allocation methodology for assets and liabilities, used in both of our reporting units, we compare the allocated carrying amount of each reporting unit’s net assets and the assigned goodwill to its fair value. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is considered not impaired. Any excess of the reporting unit’s carrying amount of goodwill over its fair value is recognized as an impairment. During 2022, 2021 and 2020, we did not record We recorded impairment charges related to goodwill. goodwill of $0.8 million, nil, and nil for the years ended December 31, 2023, 2022, and 2021, respectively. For additional information on the impairment charge recorded for the year ended December 31, 2023, see Note 8, “Balance Sheets Details.”

Lease Accounting

We determine if an arrangement is a lease at inception. Where an arrangement is a lease, we determine if it is an operating lease or a finance lease. At lease commencement, we record a lease liability and ROU asset. Lease liabilities represent the present value of our future lease payments over the expected lease term which includes options to extend or terminate the lease when it is reasonably certain those options will be exercised. The present value of our lease liability is determined using our incremental collateralized borrowing rate at lease inception. ROU assets represent our right to control the use of the leased asset during the lease and are recognized in an amount equal to the lease liability for leases with an initial term greater than 12 months. Over the lease term, we use the effective interest rate method to account for the lease liability as lease payments are made and the ROU asset is amortized to the consolidated statement of operations in a manner that results in straight-line expense recognition. We do not apply lease recognition requirements for short-term leases. Instead, we recognize payments related to these arrangements in the consolidated statement of operations as lease costs on a straight-line basis over the lease term.

Income Taxes

We use the liability method of accounting for income taxes, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are provided when necessary to reduce deferred tax assets to the amount that will more likely than not be realized.

We make certain estimates and judgments in determining income tax expense for financial statement purposes. These estimates and judgments occur in the calculation of tax credits, benefits and deductions and in the calculation of certain tax assets and liabilities, which arise from differences in the timing of recognition of revenues and expenses for tax and financial statement purposes. Significant changes to these estimates may result in an increase or decrease to our tax provision in a subsequent period.

In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax assets will be realized on a jurisdiction by jurisdiction basis. The ultimate realization of deferred tax assets is dependent upon the generation of taxable income in the future. We have recorded a valuation allowance against these deferred tax assets in jurisdictions where ultimate realization of deferred tax assets is more likely than not to occur. As of December 31, 2022, December 31, 2023 and 2022, we maintain a full valuation allowance in all jurisdictions against the net deferred tax assets as we believe that it is more likely than not that the majority of deferred tax assets will not be realized.

We make estimates and judgments about our future taxable income that are based on assumptions that are consistent with our plans and estimates. Should the actual amounts differ from our estimates, the amount of our valuation allowance may be materially impacted. Any adjustment to the deferred tax asset valuation allowance would be recorded in the statements of operations for the periods in which the adjustment is determined to be required.

We account for uncertainty in income taxes as required by the provisions of Accounting Standards Update (“ASU”) 2009-06, *Income Taxes (Topic 740) Implementation Guidance on Accounting for Uncertainty in Income Taxes and Disclosure Amendments for Nonpublic Entities*, which clarifies the accounting for uncertainty in income taxes recognized in an enterprise’s financial statements. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to estimate and measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. It is inherently difficult and subjective to estimate such amounts, as this requires us to determine the probability of various possible outcomes. We consider many factors when evaluating and estimating our tax positions and tax benefits, which may require periodic adjustments and may not accurately anticipate actual outcomes.

The Tax Reform Act of 1986 and similar state provisions limit the use of net operating loss ("NOL" NOL") carryforwards in certain situations where equity transactions result in a change of ownership as defined by Internal Revenue Code Section 382. In the event we should experience such a change of ownership, utilization of our federal and state NOL carryforwards could be limited.

Accounting Pronouncements

Recently adopted accounting pronouncements

In May 2021, FASB issued ASU No. 2021-04, *Earnings Per Share (Topic 260), Debt—Modifications and Extinguishments (Subtopic 470-50), Compensation—Stock Compensation (Topic 718), and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40), Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options, a consensus of the Emerging Issues Task Force*. The standard establishes a principles-based framework in accounting for modifications of freestanding equity-classified written call options on the basis of the economic substance of the underlying transaction. The standard also requires incremental financial statement disclosures. The standard affects entities that present earnings per share in accordance with the guidance in Topic 260, Earnings Per Share. The standard was adopted beginning January 1, 2022 on a prospective basis. The adoption of ASU 2021-04 did not have an impact on our consolidated financial statements and related disclosures.

In August 2020, FASB issued ASU No. 2020-06 *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging— Contracts in Entity's Own Equity (Subtopic 815-40) No. 2020-06 August 2020 Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, to reduce the complexity and to simplify the accounting for convertible debt instruments and convertible preferred stock, and the derivatives scope exception for contracts in an entity's own equity. In addition, the guidance on calculating diluted earnings per share has been simplified and made more internally consistent. The standard was adopted beginning January 1, 2022 on a modified retrospective basis. The adoption of ASU 2020-06 did not have an impact on our consolidated financial statements and related disclosures.

In March 2020, the FASB issued ASU No. 2020-04, Reference Rate Reform (Topic 848): *Facilitation of the Effects of Reference Rate Reform on Financial Reporting*. The standard provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions in which the reference LIBOR or another reference rate are expected to be discontinued as a result of the Reference Rate Reform. The standard was adopted beginning January 1, 2022 on a prospective basis. The adoption of ASU 2020-04 had no significant impact on our consolidated financial statements and related disclosures. In December 2022, the FASB issued ASU 2022-06, *Reference Rate Reform (Topic 848): Deferral of the Sunset Date of Topic 848*, which extends the period of time preparers can utilize the reference rate reform guidance in Topic 848. The standard was adopted upon its issuance on a prospective basis. The adoption of ASU 2022-06 did not have an impact on our consolidated financial statements and related disclosures.

Recently Aside from those recently issued accounting pronouncements not yet adopted

There and described below, there have not been no other any recent accounting pronouncements or changes in accounting pronouncements during the year ended December 31, 2022 December 31, 2023 that are of significance or potential significance to us.

Recently issued accounting pronouncements not yet adopted

In December 2023, the Financial Accounting Standards Board ("FASB") issued ASU No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*. The amendments in the ASU are intended to benefit investors by providing more detailed income tax disclosures that would be useful in making capital allocation decisions. This ASU is effective for public companies with annual periods beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

In November 2023, FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*. The amendments in the ASU are intended to improve reportable segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. The standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. The standard should be applied retrospectively to all prior periods presented in the financial statements. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

In October 2023, FASB issued ASU No. 2023-06, *Disclosure Improvements: Codification Amendments in Response to the SEC's Disclosure Update and Simplification Initiative*. The amendments in the ASU are intended to amend certain disclosure and presentation requirements for a variety of topics within the Accounting Standards Codification ("ASC"). These amendments align the requirements in the ASC to the removal of certain disclosure requirements set out in Regulation S-X and Regulation S-K, as announced by the SEC. The effective date for each amended topic in the ASC is either the date on which the SEC's removal of the related disclosure requirement from Regulation S-X or Regulation S-K becomes effective, or on June 30, 2027, if the SEC has not removed the requirements by that date. Early adoption is prohibited. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

Note 3. Revenue Recognition

Disaggregation of Revenue

The following table provides information about disaggregated revenue from contracts with customers into the nature of the products and services, and geographic regions, and includes a reconciliation of the disaggregated revenue with reportable segments. revenue. The geographic regions that are tracked are the Americas (United States, Canada, and Latin America), EMEA (Europe, Middle East, and Africa), and APAC (Australia, New Zealand, Southeast Asia, and China).

Segment Disaggregated information is as follows (in thousands):

	Year Ended December 31, 2022		
	Performance Enzymes	Novel Biotherapeutics	Total
		Year Ended December 31,	
		Year Ended December 31,	

	Year Ended December 31,		
	2023	2023	2023
Major products and service:			
Major products and service:			
Major products and service:			
Product revenue	$ 116,676	$ —	$ 116,676
Product revenue			
Product revenue			
Research and development revenue	9,936	11,978	21,914
Research and development revenue			
Research and development revenue			
Total revenues			
Total revenues			
Total revenues	$ 126,612	$ 11,978	$ 138,590
Primary geographical markets:			
Primary geographical markets:			
Primary geographical markets:			
Americas			
Americas			
Americas	$ 12,089	$ 4,911	$ 17,000
EMEA	49,473	7,067	56,540
EMEA			
EMEA			
APAC			
APAC			
APAC	65,050	—	65,050
Total revenues	$ 126,612	$ 11,978	$ 138,590
Total revenues			
Total revenues			

	Year Ended December 31, 2021		
	Performance Enzymes	Novel Biotherapeutics	Total
Major products and service:			
Product revenue	$ 70,657	$ —	$ 70,657
Research and development revenue	19,858	14,239	34,097
Total revenues	$ 90,515	$ 14,239	$ 104,754
Primary geographical markets:			
Americas	$ 16,114	$ 7,367	$ 23,481
EMEA	13,315	6,872	20,187
APAC	61,086	—	61,086
Total revenues	$ 90,515	$ 14,239	$ 104,754

	Year Ended December 31, 2020		
	Performance Enzymes	Novel Biotherapeutics	Total
Major products and service:			
Product revenue	$ 30,220	$ —	$ 30,220

Research and development revenue	17,886	20,950	38,836
Total revenues	$ 48,106	$ 20,950	$ 69,056
Primary geographical markets:			
Americas	$ 11,111	$ 13,241	$ 24,352
EMEA	11,548	7,709	19,257
APAC	25,447	—	25,447
Total revenues	$ 48,106	$ 20,950	$ 69,056

For additional information regarding revenue disaggregated by geography, see Note 15, “Segment, Geographical and Other Revenue Information.”

Contract Balances

The following table presents balances of contract assets, unbilled receivables, contract costs, and contract liabilities (in thousands):

	December 31, 2022	December 31, 2021
Contract assets	$ 2,116	$ 4,557
Unbilled receivables	$ 7,016	$ 8,558
Contract costs	$ 19	$ 56
Contract liabilities: deferred revenue	$ 30,609	$ 6,335

We recognize accounts receivable when we have an unconditional right to recognize revenue and have issued an invoice to the customer. Our payment terms are generally between 30 and 90 days. We recognize unbilled receivables when we have an unconditional right to recognize revenue and have not issued an invoice to our customer. Unbilled receivables are transferred to accounts receivable on issuance of an invoice. Unbilled receivables are classified separately on the consolidated balance sheets as an asset. We maintain a valuation allowance on accounts receivables and unbilled receivables. As of December 31, 2023, we have $9.1 million of short-term unbilled receivables presented as unbilled receivables within current assets and $0.8 million of long-term unbilled receivables that is included within the other non-current assets line item in the consolidated balance sheets. As of December 31, 2022, we had $7.0 million of short-term unbilled receivables presented as unbilled receivables within current asset.

Contract assets represent our right to recognize revenue for custom products with no alternate use and under binding non-cancellable contracts and are largely related to our procurement of product. We recognize contract assets when we have a conditional right to recognize revenue. The transfer of control of certain products occurs in advance of the invoicing process, which generates contract assets. In addition, we recognize a contract asset related to milestones not eligible for royalty accounting when we assess it is probable of being achieved and there will be no significant reversal of cumulative revenues. Contract assets are classified separately on the consolidated balance sheets as an asset and transferred to accounts receivables when our rights to payment become unconditional.

Contract liabilities, or deferred revenue, represent our obligation to transfer a product or service to the customer, and for which we have received consideration from the customer. We recognize a contract liability when we receive advance customer payments under development agreements for research and development services, upfront license payments, and from upfront customer payments received under product supply agreements. Contract liabilities are classified as a liability on the consolidated balance sheets.

Contract costs relate to incremental costs of obtaining a contract with a customer. Contract costs are amortized along with the associated revenue over the term of the contract.

During the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, we had no asset impairment charges related to contract assets.

We recognized the following revenues (in thousands):

	Year Ended December 31,	
Revenue recognized in the period for:	2022	2021
Amounts included in contract liabilities at the beginning of the period:		

Performance obligations satisfied	Performance obligations satisfied	$ 2,038	$ 1,858
	Performance obligations satisfied		
	Performance obligations satisfied		
Changes in the period:	Changes in the period:		
	Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods		
	Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods		
Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods	Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods	279	7,645
Performance obligations satisfied from new activities in the period - contract revenue	Performance obligations satisfied from new activities in the period - contract revenue	136,273	95,251
Total revenues	Total revenues	$ 138,590	$ 104,754

Performance Obligations

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting periods. The estimated revenue does not include contracts with original durations of one year or less, amounts of variable consideration attributable to royalties, or contract renewals that are unexercised as of December 31, 2022 December 31, 2023.

The balances in the table below are partially based on judgments involved in estimating future orders from customers subject to the exercise of material rights pursuant to respective contracts (in thousands):

	2023	2024	2025	2026 and Thereafter	Total
Product revenue	$ 12,136	$ 13,080	$ 140	$ 3,640	$ 28,996
Research and development revenue	1,592	21	—	—	1,613
Total revenues	$ 13,728	$ 13,101	$ 140	$ 3,640	$ 30,609

	2024	2025	2026	2027 and Thereafter	Total
Product revenue	$ 10,121	$ 140	$ 140	$ 360	$ 10,761

Note 4. Net Loss per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding, less restricted stock awards ("RSAs" ("RSAs") subject to forfeiture. Diluted net loss per share is computed by dividing net loss by the weighted-average number of shares of common stock shares outstanding, less RSAs subject to forfeiture, plus all additional common shares that would have been outstanding, assuming dilutive potential common stock shares had been issued for other dilutive securities. For all periods presented, diluted and basic net loss per share are identical since potential common stock shares are excluded from the calculation, as their effect was anti-dilutive.

Anti-Dilutive Securities

In periods of net loss, the weighted average number of shares outstanding, prior to the application of the treasury stock method, excludes potentially dilutive securities from the computation of diluted net loss per common share because including such shares would have an anti-dilutive effect.

The following shares were not considered in the computation of diluted net loss per share because their effect was anti-dilutive (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Shares issuable under the Equity Incentive Plan	7,442	5,215	5,348

	Year Ended December 31,		
	2023	2022	2021
Shares issuable under the Equity Incentive Plans and ESPP(1)	9,028	7,442	5,215

(1) Included 568,224 of anti-dilutive potential common shares from ESPP for the year ended December 31, 2023.

Note 5. Collaborative Arrangements

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into a CodeEvolver® protein engineering platform technology transfer collaboration Platform Technology Transfer, Collaboration and license License agreement (the "GSK "GSK CodeEvolver® Agreement" Agreement") with GSK. Pursuant to the terms of the agreement, we granted GSK a non-exclusive license to use the CodeEvolver® protein engineering technology platform technology to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products. We completed the transfer of the CodeEvolver® protein engineering technology platform technology to GSK in April 2016 and all revenues relating to the technology transfer have been recognized as of April 2016. Depending upon GSK's successful application of the licensed technology, we have the potential to receive additional contingent payments that range from $5.75 million $5.8 million to $38.5 million $38.5 million per project.

In 2019, we received a $2.0 million milestone payment relating to the advancement of an enzyme developed by GSK using our CodeEvolver® protein engineering platform technology. technology platform. In 2021, we received two additional milestone payments from GSK under the agreement. In 2023, we received an additional milestone payment from GSK under the agreement. We recognized research and development revenue of $1.3 million, nil, $4.3 million, and nil $4.3 million in the years ended December 31, 2022 December 31, 2023, 2021, 2022, and 2020, 2021, respectively.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® technology platform technology transfer collaboration and license agreement (the "Merck "Merck CodeEvolver® Agreement" Agreement") with Merck, Sharp & Dohme ("Merck" ("Merck") which allows Merck to use the CodeEvolver® protein engineering technology platform in the field of human and animal healthcare. In 2016, we completed the final phase in the transfer of the CodeEvolver® technology platform to Merck under the Merck CodeEvolver® Agreement.

We recognized research and development revenues of nil, $40 thousand, $0.6 million, and $3.1 million $0.6 million in the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively, for various research projects under our collaborative arrangement.

We have the potential to receive payments of up to a maximum of $15.0 million $15.0 million for each commercial active pharmaceutical ingredient ("API") that is manufactured by Merck using one or more novel enzymes developed by Merck using the CodeEvolver® protein engineering technology platform. The API payments, which are currently not recognized in revenue, are based on the quantity of API developed and manufactured by Merck and will be recognized as usage-based royalties.

In October 2018, we entered into an amendment to the Merck CodeEvolver® Agreement which amended certain licensing provisions and one exhibit. In January 2019, we amended the Merck CodeEvolver® Agreement to install certain CodeEvolver® protein engineering technology platform upgrades into Merck's platform license installation and maintain those upgrades for a multi-year term that expired in January 2022. The license installation was completed in 2019. No research and development revenues were recognized in the years ended December 31, 2023 and 2022. We recognized nil, $0.1 million and $0.1 million in research and development revenues under the terms of the amendment in 2022, 2021 and 2020 respectively. the year ended December 31, 2021.

Merck Sitagliptin Catalyst Supply Agreement

In February 2012, we entered into a five-year Sitagliptin Catalyst Supply Agreement (" ("Sitagliptin Supply Agreement" Agreement") with Merck whereby Merck may obtain commercial scale enzyme for use in the manufacture of Januvia®, its product based on the active ingredient Sitagliptin. sitagliptin. In December 2015, Merck exercised its options under the terms of the Sitagliptin Catalyst Supply Agreement to extend the agreement for an additional five years through February 2022. In September 2021, the Sitagliptin Catalyst Supply Agreement was amended to extend the agreement through December 2026.

Effective as of January 2016, we and Merck amended the Sitagliptin Supply Agreement to prospectively provide for variable pricing based on the cumulative volume of sitagliptin enzyme purchased by Merck. We have previously determined that the variable pricing, which provides a discount based on the cumulative volume of sitagliptin enzyme purchased by Merck, provides Merck material rights and we recognized product revenues using the alternative method wherein we estimated the total expected consideration and allocated it proportionately with the expected sales. Pursuant to the latest amendment of the Sitagliptin Supply Agreement, we have determined that the latest price per volume of sitagliptin enzyme to be purchased by Merck no longer provides Merck material rights, and as such we are recognizing product revenue based on contractually stated prices effective as of February 2022.

We recognized $5.9 million $4.4 million, $9.8 million $5.9 million and $13.4 million $9.8 million in product revenue under this contract for agreement in the years ended December 31, 2022 December 31, 2023, 2022 and 2021, and 2020, respectively. Revenues recognized by us under the Sitagliptin Supply Agreement comprised This represented 6%, 4%, 9%,

and 19% 9% of our total revenues for in the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively.

During the year ended December 31, 2022 December 31, 2023, we recorded revenue of $1.6 million $0.7 million from sitagliptin enzyme sales that were recognized over time based on the progress of the manufacturing process. These products will be shipped in shipped within the first quarter three-month period following the end of 2023.

Enzyme Supply Agreement

In November 2016, we entered into a supply agreement whereby our customer may purchase quantities of one of our proprietary enzymes for use in its commercial manufacture of a product. Pursuant to the supply agreement, we received an upfront payment in December 2016 which was recorded as deferred revenue. Such upfront payment will be recognized over the period of the supply agreement as the customer purchases our proprietary enzyme. We additionally have determined that the volume discounts under the supply agreement provide the customer material rights and we are recognizing revenues using the alternative method. In 2023, due to the early termination of the enzyme supply agreement with the customer, we recognized $3.2 million of product revenue from the release of prior periods' product revenue deferrals and also recognized $1.3 million of product revenue as settlement fee pursuant to the enzyme supply agreement with the same customer.

As of December 31, 2022 December 31, 2023 and 2021, 2022, we had deferred revenue balances from the supply agreement of $3.3 million nil and $2.6 million $3.3 million.

Commercial Agreement

In April 2019, we entered into a multi-year commercial agreement with Tate & Lyle under which Tate & Lyle has received an exclusive license to use a suite of Codexis novel performance enzymes in the manufacture of Tate & Lyle's zero-calorie stevia sweetener, TASTEVA® M, and other stevia products. Under the agreement, we will supply Tate & Lyle with its requirements for these enzymes over a multiple year period and receive royalties on stevia products. In November 2020, we amended the commercial agreement based on Tate & Lyle's intent to use a specific Codexis novel performance enzyme in its production of TASTEVA® M Stevia Sweetener and became eligible to receive milestone payments of up to $1.1 million. In the fourth quarter of 2020, we became eligible to receive a milestone payment of $0.4 million which we subsequently received in February 2021. The commercial agreement with Tate & Lyle was terminated in 2023.

Global Development, Option and License Agreement and Strategic Collaboration Agreement

In October 2017, we entered into the Nestlé License Agreement with Nestlé Health Science and, solely for the purpose of the integration and the dispute resolution clauses of the Nestlé License Agreement, Nestlé Health Science S.A., to advance CDX-6114, our enzyme biotherapeutic product candidate for the potential treatment of PKU.

In January 2019, we received notice from the U.S. Food and Drug Administration ("FDA") that it had completed its review of our IND for CDX-6114 and concluded that we may proceed with the proposed Phase 1b multiple ascending dose study in healthy volunteers in the United States. In February 2019, Nestlé Health Science exercised its option to obtain an exclusive, worldwide, royalty-bearing, sub-licensable license for the global development and commercialization of CDX-6114 for the management of PKU. Upon exercising its option, Nestlé Health Science made an option payment and assumed all responsibilities for future clinical development and commercialization of CDX-6114. We are also eligible CDX-6114. In October 2023, we provided notice pursuant to receive payments from Nestlé License Agreement of our intent to abandon or transfer to Nestlé Health Science under (at their option) the patents and patent applications related to CDX-6114 as of December 5, 2023, and Nestlé License Agreement Health Science notified us that include (i) development they did not exercise their right to assume responsibility of such patents and approval milestones of up to $85.0 million, (ii) sales-based milestones of up to $250.0 million in the aggregate, which aggregate amount is achievable if net sales exceed $1.0 billion in a single year, and (iii) tiered royalties, at percentages ranging from the mid-single digits to low double-digits of net sales of product. patent applications.

In October 2017, we entered into the Nestlé SCA pursuant to which we and Nestlé Health Science are collaborating to leverage the CodeEvolver® protein engineering technology platform to develop novel enzymes for Nestlé Health Science's established Consumer Care and Medical Nutrition business areas. The term of the Nestlé SCA has been extended through expired in December 2023, with an automatic as we opted out of a renewal period through December 2024.

In January 2020, we entered into a development agreement with Nestlé Health Science pursuant to which we and Nestlé Health Science are collaborating to advance CDX-7108, targeting a gastrointestinal disorder lead candidate discovered through our Nestlé SCA, CDX-7108, targeting exocrine pancreatic insufficiency, into preclinical and early clinical studies. We, together with Nestlé Health Science, are continuing to advance CDX-7108 and initiated a Phase 1 clinical trial with the first subject being dosed of CDX-7108 in the fourth quarter of 2021. The term 2021, and on February 23, 2023, we and Nestlé Health Science announced interim results. In July 2023, we announced plans to discontinue our development support of the development agreement has been extended through December 2023 with an automatic renewal through December 2024. CDX-7108.

Under the Nestlé SCA and the development agreement, we recognized $4.1 million, $7.1 million $6.9 million and $7.9 $6.9 million in research and development revenue for in the years ended December 31, 2022 December 31, 2023, 2022 and 2021, respectively. Both the Nestlé SCA and 2020, respectively. the development agreement were terminated in January 2024.

Acquisition Agreement

In December 2023, we entered into an acquisition agreement (the "Acquisition Agreement") with Nestlé Health Science, pursuant to which we agreed to assign our interests in CDX-7108 (including associated agreements and intellectual property rights) to Nestlé Health Science. Under the terms of the Acquisition Agreement, Nestlé Health Science will be solely responsible for the continued development and commercialization of CDX-7108, including all associated costs, and Codexis will receive upfront payment, future potential milestone payments and net-sales based royalties. We recognized research and development revenue of $5.0 million for the year ended December 31, 2023 related to the Acquisition Agreement. We received the $5.0 million upfront fee in January 2024.

Strategic Collaboration Agreement

In April 2018, we entered into the Porton Agreement with Porton to license key elements of our biocatalyst technology for use in Porton's global custom intermediate and API development and manufacturing business. Under the Porton Agreement, we are eligible to receive annual collaboration fees and research and development revenues. We received

the initial collaboration payments of $0.5 million and $0.5 million within 30 days of the effective date and on the first anniversary of the effective date of the Porton Agreement, respectively. We also received annual collaboration payments of $1.0 million each during the first through third fourth anniversaries of the effective date of the Porton Agreement and are eligible to receive $1.0 million on the fourth anniversary of the effective date of the Porton Agreement. We completed the technical transfer in the fourth quarter of 2018 and recognized the related revenue in 2018. We recognized revenue related to the functional license provided to Porton at a point in time when control of the license was transferred to the customer. The initial term of the Porton Agreement will expire on April 22, 2023 expired in April 2023 and is was not being renewed for an extended term. We recognized research and development revenue related to the Porton Agreement of $0.1 millionnil, $1.1 million $0.1 million and $1.1 million in the years ended December 31, 2022 December 31, 2023, 2022 and 2021, and 2020, respectively.

Platform Technology Transfer and License Agreement

In May 2019, we entered into a Platform Technology Transfer and License the Novartis CodeEvolver® Agreement (the "Novartis with Novartis. The Novartis CodeEvolver® Agreement") with Novartis. The Agreement allows Novartis to use our proprietary CodeEvolver® protein engineering technology platform technology in the field of human healthcare. In July 2021, we announced the completion of the technology transfer period during which we transferred our proprietary CodeEvolver® protein engineering technology platform technology to Novartis (the "Technology "Technology Transfer Period" Period"). As a part of this technology transfer, we provided to Novartis our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. In addition, our teams and Novartis scientists participated in technology training sessions and collaborative research projects at our laboratories in Redwood City, California and at a designated Novartis laboratory in Basel, Switzerland. Novartis has now installed the CodeEvolver® protein engineering technology platform technology at its designated laboratory.

Pursuant to the agreement, we received an upfront payment of $5.0 million shortly after the effective date of the Novartis CodeEvolver® Agreement. We completed the second technology milestone transfer under the agreement in 2020 and received a milestone payment of $4.0 million. We have also received an aggregate of $5.0 million for the completion of the third technology milestone in 2021. In consideration for the continued disclosure and license of improvements to the technology and materials during a multi-year period that began on the conclusion of the Technology Transfer Period ("Improvements (the "Improvements Term"), Novartis will pay Codexis annual payments over four years which amount to an additional $8.0 million in aggregate. We received an aggregate of $4.0 million for the first two annual payment of $2.0 million payments in the fourth quarter of 2022. 2022 and 2023. The Company also has the potential to receive quantity-dependent, usage payments for each API that is manufactured by Novartis using one or more enzymes that have been developed or are in development using the CodeEvolver® protein engineering technology platform technology during the period that began beginning on the conclusion of the Technology Transfer Period and ends ending on the expiration date of the last to expire licensed patent. Revenue for the combined initial license and technology transfer performance obligation was recognized using a single measure of progress that depicted our performance in transferring control of the services. overtime based on hours incurred. Revenue allocated to improvements made during the Improvements Term are is being recognized during the Improvement Improvements Term.

We recognized $1.0 million$1.1 million, $1.6 million $1.0 million and $6.2 million $1.6 million in research and development revenue in the year years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively.

License Agreement

In December 2019, we entered a license agreement with Roche Sequencing Solutions, Inc. ("Roche") to provide Roche with our EvoT4 DNA™ evolved T4 DNA ligase high-performance molecular diagnostic enzyme. The royalty bearing license grants Roche worldwide rights to include the EvoT4 DNA™ evolved T4 DNA ligase in its nucleic acid sequencing products and workflows. Under the license agreement, we received an initial collaboration fee payment of $0.8 million within 45 days of the effective date of the agreement, and we received an additional $0.9 million milestone payment after the completion of technology transfer in October 2020. The 2020. In February 2024, we entered into a new license agreement also contemplates milestone payments with Roche granting them rights to Codexis upon our newly engineered DNA ligase, superseding our prior agreement in December 2019 for our evolved T4 DNA ligase. We are eligible to receive an aggregate of mid-single digit millions in upfront and technical milestones payments. No research and development revenues were recognized in the achievement of various development years ended December 31, 2023 and commercialization events and royalty payments from commercial sales of the enzyme. 2022. We recognized research and development fees of nil, $0.9 million and $0.9 million for t in the year ended December 31,he years ended December 31, 2022, 2021 and 2020, respectively. 2021.

Strategic Collaboration and License Agreement

In March 2020, we entered into a Strategic Collaboration and License Agreement (the "Takeda Agreement") with Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda under Pharmaceutical Co. Ltd. ("Takeda"), pursuant to which we are collaborating have collaborated with Takeda to research and develop protein sequences for use in gene therapy products for certain diseases (each, a "Field") in accordance with each applicable program plan (each, a "Program Plan"). plan.

On execution of the Takeda Agreement, in March 2020, we received an upfront nonrefundable non-refundable cash payment of $8.5 million $8.5 million and we initiated activities under three Program Plans program plans for Fabry Disease, Pompe Disease, and an undisclosed blood factor deficiency, respectively (the "Initial Programs" "Initial Programs"). In May 2021, Takeda elected to exercise its option to initiate an additional program for a certain undisclosed rare genetic disorder; as a result we received the option exercise fee during the third quarter of 2021. We completed the research and development services relating to the fourth program with Takeda during the second quarter of 2023.

Pursuant to the Takeda Agreement, we are eligible to receive other payments that include (i) reimbursement of research and development fees and preclinical development milestones for the three initial programs of $10.5 million, in aggregate, and $3.4 million for the fourth program, (ii) (i) clinical development and commercialization-based milestones, per target gene, of up to $104.0 million and (iii) (ii) tiered royalty payments based on net sales of applicable products at percentages ranging from the mid-single digits to low single-digits. Takeda announced in April 2023 the discontinuation of these development programs.

Revenue relating to the functional licenses provided to Takeda was recognized at a point in time when the control of the license transferred to the customer. We recognized research and development revenue related to the Takeda Agreement of $4.9 million $2.0 million, $7.4 million $4.9 million and $13.2 million $7.4 million in the years ended December 31, 2022 December 31, 2023, 2021, 2022, and 2020, 2021, respectively. As of December 31, 2022 December 31, 2023 and 2021, 2022, we had deferred revenue balances of $0.9 millionnil and $2.2 million $0.9 million, respectively.

Master Collaboration and Research Agreement, Stock Purchase Agreement and Enzyme Supply Agreement

In June 2020, we entered into a Stock Purchase Agreement with MAI Molecular Assemblies, Inc. ("MAI") in which we purchased 1,587,050 shares of MAI's Series A preferred stock for $1.0 million. In connection with the June 2020, transaction, John Nicols, our former President and Chief Executive Officer, joined MAI's board of directors. For See Note 14, "Related Party Transactions" for additional information see Note 14, "Related Party Transactions".

on our investment in MAI.

Concurrently with our initial equity investment, we entered into the MAI Agreement, pursuant to which we performed services utilizing our CodeEvolver® protein engineering technology platform technology to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock which are valued based on the observed transaction price of similar securities of MAI issued to third parties. Under the MAI Agreement, we will have the right to use and sell the engineered enzymes to third parties for any purpose other than for the synthesis of native DNA. Under the MAI Agreement, we would make a $0.5 million payment to MAI upon our achievement of a milestone of $5.0 million in aggregate commercial sales to third parties of the engineered enzymes or any product incorporating or derived from the engineered enzymes for any purpose other than the synthesis of native DNA. As contemplated in the MAI Agreement, we executed the Commercial License and Enzyme Supply Agreement with MAI ("MAI Supply Agreement") in July 2022 following the completion of certain timelines specified in the SOW.

We completed the R&D service with MAI pursuant to the MAI Agreement during the first quarter of 2022. In December 2021, we received the primary milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional 1,587,049 shares of MAI Series B preferred stock. Upon execution of the MAI Supply Agreement in July 2022, we received the commercialization and enzyme supply agreement milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional 1,587,049 shares of MAI Series B preferred stock. We Pursuant to the MAI Agreement, we recognized $1.2 million, and $2.0 million and $0.9 million in research and development revenue from transactions with MAI in the years ended December 31, 2022, and 2021, and 2020, respectively. Payment for the services rendered was received in the form of additional MAI Series A and Series B preferred stock. We received an aggregate of 1,587,049 3,491,505 and 714,171 3,491,505 shares of MAI's Series A and B preferred stock in the years ended December 31, 2022, and 2021, and 2020, respectively.

In April 2022, we received a purchase order from MAI for the delivery of certain enzyme products to MAI in 2022. In July 2022, we and MAI executed the MAI Supply Agreement that will enable MAI to utilize an evolved terminal deoxynucleotidyl transferase ("TdT") enzyme in MAI's Fully Enzymatic Synthesis™ ("FES™") technology. We recognized $0.5 0.2 million and $0.5 million in product revenue for in the year years ended December 31, 2022 December 31, 2023 and 2022, respectively.

Pfizer Enzyme Supply Agreement

During 2021 and 2022, we received purchase orders from Pfizer, Inc. ("Pfizer") for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary active pharmaceutical ingredient, nirmatrelvir, used by Pfizer in combination with the active pharmaceutical ingredient ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product for the treatment of COVID-19 infections in humans.

We are a party to an Enzyme Supply Agreement with Pfizer Ireland Pharmaceuticals, a subsidiary of Pfizer, Inc. (the "Pfizer Supply Agreement"), covering the manufacture, sale and purchase of CDX-616 for use by Pfizer in the manufacture of nirmatrelvir. Under the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million $25.9 million in August 2022 which was recorded as deferred revenue. The Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and (ii) fees associated with any new development and licensing agreements with Pfizer entered into prior to April 4, 2023. On March 31, 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue in the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. We also recognized $2.0 million of non-cash research and development revenue, and credited against the $25.9 million fee, for other services provided to Pfizer during the year ended December 31, 2023. Up to 50% of any portion of the $25.9 million which has not been credited under items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates prior to December 31, 2023 and for fees associated with any new development and licensing agreements with Pfizer entered into prior to March 31, 2023 that are invoiced prior to December 31, 2023. Up to 50% of any portion of the fee which has not been credited pursuant to credits granted under the preceding sentence is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates prior to December 31, 2024. in 2024.

In During the fourth quarter of 2022, we 2023, and Pfizer agreed pursuant to adjust the terms of certain existing non-cancelable purchase orders of CDX-616 issued under the Pfizer Supply Agreement, pursuant to which Pfizer will pay us $36.8 million in lieu we released the prior year deferrals for the unused portion of the delivery of certain quantities of CDX-616 under those purchase orders, thereby relieving both parties of further obligations under those purchase orders. We retainer fee that is not creditable beyond 2023 and we recognized $36.8 million in product revenue in 2022 for these existing orders that were invoiced in 2022, of which $19.8 million was collected in December 2022 and the remaining amount was included in accounts receivable as of December 31, 2022, as our right to payment became unconditional upon modification. We expect to receive the $16.9 million in accounts receivable $8.2 million in the first quarter of 2023.

year ended December 31, 2023. We recognized product revenue of $75.4 million and $34.5 million $34.5 million in the years ended December 31, 2022 and 2021, respectively, from the sale of quantities of CDX-616 to Pfizer. Revenues Product revenues recognized by us from sale of CDX-616 to the Pfizer comprised Supply Agreement represented 12%, 54%, and 33% of our total revenues for the years ended December 31, 2022 December 31, 2023, 2022, and 2021 respectively.

As of December 31, 2022, December 31, 2023 and 2022, we had $24.4 million $9.5 million and $24.4 million, respectively, in deferred revenue related to the $25.9 million $25.9 million fee received from Pfizer, net of $1.5 million of product revenue recognized from the fee during the year ended December 31, 2022. We had nil and $1.7 million in contract assets as of December 31, 2022 and 2021, respectively. Pfizer.

Note 6. Investments in Non-Marketable Securities

Non-Marketable Debt Securities

We classify non-marketable debt securities, which are accounted for as available-for-sale, within Level 3 in the fair value hierarchy because we estimate the fair value based on a qualitative analysis using the most recent observable transaction price and other significant unobservable inputs including volatility, rights, and obligations of the securities we hold.

We determine gains or losses on the sale or extinguishment of non-marketable debt securities using a specific identification method. Unrealized gains and losses from bifurcated embedded derivatives, which represent share-settled redemption features, are recorded as other expense, net, in the consolidated statements of operations. Unrealized gains and losses on non-marketable debt securities are recorded as a component of other comprehensive loss until realized. Realized gains or losses are recorded as a component of other income (expense), net.

In November 2020, we purchased convertible subordinated notes issued by Arzeda Corp. (“Arzeda”), an early-stage computational protein design company, for $1.0 million $1.0 million and the investment was classified as available-for-sale non-marketable interest-bearing debt securities. In July 2021, we converted the non-marketable debt security with a carrying value of $1.3 million into 207,070 shares of Series B-2 preferred stock of Arzeda. During the year ended December 31, 2021, we recognized $0.3 million in interest income from interest earned on our investment in this debt security.

There were no investments in non-marketable debt securities as of December 31, 2022 December 31, 2023 and 2021. 2022.

Non-Marketable Equity Securities

Our non-marketable equity securities are investments in privately held companies without readily determinable market value. value and primarily relate to our investments in MAI, seqWell and Arzeda. These investments are accounted for under the measurement alternative and are measured at cost minus impairment, if any, plus or minus changes resulting from observable price changes for identical or similar securities of the same issuer. Non-marketable equity securities are measured at fair value on a non-recurring basis and classified within Level 2 in the fair value hierarchy because when we estimate the fair value of these investments using the observable transaction price paid by third party investors for the same or similar security of the same issuers. The fair value of non-marketable equity securities are classified within Level 3 when we estimate fair value using unobservable inputs such as when we remeasure due to impairment and we use discount rates, market data of comparable companies, and rights and obligations of the securities the Company holds, among others. We adjust the carrying value of non-marketable equity securities which have been remeasured during the period and recognize resulting gains or losses as a component of other income (expense), net in the consolidated statements of operations.

In November 2023, the 207,070 shares of Arzeda’s Series B preferred stock were converted into 41,414 common stock pursuant to the Stock Purchase Agreement.

In March 2023, we purchased an additional 985,545 shares of Series B preferred stock for $0.8 million in MAI, a privately held life sciences company. As of December 31, 2023, we held an aggregate of 19,277,914 shares of MAI's Series A and B preferred stock that we have earned or purchased from MAI. See Note 14, “Related Party Transactions” for additional information on our investment in MAI.

In March 2022, we entered into a Stock Purchase Agreement with seqWell Inc. (“seqWell”), a privately held biotechnology life sciences company, pursuant to which we purchased 1,000,000 shares of seqWell's Series C preferred stock for $5.0 million. In March 2023, we entered into a Master Collaboration Agreement and Research Agreement with seqWell (the “seqWell Agreement”), pursuant to which we are providing research and experimental screening and protein engineering activities in exchange for compensation in the form of additional shares of seqWell's common stock. In addition to our initial equity investment and the shares we have received under the seqWell Agreement, in September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and 44,128 common stock warrants for $0.4 million. We received 205,279 shares of seqWell's common stock from research and development services with seqWell and we recognized $0.2 million in research and development revenue from these services in the year ended December 31, 2023. As of December 31, 2023, we held an aggregate of 1,088,256 shares of Series C and C-1 preferred stock, 205,279 shares of common stock and 44,128 of common stock warrants that we have earned or purchased from seqWell.

For the year ended December 31, 2023, we recognized an impairment charge of $12.2 million and included this as adjustment to the carrying value of our investments in seqWell, Arzeda and MAI. This adjustment, which is presented within other income (expense), net in the consolidated statements of operations, included the write-down of the carrying value of our investment in seqWell by $3.0 million during the third quarter of 2023 to its estimated fair value as determined based on valuation methods using the recent transaction price of similar preferred stock securities issued by seqWell and adjusted for the rights and obligations of the preferred stock securities the Company holds. The $1.2 million of impairment charge on our investment in Arzeda is related to the write-down to its estimated fair value based on the latest observed transaction price of Arzeda's preferred stock securities issued during the fourth quarter of 2023 and the subsequent conversion of our existing Series B preferred stock into Arzeda's common stock during the fourth quarter of 2023. The other $8.0 million of impairment charge represents the difference between the estimated fair value and carrying value of our investment in MAI as of December 31, 2023 based on quantitative and qualitative analysis. This analysis involved use of judgment, estimates and assumptions, such as the near-term prospects of the investee in the market in which it operates, evaluation of the investee’s financial condition in relation to its outstanding obligations, and probabilities of securing additional capital through various alternative scenarios.

For the year ended December 31, 2022, we recognized a $0.2 million unrealized gain in other income, net, and included as adjustment to the carrying value of our investment in MAI, for the remeasurement of the additional 1,587,049 shares of Series B preferred stock received as a milestone payment during the third quarter of 2022 based on the latest observed transaction price of MAI's preferred stock. For the year ended December 31, 2021, we recognized a $1.0 million unrealized gain in other income, net, due to an adjustment to the carrying value of our investment in MAI based on an analysis of the observed transaction price from MAI's round of financing during the third and fourth quarters of 2021. See Note 14 “Related Party Transactions” for additional information on our investment in MAI.

Other than as disclosed above, there were no remeasurement events for our investments in MAI and other non-marketable equity securities in 2022 2023 and 2021. 2022. We recognized no realized gains or losses during the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

The following table presents the carrying value of our non-marketable equity securities (in thousands):

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
MAI	$ 13,921	$ 12,713		
seqWell	5,000	—		
Arzeda	1,289	1,289		

Other investments in non-marketable equity securities	Other investments in non-marketable equity securities	300	—
Total non-marketable equity securities	Total non-marketable equity securities	$ 20,510	$ 14,002

Note 7. Fair Value Measurements

The following tables present the financial instruments that were measured at fair value on a recurring basis within the fair value hierarchy (in thousands):

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 77,309	$ —	$ —	$ 77,309

	December 31, 2023			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 56,374	$ —	$ —	$ 56,374

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 86,095	$ —	$ —	$ 86,095

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 77,309	$ —	$ —	$ 77,309

During the years ended December 31, 2022 December 31, 2023 and 2021, 2022, we did not recognize any significant credit losses nor other-than-temporary impairment losses on non-marketable securities.

Note 8. Balance Sheet Details

Cash Equivalents

Cash equivalents consisted of the following (in thousands):

	December 31, 2022		December 31, 2021	
	Adjusted Cost	Estimated Fair Value	Adjusted Cost	Estimated Fair Value
Money market funds (1)	$ 77,309	$ 77,309	$ 86,095	$ 86,095

	December 31, 2023		December 31, 2022	
	Adjusted Cost	Estimated Fair Value	Adjusted Cost	Estimated Fair Value
Money market funds(1)	$ 56,374	$ 56,374	$ 77,309	$ 77,309

(1)Money market funds are classified in cash and cash equivalents on our consolidated balance sheets. Average contractual maturities (in days) is not applicable.

As of December 31, 2023, the total cash and cash equivalents balance of $65.1 million consisted of money market funds of $56.4 million and cash of $8.7 million held with major financial institutions. As of December 31, 2022, the total cash and cash equivalents balance of $114.0 million consisted of money market funds of $77.3 million and cash of $36.7 million held with major financial institutions. As of December 31, 2021, the total cash and cash equivalents balance of $116.8 million consisted of money market funds of $86.1 million and cash of $30.7 million held with major financial institutions.

Inventories

Inventories consisted of the following (in thousands):

	December 31,	
	2022	2021
Raw materials	$ 108	$ 49
Work in process	91	65
Finished goods	1,830	1,046
Total inventories	$ 2,029	$ 1,160

December 31,	
2023	2022

Inventories are recorded net *Prepaid expenses and other current assets*

As of reserves December 31, 2023, prepaid expenses and other current assets consists of $1.2 millionprepaid expenses of $4.6 million and $1.4 million as other current assets of $0.6 million. As of December 31, 2022, prepaid expenses and December 31, 2021 respectively.

other current assets consists of prepaid expenses of $4.8 million and other current assets of $0.7 million.

Property and Equipment, net

Property and equipment, net consisted of the following (in thousands):

	December 31,	
	2022	2021
Laboratory equipment (1)	$ 39,679	$ 33,101
Leasehold improvements	16,633	16,117
Computer equipment and software	3,039	3,481
Office equipment and furniture	1,345	1,297
Construction in progress (2)	1,739	3,231
Property and equipment	62,435	57,227
Less: accumulated depreciation and amortization	(39,821)	(35,882)
Property and equipment, net	$ 22,614	$ 21,345

December 31,	
2023	2022

(1) Fully depreciated property and equipment with a cost of $1.5 million $3.0 million and $0.6 million $1.5 million were retired during the years ended December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

(2) Construction in progress includes equipment received but not yet placed into service pending installation.

In July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. As part of this plan, we entered into agreements to sell certain laboratory equipment located in our San Carlos facility through an asset auction and as part of the lease assignment of the San Carlos Space to Vaxcyte (see further discussion at Note 13, “Commitments and Contingencies”). These certain items of laboratory equipment met the assets held for sale criteria and were sold during the fourth quarter of 2023. Using a fair value estimate based of Level 3 inputs in the fair value hierarchy, the Company determined that the carrying value of these assets exceeds fair value less costs to sell, which resulted in a write-down of $1.5 million, presented within the asset impairment and other charges line item in the consolidated statements of operations in the year ended December 31, 2023.

During the year ended December 31, 2023, the Company recorded a non-cash impairment charge of $4.7 million associated with the San Carlos facility leasehold improvements. For additional information, see Note 13, “Commitments and Contingencies.”

Depreciation expense included in both research and development expenses and selling, general and administrative expenses in the consolidated statements of operations was as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Depreciation expense	$ 5,402	$ 3,113	$ 1,950

Goodwill

	Year Ended December 31,		
	2023	*2022*	*2021*
Depreciation expense	*$ 5,518*	*$ 5,402*	*$ 3,113*

Goodwill

	December 31,	
	2023	2022
Goodwill at beginning of period	$ 3,241	$ 3,241
Impairment	(778)	—
Goodwill at end of period	$ 2,463	$ 3,241

Goodwill was previously allocated to each of the Company's reporting units. In July 2023, we announced a restructuring of our business and that we are discontinuing investment in certain development programs, primarily in Novel Biotherapeutics. As a result of this plan, the Company determined that a triggering event had occurred that required an interim goodwill impairment test during the third quarter of 2023. The fair value estimate used in the interim goodwill impairment test was primarily based on Level 3 inputs in the fair value hierarchy. Based on the results of the impairment evaluation, the Company determined that the goodwill within the Novel Biotherapeutics reporting unit was impaired, which resulted in a non-cash impairment charge of $0.8 million to write off all of the associated goodwill. The impairment charge is recorded within the asset impairment and other charges in the condensed consolidated statements of operation in the year ended December 31, 2023. Goodwill had a carrying value of $3.2 million $2.5 million and $3.2 million as of December 31, 2022 December 31, 2023 and 2021. 2022, respectively.

Other Accrued Liabilities

Other accrued liabilities consisted of the following (in thousands):

	December 31,		December 31,	
	2022	2021	2023	2022
Accrued professional and outside service fees				
Accrued purchases	Accrued purchases	$ 10,852	$ 6,755	
Accrued professional and outside service fees		3,495	5,147	
Other	Other	932	676	
Total other accrued liabilities	Total other accrued liabilities	$ 15,279	$ 12,578	

Note 9. Stock-based Compensation

Equity Incentive Plans

In 2019, January 2023, our board of directors (the "Board" “Board”) approved the 2022 Employment Inducement Award Plan (the “2022 Inducement Plan”) which provides for the grant of non-qualified stock options, restricted stock awards (“RSAs”), restricted stock units (“RSUs”), performance awards, other stock awards and dividend equivalents to eligible employees with respect to an aggregate of up to 2,000,000 shares of our common stock. In June 2023, the 2022 Inducement Plan was terminated upon the approval of an amendment to the Company's 2019 Incentive Award Plan (the “2019 Plan”) at the annual meeting of the Company's stockholders (the “Annual Meeting”) in June 2023.

In 2019, the Board and stockholders approved the 2019 Incentive Award Plan (the "2019 Plan"). Plan. The 2019 Plan superseded and replaced in its entirety our 2010 Equity Incentive Plan (the “2010 Plan" Plan”) which was effective in March 2010, and no further awards will be granted under the 2010 Plan; however, the terms and conditions of the 2010 Plan will continue to govern any outstanding awards thereunder.

The 2010 Plan provided for the grant of incentive stock options, non-statutory stock options, RSUs, RSAs, PSUs, PBOs, stock appreciation rights, and stock purchase rights to our employees, non-employee directors and consultants. The 2019 Plan provides for the grant of stock options, including incentive stock options and non-qualified stock options, stock appreciation rights, restricted stock awards ("RSAs"), restricted stock units ("RSUs"), RSA, RSUs, performance-contingent restricted stock units ("PSUs" ("PSUs"), performance-based performance based options ("PBOs" ("PBOs"), other stock or cash-based cash based awards and dividend equivalents to eligible employees and consultants of the Company or any parent or subsidiary, as well as members of the Board.

The number of shares of our common stock that were initially available for issuance under the 2019 Plan is equal to the sum of (i) 7,897,144 shares, and (ii) any shares subject to awards granted under the 2010 Plan that were outstanding as of April 22, 2019 and thereafter terminate, expire, lapse or are forfeited; provided that no more than 14,000,000 shares may be issued upon the exercise of incentive stock options ("ISOs"). forfeited. In June 2019, 8.1 million shares authorized for issuance under the 2019 Plan were registered under the Securities Act of 1933, as amended (the "Securities Act" "Securities Act").

In April 2023, the Board approved an amendment to the 2019 Plan (the "2019 Amended Plan") which became effective upon stockholders' approval at the Annual Meeting in June 2023. The 2019 Amended Plan included the (i) increase in the number of shares available by 8,000,000 shares, such that an aggregate of 15,897,144 shares are reserved for issuance under the 2019 Amended Plan and any shares subject to awards granted under the 2010 Plan, provided for and (ii) increase in the grant number of shares that may be granted as incentive stock options non-statutory under the 2019 Amended Plan such that an aggregate of 22,000,000 shares of common stock may be granted as incentive stock options RSUs, RSAs, PSUs, PBOs,

stock appreciation rights, and stock purchase rights to our employees, non-employee directors and consultants. under the 2019 Amended Plan.

As of December 31, 2022 December 31, 2023, total shares remaining available for issuance under the 2019 Plan were 2.8 million 9.1 million shares.

Employee Stock Purchase Plan

In April 2023, the Board approved an employee stock purchase plan (the "ESPP") which became effective upon approval at the Annual Meeting in June 2023. The ESPP allows eligible employees of the Company to purchase shares of our common stock through payroll deductions over 24-month offering periods. The per share purchase price will be the lower of 85% of the closing trading price per share of our common stock on the first trading date of an offering period in which a participant is enrolled or 85% of the closing trading price per share on the purchase date. Participant purchases are limited to a maximum of $25,000 of fair value of our stock per calendar year. The Company is authorized to grant up to 2,000,000 shares of common stock under the ESPP. The first offering period of the ESPP commenced in December 2023 and as of December 31, 2023, the Company had not issued any shares of common stock under the ESPP. We recognized $25 thousand of stock-based compensation expenses related to the ESPP in the year ended December 31, 2023.

Stock Options

The option exercise price for incentive stock options must be at least 100% of the fair value of our common stock on the date of grant and the option exercise price for non-statutory stock options is at least 85% of the fair value of our common stock on the date of grant, as determined by the Board. If, at the time of a grant, the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all of our outstanding capital stock, the exercise price for these options must be at least 110% of the fair value of the underlying common stock. Stock options granted to employees generally have a maximum term of ten years and vest over four years from the date of grant, of which 25% vest at the end of one year, and 75% vest monthly over the remaining three years. We may grant options with different vesting terms from time to time. Unless an employee's termination of service is due to disability or death, upon termination of service, any unexercised vested options will be forfeited at the end of three months or the expiration of the option, whichever is earlier.

Restricted Stock Units ("RSUs" ("RSUs")

We also grant employees RSUs, which generally vest over either a three year period with 33% of the shares subject to the RSUs vesting on each yearly anniversary of the vesting commencement date or over a four-year period with 25% of the shares subject to the RSU vesting on each yearly anniversary of the vesting commencement date, in each case contingent upon such employee's continued service on such vesting date. RSUs are generally subject to forfeiture if employment terminates prior to the release of vesting restrictions. We may grant RSUs with different vesting terms from time to time.

Performance-contingent Restricted Stock Units ("PSUs" ("PSUs") and Performance Based Options ("PBOs" ("PBOs")

The In prior years, the compensation committee of the Board approved grants of PBOs and PSUs to our executives, and solely in respect of non-executive employees, delegated to our Chief Executive Officer CEO the authority to approve grants of PSUs. The compensation committee of the Board also approves grants of PBOs and PSUs to our executives. The PSUs and PBOs vest based upon both the successful achievement of certain corporate operating milestones in specified timelines and continued employment through the applicable vesting date. When the performance goals are deemed to be probable of achievement for these types of awards, recognition of stock-based compensation expense commences. Once the number of shares eligible to vest is determined, those shares vest in two equal installments with 50% vesting upon achievement, as determined by the compensation committee of the Board, and the remaining 50% vesting on the first anniversary of achievement, in each case, subject to the recipient's continued service through the applicable vesting date. If the performance goals are achieved at the threshold level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to half the number of PSUs granted and one-quarter the number of shares underlying the PBOs granted. If the performance goals are achieved at the target level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to the number of PSUs granted and half of the shares underlying the PBOs granted. If the performance goals are achieved at the superior level, the number of shares eligible to vest in respect of the PSUs would be equal to two times the number of PSUs granted and equal to the number of PBOs granted. The number of shares issuable upon achievement of the performance goals at the levels between the threshold and target levels for the PSUs and PBOs or between the target level and superior levels for the PSUs would be determined using linear interpolation. Achievement below the threshold level would result in no shares being eligible to vest in respect of the PSUs and PBOs.

No PSUs and PBOs were granted in 2023. In 2022, we awarded PSUs (" ("2022 PSUs" PSUs") and PBOs (" ("2022 PBOs" PBOs"), each of which commence vesting based upon the achievement of various weighted performance goals, including finance and corporate strategy, performance enzymes and biotherapeutics deliverables, research plans, and organizational development. As In the first quarter of December 31, 2022, we estimated 2023, the compensation committee of the Board determined that the 2022 PSUs and 2022 PBOs performance goals would be had been achieved at 85.0% and 42.5% of the target level, respectively, and recognized stock-based compensation expenses accordingly. Accordingly, 50% of the shares underlying the 2022 PSUs and PBOs vested in the first quarter of 2023 and 50% of the shares underlying the 2022 PSUs and PBOs will vest in the first quarter of 2024, in each case, subject to the recipient's continued service on each vesting date.

In 2021, we awarded PSUs (" ("2021 PSUs" PBOs") and PBOs (" ("2021 PBOs" PBOs"), each of which commence vesting based upon the determination of the compensation committee of the Board of the achievement of various weighted performance goals, including total revenues, product revenue, performance enzymes pipeline advancements, biotherapeutics pipeline advancements, organization and infrastructure upgrades, and significant events that can be publicly announced. In the first quarter of 2022, we determined that the 2021 PSUs and 2021 PBOs performance goals had been achieved at 146% and 73% of the target level, respectively, and recognized stock-based compensation expenses accordingly. Accordingly, 50% of the shares underlying the 2021 PSUs and PBOs vested in the first quarter of 2022 and 50% of the shares underlying the 2021 PSUs and PBOs will vest vested in the first quarter of 2023, in each case, subject to the recipient's continued service on each vesting date.

In 2020, we awarded PSUs ("2020 PSUs") and PBOs ("2020 PBOs"), each of which commenced vesting based upon the achievement of various weighted performance goals, including total revenues, performance enzyme segment gross margin, major new biotherapeutics publicity events, strategic performance enzyme and biotherapeutics deliverables, and strategic plan development. In the first quarter of 2021, we determined that the 2020 PSUs and 2020 PBOs performance goals had been achieved at 88% and 44% of the target level, respectively, and recognized stock-based compensation expenses accordingly. Accordingly, 50% of the shares underlying the 2020 PSUs and PBOs vested in the first quarter of 2021 and 50% of the shares underlying the 2020 PSUs and PBOs vested in the first quarter of 2022, in each case, subject to the recipient's continued service on each vesting date.

Stock-Based Compensation Expense

Stock-based compensation expense is included in the consolidated statements of operations as follows (in thousands):

		Year Ended December 31,			Year Ended December 31,		
		2022	2021	2020	2023	2022	2021
Costs of product revenue	Costs of product revenue	$ 452	$ 224	$ 104			
Research and development	Research and development	$ 3,907	$ 2,663	$ 1,843			
Selling, general and administrative	Selling, general and administrative	10,172	8,706	5,781			
Total	Total	$ 14,531	$ 11,593	$ 7,728			

The following table presents total stock-based compensation expense by security type included in the consolidated statements of operations (in thousands):

		Year Ended December 31,				Year Ended December 31,			
		2022	2021	2020		2023	2022	2021	
Stock options	Stock options	$ 4,167	$ 2,764	$ 2,381					
RSUs and RSAs	RSUs and RSAs	4,807	2,768	2,231	RSUs and RSAs	4,447	4,807	4,807	2,768
PSUs	PSUs	3,268	2,333	1,160					
PBOs	PBOs	2,289	3,728	1,956	PBOs	(112)	2,289	2,289	3,728
ESPP									
Total	Total	$ 14,531	$ 11,593	$ 7,728					

In connection with the retirement of John Nicols, our former President and Chief Executive Officer, in August 2022, and the Transition and Separation Agreement between Mr. Nicols and the Company, certain supplementary modifications were made to Mr. Nicols' vested and unvested stock option and PBOs awards including voluntary forfeiture of certain unvested stock option and PBOs awards and the extension of the post-termination exercise period of certain vested stock option and PBOs awards. During the year ended December 31, 2022, we recorded a one-time, non-cash incremental compensation expense of $1.0 million, net of the required reversal of previously recognized stock-based compensation expenses attributed to unvested shares, in selling, general and administrative expenses related to these stock option award modifications.

Grant Award Activities:

Stock Option Awards

We estimated the fair value of stock options using the Black-Scholes-Merton option-pricing model based on the date of grant. The following summarizes the weighted-average assumptions used to estimate the fair value of employee stock options granted:

	Year Ended December 31,		
	2022	2021	2020
Expected life (years)	5.7	5.6	5.3
Volatility	62.1 %	52.5 %	50.4 %
Risk-free interest rate	3.1 %	0.8 %	1.0 %
Expected dividend yield	0.0 %	0.0 %	0.0 %

	Year Ended December 31,		
	2023	2022	2021
Expected life (years)	5.8	5.7	5.6
Volatility	66.2 %	62.1 %	52.5 %
Risk-free interest rate	4.0 %	3.1 %	0.8 %
Expected dividend yield	0.0 %	0.0 %	0.0 %

No stock options were granted to non-employees for services during year ended December 31, 2022. The following summarizes the weighted-average assumptions used to estimate the fair value of 9,000 50,000, nil, and 76,000 9,000 shares of stock options granted to non-employees for services valued at $0.1 million $0.1 million, nil, and $0.4 million $0.1 million during the years ended December 31, 2021 December 31, 2023, 2022, and 2020 2021 respectively:

	Year Ended December 31,					Year Ended December 31,					
	2021		2020			2023		2022		2021	
Expected life (years)	5.6		5.4		Expected life (years)	5.8		0.0		5.6	
Volatility	54.1	%	51.6	%	Volatility	70.1	%	—	%	54.1	%
Risk-free interest rate	0.9	%	0.4	%	Risk-free interest rate	4.7	%	—	%	0.9	%
Expected dividend yield	0.0	%	0.0	%	Expected dividend yield	0.0	%	0.0	%	0.0	%

The weighted average grant date fair value per share of non-employee stock options granted respectively in 2023, 2022, and 2021 was $1.05, nil and 2020 was $11.29, and $5.04. respectively.

The following tables summarizes stock option activities:

	Number of Shares (In Thousands)	Weighted Average Exercise Price Per Share
Outstanding at December 31, 2019	3,147	$ 6.31
Granted	496	$ 13.30
Exercised	(210)	$ 6.30
Forfeited/Expired	(48)	$ 16.71

Number of Shares (In Thousands)		Number of Shares	Weighted Average Exercise Price Per Share
Outstanding at December 31, 2020			
Outstanding at December 31, 2020	Outstanding at December 31, 2020	3,385	$ 7.19
Granted	Granted	286	$ 26.85
Exercised	Exercised	(664)	$ 6.96
Forfeited/Expired	Forfeited/Expired	(72)	$ 17.99
Outstanding at December 31, 2021	Outstanding at December 31, 2021	2,935	$ 8.90
Granted	Granted	2,000	$ 8.90
Exercised	Exercised	(410)	$ 2.33
Forfeited/Expired	Forfeited/Expired	(275)	$ 19.01
Outstanding at December 31, 2022	Outstanding at December 31, 2022	4,250	$ 8.88
Granted			

Exercised	
Forfeited/Expired	
Outstanding at December 31, 2023	

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Outstanding at December 31, 2022	4,250	$ 8.88	6.2	$ 1,556
Exercisable at December 31, 2022	2,162	$ 8.26	3.1	$ 1,556
Vested and expected to vest at December 31, 2022	3,898	$ 8.91	5.9	$ 1,556

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Outstanding at December 31, 2023	5,174	$ 7.31	6.7	$ 198
Exercisable at December 31, 2023	2,231	$ 8.61	3.6	$ 79
Vested and expected to vest at December 31, 2023	4,748	$ 7.42	6.4	$ 170

The weighted average grant date fair value per share of employee stock options granted in 2023, 2022, and 2021 were $3.31, $4.99 and 2020 were $4.99, $12.80, and $6.03, respectively. The total intrinsic value of options exercised in 2023, 2022, and 2021 and 2020 were $0.7 million, $3.1 million $14.9 million and $1.8 $14.9 million, respectively.

As of December 31, 2022 December 31, 2023, there was $8.1 million $8.2 million of unrecognized stock-based compensation, net of expected forfeitures, related to unvested stock options, which we expect to recognize over a weighted average period of 3.4 2.9 years.

Restricted Stock Awards ("RSAs" ("RSAs")

The following table summarizes RSA activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2019	35	$ 17.18
Granted	96	$ 11.44
Vested	(35)	$ 17.18

Number of Shares	Number of Shares	Weighted Average Grant Date Fair Value Per Share
(In Thousands)		
Non-vested balance at December 31, 2020		
Non-vested balance at December 31, 2020		
Non-vested balance at December 31, 2020	Non-vested balance at December 31, 2020	96 $ 11.44
Granted	Granted	46 $ 21.91

Vested	Vested	(62)	$	11.31
Non-vested balance at December 31, 2021	Non-vested balance at December 31, 2021	80	$	17.53
Granted	Granted	159	$	7.53
Vested	Vested	(58)	$	18.42
Non-vested balance at December 31, 2022	Non-vested balance at December 31, 2022	181	$	8.45
Granted				
Vested				
Non-vested balance at December 31, 2023				

The total fair value, as of the vesting date, of RSAs vested in fiscal years 2023, 2022 2021 and 2020 2021 were $0.5 million $0.4 million, $1.3 million $0.5 million and $0.4 million $1.3 million respectively.

As of December 31, 2022 December 31, 2023, there was $0.8 million $0.6 million of unrecognized stock-based compensation cost related to non-vested RSAs, which we expect to recognize over a weighted average period of 1.4 0.7 years.

Restricted Stock Units ("RSUs")

The following table summarizes RSU activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2019	201	$ 10.76
Granted	156	$ 14.22
Vested	(168)	$ 10.05
Forfeited/Expired	(13)	$ 15.16

	Number of Shares	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)		
Non-vested balance at December 31, 2020			
Non-vested balance at December 31, 2020			
Non-vested balance at December 31, 2020	Non-vested balance at December 31, 2020	176	$ 14.17
Granted	Granted	163	$ 26.59
Vested	Vested	(70)	$ 13.57
Forfeited/Expired	Forfeited/Expired	(37)	$ 21.89
Non-vested balance at December 31, 2021	Non-vested balance at December 31, 2021	232	$ 21.83

Granted	Granted	518	$	17.46
Vested	Vested	(106)	$	21.21
Forfeited/Expired	Forfeited/Expired	(126)	$	19.55
Non-vested balance at December 31, 2022	Non-vested balance at December 31, 2022	518	$	18.15
Granted				
Vested				
Forfeited/Expired				
Non-vested balance at December 31, 2023				

The total fair value, as of the vesting date, of RSUs vested in fiscal years 2023, 2022 2021 and 2020 2021 were $1.8 1.1 million, $1.8 million and $2.1 million $1.8 million respectively.

As of December 31, 2022 December 31, 2023, there was $5.2 4.1 million of unrecognized stock-based compensation cost related to non-vested RSUs, which we expect to recognize over a weighted average period of 1.9 2.0 years.

Performance-Contingent Restricted Stock Units ("PSUs") ("PSUs")

The following table summarizes PSU activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2019	120	$ 13.88
Granted	124	$ 13.59
Vested	(107)	$ 11.28
Forfeited/Expired	(6)	$ 21.80

Number of Shares		Number of Shares	Weighted Average Grant Date Fair Value Per Share
(In Thousands)			
Non-vested balance at December 31, 2020			
Non-vested balance at December 31, 2020			

Non-vested balance at December 31, 2020	Non-vested balance at December 31, 2020	131	$	15.34
Granted	Granted	82	$	26.16
Vested	Vested	(66)	$	16.14
Forfeited/Expired	Forfeited/Expired	(19)	$	19.38
Non-vested balance at December 31, 2021	Non-vested balance at December 31, 2021	128	$	21.24
Granted	Granted	686	$	9.55
Vested	Vested	(107)	$	20.52
Forfeited/Expired	Forfeited/Expired	(40)	$	19.93
Non-vested balance at December 31, 2022	Non-vested balance at December 31, 2022	667	$	9.41
Vested				

Forfeited/Expired			
Other			
Non-vested balance at December 31, 2023			

The total fair value, as of the vesting date, of PSUs vested in the years ended December 31, 2022 December 31, 2023, 2022, and 2021 and 2020 were $2.1 million $1.6 million, $1.3 million $2.1 million, and $1.3 million, respectively.

As of December 31, 2022 December 31, 2023, there was $2.2 million $0.2 million of unrecognized stock-based compensation cost related to non-vested PSUs, which we expect to recognize over a weighted average period of 0.7 0.2 years.

Performance Based Options ("PBOs" ("PBOs")

We estimated the fair value of PBOs using the Black-Scholes-Merton option-pricing model based on the date of grant. No PBOs were granted to employees for their services during the year ended December 31, 2023. The following summarize the weighted-average assumptions used to estimate the fair value of PBOs granted:

	Year Ended December 31,		
	2022	2021	2020
Expected life (years)	5.6	5.5	5.3
Volatility	54.9 %	51.9 %	49.9 %
Risk-free interest rate	1.8 %	0.7 %	1.3 %
Expected dividend yield	0.0 %	0.0 %	0.0 %

	Year Ended December 31,	
	2022	2021
Expected life (years)	5.6	5.5
Volatility	54.9 %	51.9 %
Risk-free interest rate	1.8 %	0.7 %
Expected dividend yield	0.0 %	0.0 %

The following tables summarizes PBOs activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Outstanding at December 31, 2019	1,260	$ 4.75
Granted	689	$ 6.37
Forfeited/Expired	(389)	$ 6.42

Number of Shares (In Thousands)		Number of Shares	Weighted Average Grant Date Fair Value Per Share
Outstanding at December 31, 2020			
Outstanding at December 31, 2020			
Outstanding at December 31, 2020	Outstanding at December 31, 2020	1,560	$ 5.05
Granted	Granted	433	$ 12.23
Exercised	Exercised	(35)	$ 9.02
Forfeited/Expired	Forfeited/Expired	(118)	$ 12.23
Outstanding at December 31, 2021	Outstanding at December 31, 2021	1,840	$ 4.11
Granted	Granted	733	$ 9.89
Forfeited/Expired	Forfeited/Expired	(747)	$ 8.29

Outstanding at December 31, 2022	Outstanding at December 31, 2022	1,826	$	4.70
Forfeited/Expired				
Outstanding at December 31, 2023				

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Exercisable at December 31, 2022	1,674	$ 11.09	5.4	$ 40
Vested and expected to vest at December 31, 2022	1,808	$ 11.85	5.7	$ 40

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Exercisable at December 31, 2023	1,627	$ 10.96	4.4	$ —
Vested and expected to vest at December 31, 2023	1,646	$ 11.06	4.5	$ —

The total fair value of exercised PBOs for 2023, 2022 2021 and 2020, 2021, was nil, $0.3 million nil, and nil, $0.3 million, respectively.

As of December 31, 2022 December 31, 2023, there was $0.4 million $15.9 thousand of unrecognized stock-based compensation cost related to non-vested PBOs, which we expect to recognize over a weighted average period of 1.0 0.2 years.

Employee Stock Purchase Plan ("ESPP")

The fair value of shares to be issued under the ESPP is computed using the Black-Scholes-Merton option pricing model at the commencement of the offering period. The following summarizes the weighted-average assumptions used to estimate the fair value of ESPP for the initial offering period:

	Year Ended December 31, 2023
Expected life (years)	0.4
Volatility	89.6 %
Risk-free interest rate	5.3 %
Expected dividend yield	0.0 %

Note 10. Capital Stock

Equity Distribution Agreement

We In May 2021, we filed a shelf Registration Statement on Form S-3 with the SEC, that automatically became effective upon its filing, under which we may sell common stock, preferred stock, debt securities, warrants, purchase contracts, and units from time to time in one or more offerings. The registration statement became effective On February 27, 2023, we filed a post-effective amendment to that Registration Statement on May 7, 2021. Form S-3. Pursuant to that post-effective amendment, we registered an aggregate $200.0 million of securities. In May 2021, we entered into an Equity Distribution Agreement ("EDA" EDA") with Piper Sandler & Co ("PSC" ("PSC"), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. Under the terms of the EDA, PSC may sell the shares at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415 under the Securities Act of 1933, as amended.

We are not required to sell any shares at any time during the term of the EDA. The EDA will terminate upon the earlier of: (i) the issuance and sale of all shares through PSC on the terms and conditions of the EDA, or (ii) the termination of the EDA in accordance with its terms. Either party may terminate the EDA at any time upon written notification to the other party in accordance with the EDA, and upon such notification, the offering will terminate. Under no circumstances shall any shares be sold pursuant to the EDA after the date which is three years after the registration statement is first declared effective by the SEC. We agreed to pay PSC a commission of 3% of the gross sales price of any shares sold pursuant to the EDA. With the exception of certain expenses, we will pay PSC up to 8% of the gross sales price of the shares sold pursuant to the EDA for a combined amount of commission and reimbursement of PSC's expenses and fees.

During the year ended December 31, 2023, 3,079,421 shares of our common stock were issued and sold pursuant to the EDA. During the year ended December 31, 2023, we received gross proceeds of $8.7 million or $7.9 million in net proceeds after PSC's commissions and direct offering expenses of $0.7 million. As of December 31, 2023, $41.3 million of shares remained available for sale under the EDA. During the year ended December 31, 2022, no shares of our common stock were issued sold pursuant to the EDA. As of December 31, 2022, $50.0 million worth of shares remained available for sale under the EDA.

Public Offerings

In December 2020, we completed an underwritten public offering in which we issued and sold 4.9 million shares of our common stock, par value $0.0001 per share, at a public offering price of $17.50 per share. We received gross proceeds of $86.3 million, net of underwriting discounts and commissions of $5.2 million and direct offering expenses of $0.3 million for net proceeds of $80.8 million.

Note 11. 401(k) Plan

In January 2005, we implemented a 401(k) Plan covering certain employees. Currently, all of our United States based employees over the age of 18 are eligible to participate in the 401(k) Plan. Under the 401(k) Plan, eligible employees may elect to reduce their current compensation up to a certain annual limit and contribute these amounts to the 401(k) Plan. We may make matching or other contributions to the 401(k) Plan on behalf of eligible employees. We recorded employer matching contributions expense of $1.6 million $1.4 million, $1.1 million $1.6 million, and $0.8 million $1.1 million in the years ended December 31, 2022 December 31, 2023, 2021, 2022, and 2020, 2021, respectively.

Note 12. Income Taxes

Our loss before provision for income taxes were as follows (in thousands):

	Year Ended December 31,			Year Ended December 31,		
	2022	2021	2020	2023	2022	2021
United States	$ (33,269)	$ (21,037)	$ (23,452)			
Foreign	(47)	(53)	(219)			
Loss before provision for income taxes	$ (33,316)	$ (21,090)	$ (23,671)			

The tax provision for the year years ended December 31, 2022 December 31, 2023 and 2022 consists primarily of current year state and foreign income taxes. The tax provision for the years year ended December 31, 2021 and 2020 consists primarily of taxes attributable to foreign operations. The components of the provision for income taxes are as follows (in thousands):

	Year Ended December 31,			Year Ended December 31,		
	2022	2021	2020	2023	2022	2021
Current provision:						
State	$ 141	$ —	$ 5			
State						
State						
Foreign	142	198	342			
Total current provision	$ 283	$ 198	$ 347			
Deferred benefit:						
Foreign	(7)	(9)	(8)			
Foreign						
Foreign						
Total deferred benefit	$ (7)	$ (9)	$ (8)			
Provision for income taxes	$ 276	$ 189	$ 339			

Reconciliation of the provision for income taxes calculated at the statutory rate to our provision for income taxes is as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Tax benefit at federal statutory rate	$ (6,996)	$ (4,429)	$ (4,971)

State taxes	(494)	(2,235)	(708)
Research and development credits	(1,793)	(1,132)	(811)
Foreign operations taxed at different rates	78	80	245
Stock-based compensation	239	(2,698)	140
Other nondeductible items	(238)	711	61
Executive compensation	80	257	24
Change in valuation allowance	9,400	9,635	6,359
Provision for income taxes	$ 276	$ 189	$ 339

	Year Ended December 31,		
	2023	2022	2021
Tax benefit at federal statutory rate	$ (15,995)	$ (6,996)	$ (4,429)
State taxes	(2,208)	(494)	(2,235)
Research and development credits	(925)	(1,793)	(1,132)
Foreign operations taxed at different rates	—	78	80
Stock-based compensation	1,967	239	(2,698)
Other nondeductible items	438	(238)	711
Executive compensation	152	80	257
Change in valuation allowance	16,640	9,400	9,635
Provision for income taxes	$ 69	$ 276	$ 189

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards.

Significant components of our deferred tax assets and liabilities are as follows (in thousands):

		December 31,		December 31,	
		2022	2021	2023	2022
Deferred tax assets:	Deferred tax assets:				
Net operating losses	Net operating losses	$ 69,915	$ 78,525		
Net operating losses	Net operating losses				
Credits	Credits	14,806	11,895		
Deferred revenues	Deferred revenues	1,123	1,490		
Stock-based compensation	Stock-based compensation	4,967	3,946		
Reserves and accruals	Reserves and accruals	2,487	2,928		
Depreciation		—	514		
Property and Equipment					
Intangible assets	Intangible assets	866	1,356		
Capital losses	Capital losses	413	26		
R&D Capitalization	R&D Capitalization	16,502	—		
Unrealized gain/loss		1	418		

Lease liability	Lease liability	9,586	11,206
Other assets	Other assets	124	122
Total deferred tax assets:	Total deferred tax assets:	120,790	112,426
Valuation allowance	Valuation allowance	(111,183)	(101,762)
Deferred tax liabilities:	Deferred tax liabilities:		
Right-of-use assets	Right-of-use assets	(8,624)	(10,373)
Right-of-use assets	Right-of-use assets		
Property and Equipment	Property and Equipment	(736)	—
Other	Other	(263)	(314)
Total deferred tax liabilities:	Total deferred tax liabilities:	(9,623)	(10,687)
Net deferred tax liabilities	Net deferred tax liabilities	$ (16)	$ (23)

ASC 740 requires that the tax benefit of NOLs, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on our ability to generate sufficient taxable income within the carryforward period. Because of our history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not more likely than not to be realized and, accordingly, has provided a valuation allowance against our deferred tax assets. Accordingly, the net deferred tax assets in all our jurisdictions have been fully reserved by a valuation allowance. The net valuation allowance increased by $9.4 million $16.7 million during the year ended December 31, 2023, increased by $9.4 million during the year ended December 31, 2022, and increased by $9.6 million during the year ended December 31, 2021, and increased by $6.4 million during the year ended December 31, 2020. At such time as it is determined that it is more likely than not that the deferred tax assets are realizable, the valuation allowance will be reduced.

The following table sets forth our federal, state and foreign NOL carryforwards and federal research and development tax credits as of December 31, 2022 December 31, 2023 (in thousands):

	December 31, 2022 2023	
	Amount	Expiration Years
Net operating losses, federal	$ 183,022 182,918	2026-2037
Net operating losses, federal	$ 109,069 118,569	Do not expire
Net operating losses, state	$ 138,775 147,481	2028-2041
Tax credits, federal	$ 16,228 17,815	2023-2041
Tax credits, state	$ 17,168 19,223	Do not expire

Current U.S. federal and California tax laws include substantial restrictions on the utilization of NOLs and tax credit carryforwards in the event of an ownership change of a corporation. Accordingly, the Company's ability to utilize NOLs and tax credit carryforwards may be limited as a result of such ownership changes. We performed an analysis in 2022 2023 and determined that there was not a limitation that would result in the expiration of carryforwards before they are utilized.

Income tax expense or benefit from continuing operations is generally determined without regard to other categories of earnings, such as discontinued operations and other comprehensive income. An exception is provided in ASC 740 when there is aggregate income from categories other than continuing operations and a loss from continuing operations in the current year. In this case, the tax benefit allocated to continuing operations is the amount by which the loss from continuing operations reduces the tax expenses recorded with respect to the other categories of earnings, even when a valuation allowance has been established against the deferred tax assets. In instances where a valuation allowance is established against current year losses, income from other sources is considered when determining whether sufficient future taxable income exists to realize the deferred tax assets.

In 2014, we determined that the undistributed earnings of our India subsidiary will be repatriated to the United States, and accordingly, we have provided a deferred tax liability totaling $16 thousand and $23 thousand as of December 31, 2022 December 31, 2023 and 2021 respectively, 2022, for local taxes that would be incurred upon repatriation.

We apply the provisions of ASC 740 to account for uncertain income taxes. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

		December 31,			December 31,		
		2022	2021	2020	2023	2022	2021
Balance at beginning of year	Balance at beginning of year	$ 15,261	$ 12,683	$ 11,330			
Additions based on tax positions related to current year	Additions based on tax positions related to current year	3,553	2,206	1,357			
Additions to tax position of prior years	Additions to tax position of prior years	—	372	—			
Reductions to tax position of prior years	Reductions to tax position of prior years	(243)	—	(4)			
Balance at end of year	Balance at end of year	$ 18,571	$ 15,261	$ 12,683			

We recognize interest and penalties as a component of our income tax expense. Total interest and penalties recognized in the consolidated statements of operations were $42 thousand, $42 thousand and $61 thousand in 2023, 2022 and $39 thousand in 2022, 2021, and 2020, respectively. Total penalties and interest recognized in the balance sheet was $0.5 million $0.6 million, $0.5 million and $0.4 million $0.5 million as of December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. The total unrecognized tax benefits that, if recognized currently, would impact our company's effective tax rate were $0.3 million as of December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021. We do not expect any material changes to our uncertain tax positions within the next 12 months. We are not subject to examination by United States federal or state tax authorities for years prior to 2002 and foreign tax authorities for years prior to 2014.

Note 13. Commitments and Contingencies

Operating Leases

Our headquarters are located in Redwood City, California, where we occupy approximately 77,300 square feet of office and laboratory space in multiple buildings within the same business park of operated by Metropolitan Life Insurance Company ("MetLife" ("MetLife"). Our lease agreement with MetLife (" ("RWC Lease" Lease") includes approximately 28,200 square feet of space located at 200 and 220 Penobscot Drive, Redwood City, California (the "200/ "200/220 Penobscot Space" Space") and approximately 37,900 square feet of space located at 400 Penobscot Drive, Redwood City, California (the "400 "400 Penobscot Space" Space") (the 200/220 Penobscot Space and the 400 Penobscot Space are collectively referred to as the "Penobscot Space" "Penobscot Space"), and approximately 11,200 square feet of space located at 501 Chesapeake Drive, Redwood City, California (the "501 "501 Chesapeake Space" Space").

We entered into the initial lease with MetLife for our facilities in Redwood City in 2004 and the RWC Lease has been amended multiple times since then to adjust the leased space and terms of the Lease. In February 2019, we entered into an Eighth Amendment to the Lease (the "Eighth Amendment" "Eighth Amendment") with MetLife with respect to the Penobscot Space and the 501 Chesapeake Space to extend the term of the Lease for additional periods. Pursuant to the Eighth Amendment, the term of the lease of the Penobscot Space has been extended through May 2027. The lease term for the 501 Chesapeake Space has been extended to May 2029. We have one (1) option to extend the term of the lease for the Penobscot Space for five (5) years, and one (1) separate option to extend the term of the lease for the 501 Chesapeake Space for five (5) years.

Pursuant to the terms of the RWC Lease, we exercised our right to deliver a letter of credit in lieu of a security deposit. The letter of credit is collateralized by deposit balances held by the bank in the amount of $1.1 million as of December 31, 2022 December 31, 2023 and 2021, 2022, and are recorded as non-current restricted cash on the consolidated balance sheets.

We entered into a short-term office lease in San Carlos, California during the second quarter of 2021 and this lease expired in April 2022.

In January 2021, we entered into a lease agreement with ARE-San Francisco No. 63, LLC ("ARE" ("ARE") to lease a portion of a facility consisted of approximately 36,593 rentable square feet in San Carlos, California to serve as additional office and research and development laboratory space (the "San "San Carlos Space" Space"). The lease has had a 10-year term from the lease commencement date of November 30, 2021 with one option to extend the term for an additional period of 5 years.

In July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. On September 1, 2023, the Company entered into an Assignment and Assumption of Lease (the "Assignment Agreement") with Vaxcyte, Inc. ("Vaxcyte") to assign to Vaxcyte all of the Company's right, title and interest in, under and to the San Carlos Space and the Lease Agreement, dated as of January 29, 2021. On September 6, 2023, the Company, Vaxcyte and ARE entered into a Consent to Assignment and First Amendment (the "Consent") pursuant to which ARE consented to the Assignment Agreement and the assignment by the Company and the assumption by Vaxcyte of the Company's interest as tenant in the lease and agreed to release the Company from all of its obligations under the lease that accrue from and after the assignment. Under the Assignment Agreement, the Company prepaid to ARE (i) the base rent, as defined in the lease agreement, and (ii) certain amounts payable to ARE in connection with tenant improvements completed by ARE pursuant to the lease, which amounted to $3.1 million. We have provided ARE with a $0.5 million security deposit in the form of a letter of credit, which was released in November 2023 following the effectiveness of the lease assignment on October 1, 2023.

As a result of the Assignment Agreement, the Company remeasured the lease obligation for the San Carlos Space as $3.1 million, or the present value of the remaining lease payments, which consist of the remaining rent through the effectiveness of the lease assignment and certain amounts payable to ARE pursuant to the Assignment Agreement, and wrote off the remaining lease liability of $19.6 million and the corresponding right of use asset balance. Simultaneously, the Company determined that indicators of impairment existed because the lease assignment will impact the utilization of the related right of use assets and leasehold improvements in the San Carlos Space, and therefore performed a recoverability test by estimating future undiscounted net cash flows expected to be generated from the use of these assets. As there were no substantial future cash inflows associated with these assets, the carrying values of these assets were deemed unrecoverable. As a result, the Company recognized a non-cash impairment charge of $7.7 million, of which $4.7 million is recorded as non-current restricted cash on related to leasehold improvements and $3.0 million for the right of use assets, presented within the asset impairment and other charges line item in the consolidated statements of operations in the year ended December 31, 2023.

The tables below show the balance sheets. of right-of-use assets and lease obligations as of January 1, 2023 and the balance as of December 31, 2023, including the changes during the period (in thousands):

	Right-of-use Assets - Operating Lease, net
Right-of-use assets - Operating leases, net, at January 1, 2023	$ 39,263
Amortization of right-of-use assets	(4,405)
Additions	898
Remeasurement due to lease modification	(19,622)
Impairment	(2,997)
Right-of-use assets - Operating leases, net, at December 31, 2023	$ 13,137

	Lease Obligations - Operating Leases
Lease obligations - Operating leases, net, at January 1, 2023	$ 43,638
Lease payments	(9,897)
Interest accretion	1,905
Remeasurement due to lease modification	(19,622)
Lease obligations - Operating leases, net, at December 31, 2023	$ 16,024

We are required to restore certain areas of the Redwood City and San Carlos facilities facility that we are renting to their its original form. We are expensing the asset retirement obligation over the terms term of the respective leases. Redwood City lease. We review the estimated obligation each reporting period and make adjustments if our estimates change. As a result of the lease assignment for the San Carlos Space, discussed further above, we wrote off the related asset retirement obligation of $0.2 million in 2023. We recorded asset retirement obligations of $0.3 million$0.5 million and $0.5 million and $0.4 million as of December 31, 2022 December 31, 2023 and 2021, 2022, respectively, which are included in other liabilities on the consolidated balance sheets. Accretion expense related to our asset retirement obligations was nominal in 2022 the years ended December 31, 2023 and 2021. 2022.

Lease and other information

Lease costs amounts included in measurement of lease obligations and other information related to non-cancellable operating leases and finance leases were as follows (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Amortization of right-of-use assets	$ 18	$ 106	$ 152
Interest on lease obligations	—	—	1
Finance lease costs	18	106	153
Operating lease cost	7,321	4,396	3,879
Short-term lease costs (1)	40	70	47
Sublease income	—	—	(55)
Total lease cost (2)	$ 7,379	$ 4,572	$ 4,024

	Year Ended December 31,		
	2023	2022	2021
Finance lease costs	$ —	$ 18	$ 106
Operating lease cost	6,310	7,321	4,396
Short-term lease costs(1)	—	40	70
Total lease cost(2)	$ 6,310	$ 7,379	$ 4,572

(1) Short-term lease costs on leases with terms of over one month and less than one year.

(2)The Company had no variable lease costs.

Amounts included in measurement of lease obligations (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Cash paid:			
Operating cash flows from operating leases	$ 6,506	$ 4,197	$ 2,816
Operating cash flow from finance leases	$ —	$ —	$ 1
Financing cash flows from finance leases	$ —	$ —	$ 60
Non-cash activity:			
Operating Lease - Right-of-use assets obtained in exchange for lease liabilities	$ —	$ 25,445	$ —
Finance Lease - Right-of-use assets obtained in exchange for lease liabilities	$ —	$ —	$ —

	Year Ended December 31,		
	2023		
Cash paid:			
Operating cash flows from operating leases	$ 6,506	$ 4,197	$ 2,816
Operating cash flow from finance leases	$ —	$ —	$ 1
Financing cash flows from finance leases	$ —	$ —	$ 60
Non-cash activity:			
Operating Lease - Right-of-use assets obtained in exchange for lease liabilities	$ —	$ 25,445	$ —
Finance Lease - Right-of-use assets obtained in exchange for lease liabilities	$ —	$ —	$ —

	Year Ended December 31,		
	2023	2022	2021
Cash paid:			
Operating cash flows from operating leases			
Operating cash flows from operating leases			
Non-cash activity:			
Operating Lease - Right-of-use assets obtained in exchange for lease liabilities			
Operating Lease - Right-of-use assets obtained in exchange for lease liabilities			

	Operating Lease
Other information:	
Weighted-average remaining lease term (in years)	7.1 years

	Operating Lease		
Other information:			
Weighted-average remaining lease term (in years)			
Weighted-average remaining lease term (in years)			

	Operating Lease
Other information:	
Weighted-average remaining lease term (in years)	
Weighted-average remaining lease term (in years)	3.8

Weighted-average discount rate	Weighted-average discount rate	5.4	%	Weighted-average discount rate	6.6	%

As of December 31, 2022 December 31, 2023, our maturity analysis of annual undiscounted cash flows of the non-cancellable operating leases are as follows (in thousands):

Years ending December 31,	Operating Leases
2023	$ 7,568
2024	7,783
2025	8,004
2026	8,232
2027	5,835
Thereafter	14,871
Total minimum lease payments	52,293
Less: imputed interest	8,655
Lease obligations	$ 43,638
Reconciliation of operating lease liabilities as shown within the audited consolidated balance sheets:	
Current portion of lease obligations - Operating leases	$ 5,360
Long-term lease obligations - Operating leases	38,278
Total operating lease liabilities	$ 43,638

Years ending December 31,	Operating Leases
2024	$ 4,727
2025	4,868
2026	5,014
2027	2,533
2028	760
Thereafter	318
Total minimum lease payments	18,220
Less: imputed interest	2,196
Lease obligations	$ 16,024
Reconciliation of operating lease liabilities as shown within the audited consolidated balance sheets:	
Current portion of lease obligations - Operating leases	$ 3,781
Long-term lease obligations - Operating leases	12,243
Total operating lease liabilities	$ 16,024

Other Commitments

We enter into supply and service arrangements in the normal course of business. Supply arrangements are primarily for fixed-price manufacture and supply. Service agreements are primarily for the development of manufacturing processes and certain studies. Commitments under service agreements are subject to cancellation at our discretion which may require payment of certain cancellation fees. The timing of completion of service arrangements is subject to variability in estimates of the time required to complete the work.

The following table provides quantitative data regarding our other commitments. Future minimum payments reflect amounts that we expect to pay including potential obligations under services agreements subject to risk of cancellation by us (in thousands):

	Payments Due by Period		
	Total	2023	2024 and Thereafter
Development and manufacturing services agreements	$ 3,093	$ 2,938	$ 155
Facility maintenance agreement	2,249	2,249	—
Total other commitments	$ 5,342	$ 5,187	$ 155

	Payments Due by Period		
	Total	2024	2025 and Thereafter
Facility maintenance agreement	$ 701	$ 701	$ —

Credit Facility

In On June 30, 2017, we entered into a credit facility (the "Credit Facility" "Credit Facility") with Western Alliance Bank consisting of term loans (" ("Term Debt" Debt") up to $10.0 million, and advances ("Advances" ("Advances") under a revolving line of credit (" ("Revolving Line of Credit" Credit") up to $5.0 million with an accounts receivable borrowing base of 80% of eligible accounts receivable. The right to take draws on the Term Debt expired on December 31, 2021 December 31, 2022. On October 1, 2024, loans drawn, if any, under the Revolving Line of Credit terminate.Advances made under the Revolving Line of Credit bear interest at a variable annual rate equal to the equal to the greater of (i) 4.25% or (ii) the sum of (A) the prime rate plus (B) 1.00%. As of December 31, 2022 and 2021, In March 2023, we have not drawn from the Credit Facility.

Our obligations under terminated the Credit Facility are secured by a lien on substantially all of our personal property other than our intellectual property. The Credit Facility includes a number of customary covenants and restrictive financial covenants including meeting minimum product revenue levels and maintaining certain minimum cash levels with Western Alliance Bank.

On February 13, 2024, we entered into the lender. The Credit Facility's financial covenants restrict the ability of the Company to transfer collateral, incur additional indebtedness, engage in mergers or acquisitions, pay dividends or make other distributions, make investments, create liens, sell assets, or sell certain assets held Loan Agreement with Innovatus. See further discussion at foreign subsidiaries. A failure to comply with these covenants could permit the lender to exercise remedies against us and the collateral securing the Credit Facility, including foreclosure of our properties securing the Credit Facilities and our cash. As of December 31, 2022 and 2021, we were in compliance with the covenants for the Credit Facility. Note 18, "Subsequent Events."

Legal Proceedings

We may be involved in legal actions in the ordinary course of business, including inquiries and proceedings concerning business practices and intellectual property infringement, employee relations and other claims. We will recognize a loss contingency in the condensed consolidated financial statements when it is probable a liability has been incurred and the amount of the loss can be reasonably estimated. We will disclose any loss contingencies that do not meet both conditions if there is a reasonable possibility that a material loss may have been incurred. Gain contingencies are not recorded until they are realized.

In April 2022, we reached a settlement resolving a non-material dispute involving the Company's trademark. The terms of the settlement are not material to our business or the results of operations. We are currently not a party to any material pending litigation of or other material proceedings.

Indemnifications

We are required to recognize a liability for the fair value of any obligations we assume upon the issuance of a guarantee. We have certain agreements with licensors, licensees and collaborators that contain indemnification provisions. In such provisions, we typically agree to indemnify the licensor, licensee and collaborator against certain types of third party claims. The maximum amount of the indemnifications is not limited. We accrue for known indemnification issues when a loss is probable and can be reasonably estimated. There were no accruals for expenses related to indemnification issues for any periods presented.

Note 14. Related Party Transactions

Molecular Assemblies, Inc.

In June 2020, we entered into a Stock Purchase Agreement with MAI, a privately held life sciences company, pursuant to which we purchased 1,587,050 shares of MAI's Series A preferred stock for $1.0 million. In connection with the transaction, Mr. Nicols, our former President and Chief Executive Officer, CEO until August 2022, also joined MAI's board of directors. directors in June 2020 and remained on MAI's board until September 2023. Concurrently with our initial equity investment, we entered into the a Master Collaboration and Research Agreement with MAI Agreement, (the "MAI Agreement"), pursuant to which we performed services utilizing our CodeEvolver® protein engineering technology platform technology to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock which are valued based on the observed transaction price of similar securities of that MAI issued to third parties. We We completed the R&D service with MAI pursuant to the MAI Agreement during the first quarter of 2022. In December 2021, we received the primary milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional 1,587,049 shares of Series B preferred stock. Upon execution of the Commercial License and Enzyme Supply Agreement with MAI ("MAI Supply Agreement") in July 2022, we received the commercialization and enzyme supply agreement milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional 1,587,049shares of Series B preferred stock. In addition to our initial equity investment and the shares we have received under the MAI Agreement, in April 2021, we purchased an additional 1,000,000 shares of MAI's Series A preferred stock for $0.6 million $0.6 million and in September 2021, we purchased 9,198,423 shares of MAI's Series B preferred stock for $7.0 million. $7.0 million.

We recognized $1.2 million, $2.0 million and $0.9 million in research and development revenue from transactions with MAI in the years ended December 31, 2022, 2021 and 2020, respectively. Payment for the R&D services rendered under the MAI Agreement was received in the form of additional shares of MAI's Series A and Series B preferred stock. We received an aggregate of 1,587,049, 3,491,505 and 714,171 shares of MAI's Series A and B preferred stock for the years ended December 31, 2022, 2021 and 2020, respectively. As of December 31, 2022, we hold an aggregate 18,292,369 shares of MAI's Series A and B preferred stock that we have earned or purchased since executing the Stock Purchase Agreement with MAI.

In April 2022, we received a purchase order from MAI for the delivery of certain enzyme products to MAI in 2022. In July 2022, we and MAI executed the MAI Supply Agreement that will enable MAI to utilize an evolved terminal deoxynucleotidyl transferase (TdT) enzyme in MAI's Fully Enzymatic Synthesis™ (or FES™) technology. We

Revenues recognized $0.5 million from transactions with MAI in product revenue for the year ended December 31, 2022.

The carrying value December 31, 2023, and subsequent to the related party period which ended in August 2022, are included in the consolidated statement of our investment operations. We recognized $1.2 million and $2.0 million in MAI's Series A research and B preferred stock was $13.9 million and $12.7 million at development revenue pursuant to the MAI Agreement in the years ended December 31, 2022 and 2021, respectively. We had nil and $0.2 recognized $0.5 million in deferred product revenue as of from transactions with MAI in the year ended December 31, 2022 and 2021, respectively. during the related party period.

Note 15. Segment, Geographical and Other Revenue Information

Segment Information

We manage previously managed our business as two business segments: segments, Performance Enzymes and Novel Biotherapeutics. Our During the fourth quarter of 2023, we made changes to the structure of our organization in connection with the restructuring of our business that we announced in July 2023, including the discontinuation of investment in certain development programs, primarily in our biotherapeutics business, consolidation of operations to our Redwood City, California headquarters, and headcount reduction. In connection with these organizational structure changes, corresponding changes were made to how our business is managed, how results are reported internally and how our CEO, our chief operating decision maker, ("CODM") is assesses performance and allocates resources. As a result of these changes, our Chief Executive Officer. Our business previous Performance Enzymes and Novel Biotherapeutics operating segments were combined into a single reportable segment.

Effective October 1, 2023, the Company's operations are primarily managed and reported to the CEO on a consolidated basis. The CEO assesses performance and allocated resources based on the consolidated results of operations. We believe that these changes better align internal resources and external go to market activities in order to create a more efficient and effective organizational structure. Under this new organizational and reporting structure, we managed our organizational structure and our operating results business as used by our CODM in assessing performance and allocating resources for one reportable segment as of December 31, 2023. Comparative prior period disclosures that reflected the Company.

We report corporate-related expenses such as legal, accounting, previous two segments' information technology, and other costs that are not otherwise included have been revised to conform to this change in our reportable business segments as "corporate costs." All items not included in income (loss) from operations are excluded from the business segments.

All of our long lived assets are located in the United States. We manage our assets on a total company basis, not by business segment, as the majority of our operating assets are shared or commingled. Our CODM does not review asset information by business segment in assessing performance or allocating resources, and accordingly, we do not report asset information by business segment.

Factors considered in determining the two reportable segments of the Company include the nature of business activities, the management structure directly accountable to our CODM for operating and administrative activities, availability of discrete financial information and information presented to the Board of Directors. Our CODM regularly reviews our segments and the approach provided by management for performance evaluation and resource allocation.

Operating expenses that directly support the segment activity are allocated based on segment headcount, revenue contribution or activity of the business units within the segments, based on the corporate activity type provided to the segment. The expense allocation excludes certain corporate costs that are separately managed from the segments. This provides the CODM with more meaningful segment profitability reporting to support operating decisions and allocate resources.

The following table provides financial information by our reportable business segments along with a reconciliation to consolidated loss before income taxes (in thousands):

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total
Revenues:						
Product revenue	$ 116,676	$ —	$ 116,676	$ 70,657	$ —	$ 70,657
Research and development revenue	9,936	11,978	21,914	19,858	14,239	34,097
Total revenues	126,612	11,978	138,590	90,515	14,239	104,754
Costs and operating expenses:						
Cost of product revenue	38,033	—	38,033	22,209	—	22,209
Research and development (1)	25,786	49,770	75,556	23,140	30,219	53,359
Selling, general and administrative(1)	14,724	2,421	17,145	12,105	2,755	14,860
Restructuring charges	1,708	966	2,674	—	—	—
Total segment costs and operating expenses	80,251	53,157	133,408	57,454	32,974	90,428
Income (loss) from operations	$ 46,361	$ (41,179)	5,182	$ 33,061	$ (18,735)	14,326
Corporate costs (2)			(33,080)			(32,201)
Depreciation and amortization			(5,418)			(3,215)
Loss before income taxes			$ (33,316)			$ (21,090)

(1) Research and development expenses and selling, general and administrative expenses exclude depreciation and amortization of finance leases.

(2) Corporate costs include unallocated selling, general and administrative expense and restructuring charges, interest income, and other income (expense), net.

	Year Ended December 31, 2021			Year Ended December 31, 2020		
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total
Revenues:						
Product revenue	$ 70,657	$ —	$ 70,657	$ 30,220	$ —	$ 30,220
Research and development revenue	19,858	14,239	34,097	17,886	20,950	38,836
Total revenues	90,515	14,239	104,754	48,106	20,950	69,056
Costs and operating expenses:						
Cost of product revenue	22,209	—	22,209	13,742	—	13,742
Research and development (1)	23,140	30,219	53,359	20,923	21,705	42,628
Selling, general and administrative (1)	12,105	2,755	14,860	9,597	2,355	11,952
Total segment costs and operating expenses	57,454	32,974	90,428	44,262	24,060	68,322
Income (loss) from operations	$ 33,061	$ (18,735)	14,326	$ 3,844	$ (3,110)	734
Corporate costs (2)			(32,201)			(22,306)
Depreciation and amortization			(3,215)			(2,099)
Loss before income taxes			$ (21,090)			$ (23,671)

(1) Research and development expenses and selling, general and administrative expenses exclude depreciation and amortization of finance leases.

(2) Corporate costs include unallocated selling, general and administrative expense, interest income, and other income (expense), net.

The following table provides stock-based compensation expense included in income (loss) from operations (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Performance Enzymes	$ 6,035	$ 5,047	$ 3,296
Novel Biotherapeutics	903	1,100	768
Corporate cost	7,593	5,446	3,664
Total	$ 14,531	$ 11,593	$ 7,728

Significant Customers

Customers that each accounted for 10% or more of our total revenues were as follows:

	Percentage of Total Revenues For the Year Ended December 31,		
	2022	2021	2020
Customer A	56 %	33 %	*
Customer B	*	11 %	26 %
Customer C	*	*	19 %
Customer D	*	*	11 %

Percentage was less than 10%

	Percentage of Total Revenues For the Year Ended December 31,			
	2023	2022	2021	
Customer A	22 %	56 %	33 %	
Customer B	13 %	*	*	
Customer C	*	*	11 %	

Percentage was less than 10%

Customers that each accounted for 10% or more of accounts receivable balances as of the periods presented are as follows:

	As of December 31,	
	2022	2021
Customer A	53 %	62 %
Customer D	10 %	*

** Percentage was less than 10%*

	As of December 31,	
	2023	2022
Customer A	*	53 %
Customer B	*	10 %
Customer C	12 %	*
Customer D	21 %	*
Customer E	13 %	*
Customer F	12 %	*

** Percentage was less than 10%*

Geographical Information

Geographic revenues are identified by the location of the customer and consist of the following (in thousands):

	Year Ended December 31,		
	2022	2021	2020
Revenues			
Americas	$ 17,000	$ 23,481	$ 24,352
EMEA	56,540	20,187	19,257
APAC	65,050	61,086	25,447
Total revenues	$ 138,590	$ 104,754	$ 69,056

	Year Ended December 31,		
	2023	2022	2021
Revenues			
Americas[1]	$ 13,733	$ 17,000	$ 23,481
EMEA[2][3]	22,907	56,540	20,187
APAC[4]	33,503	65,050	61,086
Total revenues	$ 70,143	$ 138,590	$ 104,754

[1] United States revenue was $13.7 million, $17.0 million, and $23.4 million, for the years ended December 31, 2023, 2022, and 2021, respectively.

[2] Ireland revenue was $0.5 million, $37.2 million, and $1.4 million, for the years ended December 31, 2023, 2022, and 2021, respectively.

[3] Switzerland revenue was $11.1 million, $9.2 million, and $10.1 million, for the for the years ended December 31, 2023, 2022, and 2021, respectively.

[4] China revenue was $20.3 million, $48.6 million, and $43.5 million, for the years ended December 31, 2023, 2022, and 2021, respectively.

Identifiable long-lived assets by location was as follows (in thousands):

	December 31,	
	2022	2021
United States	$ 61,877	$ 65,457

	December 31,	
	2023	2022

United States	$ 28,624	$ 61,877

Identifiable goodwill by reporting unit was as follows (in thousands):

	December 31, 2022			December 31, 2021		
	Performance Enzymes	Novel Biotherapeutics	Total	Performance Enzymes	Novel Biotherapeutics	Total
Goodwill	$ 2,463	$ 778	$ 3,241	$ 2,463	$ 778	$ 3,241

	December 31,	
	2023	2022
Goodwill at beginning of period	$ 3,241	$ 3,241
Impairment	(778)	—
Goodwill at end of period	$ 2,463	$ 3,241

Note 16. Allowance for Credit Losses

The following table summarizes the financial assets allowance for credit losses (in thousands):

	December 31,			December 31,		December 31,
	2022	2021	2020	2023	2022	2021
Balance at beginning of period	$ 416	$ 74	$ 34			
Provision for credit losses	54	342	40			
Write-offs	(257)	—	—			
Recoveries collected	(50)	—	—			
Adjustment to existing allowance						
Balance at end of period	$ 163	$ 416	$ 74			

The following tables summarize accounts receivable by aging category (in thousands):

	December 31, 2022					
	Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance
Accounts receivable	$ 28,896	$1,747	$469	$ 792	$3,008	$31,904

	December 31, 2023					December 31, 2023
	Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance
Accounts receivable						

	December 31, 2021					
	Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance

		December 31, 2022					
		December 31, 2022					
		December 31, 2022					
		Current					
		Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance
Accounts receivable	Accounts receivable	$ 22,697	$ 536	$569	$1,151	$2,256	$24,953

Note 17. Restructuring Charges

In November 2022, July 2023, in alignment with our enhanced strategic focus, we announced a restructuring of our business, including a plan for a workforce reduction of approximately 18% of our total employee to realign and optimize our workforce requirements in alignment with our refined corporate strategy.

approximately 25%. During the year ended December 31, 2022 December 31, 2023, we we recorded a restructuring charge related to this workforce reduction of $3.2 million $3.1 million related to severance bonus and other termination benefits related benefit costs. The plan was substantially completed in connection with September 2023 and severance costs were paid through the workforce reduction. As of December 31, 2022, we have accrued $1.2 million as a current liability within accrued compensation on our consolidated balance sheets and is expected to be paid in the first fourth quarter of 2023. We do not expect to record any significant future charges related to the restructuring plan.

In November 2022, we announced a plan for a workforce reduction of approximately 18% to realign and optimize our workforce requirements in alignment with our refined corporate strategy. The plan was substantially completed in December 2022 and severance costs were paid through the third quarter of 2023. During the years ended December 31, 2023 and 2022, we recorded restructuring charges of $0.2 million and $3.2 million, respectively, related to severance, bonus and other termination benefits in connection with the workforce reduction announced in November 2022.

We do not expect to record any future charges related to the restructuring plans initiated in 2023 and 2022.

Note 18. Subsequent Events

On January 23, 2023 February 13, 2024, we announced entered into a 5-year loan and security agreement (the “Loan Agreement”) with Innovatus Life Sciences Lending Fund I, LP (“Innovatus”), an affiliate of Innovatus Capital Partners, LLC, for an aggregate principal amount of up to $40.0 million (the “Term Loans”). The Term Loans consist of two tranches, of which the appointment first tranche of Sriram Ryali as our new Chief Financial Officer, effective immediately. $30.0 million was completed on February 13, 2024. We will be eligible to draw on the second tranche of $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The Term Loan carries an interest-only period of 36 months and will bear an interest at a floating rate of the sum of (a) the greater of (i) prime rate and (ii) 7.50%, plus (b) 3.25%. In connection with Mr. Ryali's appointment as Chief Financial Officer, Ross Taylor ceased the Term Loans, we are required to serve as our Chief Financial Officer issue to Innovatus a warrant to purchase an aggregate of 424,028 shares of the Company's common stock at an exercise price of $2.83 per share. The Loan Agreement contains customary representations and principal warranties and covenants, subject to customary carve outs, and includes financial covenants related to liquidity and accounting officer, effective as of January 23, 2023 net product revenue, with the latter beginning with the period ending September 30, 2024. Mr. Taylor will provide transition and advisory services on an as-needed basis until March 6, 2023.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision of our Chief Executive Officer and Chief Financial Officer and with the participation of our disclosure committee, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2022 December 31, 2023. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2022 December 31, 2023 at the reasonable assurance level.

Remediation of Previously Reported Material Weakness

A material weakness in internal control over financial reporting was identified in the first quarter of 2022 related to management's controls over the revenue recognition process in the three months ended March 31, 2022. Specifically, our controls addressing the completeness and accuracy of reports used to calculate product revenue from arrangements subject to over time revenue recognition did not operate at the proper level of precision to identify material errors. The control deficiency resulted in a material misstatement of revenue related accounts in the three months ended March 31, 2022, which management corrected before the financial statements for the three months ended March 31, 2022 were issued

We implemented a detailed plan for the remediation of the material weakness identified in the first quarter of 2022, including an enhancement of management's review controls over revenue and the level of detail and precision applied when reviewing the completeness and accuracy of reports used to determine product revenue for arrangements subject to

over time revenue recognition. We believe that our remediation efforts to enhance the controls surrounding product revenue for arrangements subject to over time revenue recognition are significant improvements to our processes and controls which address the material weakness. The remediation process was complete as of December 31, 2022, when our enhanced controls were operational for a sufficient period of time and tested, which enabled management to conclude that the enhanced controls related to revenue recognition are operating effectively.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with United States generally accepted accounting principles.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2022 December 31, 2023 based on the guidelines established in *Internal Control-Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2022 December 31, 2023. We reviewed the results of management's assessment with our Audit Committee.

Our internal control over financial reporting as of December 31, 2022 December 31, 2023 has been audited by BDO USA, LLP, P.C., an independent registered public accounting firm, as stated in their report which is included in Item 8 of this Annual Report.

Inherent Limitations on Effectiveness of Controls

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, even if determined effective and no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives to prevent or detect misstatements. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

Other than as described above, there There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) identified in connection with the evaluation required by paragraph (d) of Rule 13a-15 or 15d-15 of the Exchange Act, which occurred during the fourth fiscal quarter of the year ended December 31, 2022 December 31, 2023, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

Not applicable. ***Rule 10b5-1 Trading Arrangements***

During the three months ended December 31, 2023, none of the directors or executive officers of the Company adopted or terminated any contracts, instructions, or written plans for the purchase or sale of our securities that were intended to meet the affirmative defense conditions of Rule 10b5-1(c) or any other "non-Rule 10b5-1 trading arrangement."

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

We have adopted a code of conduct ethics applicable to our principal executive, financial and accounting officers and all persons performing similar functions. A copy of our code of ethics is available on our principal corporate website at www.codexis.com in the Investors section under "Corporate "Corporate Governance."

The information required by this item concerning our directors, executive officers, compliance with Section 16 of the Exchange Act, our code of ethics and our Nominating and Corporate Governance Committee, and our Audit Committee is incorporated by reference from the information that will be set forth in the sections under the headings "Election of Directors," "Other Matters—Section 16(a) Beneficial Ownership Reporting Compliance" and "Corporate Governance Matters" in the 2023 2024 Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item concerning executive compensation and our Compensation Committee is incorporated by reference from the information that will be set forth in the 2023 2024 Proxy Statement under the headings "Executive Compensation," and "Corporate Governance Matters." Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item concerning securities authorized for issuance under equity compensation plans and security ownership of certain beneficial owners and management is incorporated by reference from the information that will be set forth in the 2023 2024 Proxy Statement under the headings "Executive Compensation—Equity Compensation Plan Information" and "Information Concerning Voting and Solicitation—Security Ownership of Certain Beneficial Owners and Management." Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS,

AND DIRECTOR INDEPENDENCE

The information required by this item concerning transactions with related persons and director independence is incorporated by reference from the information that will be set forth in the 2023 2024 Proxy Statement under the headings "Certain Relationships and Related Transactions" and "Corporate Governance Matters." Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference from the information that will be set forth in the 2023 2024 Proxy Statement under the heading "Ratification of Independent Registered Public Accounting Firm—Principal Accounting Fees and Services." Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

1. Financial Statements: See "Index to Consolidated Financial Statements" in Part II, Item 8 of this Annual Report on Form 10-K

2. Exhibits: The exhibits listed in the accompanying index to exhibits are filed or incorporated by reference as part of this Annual Report on Form 10-K.

EXHIBIT INDEX

Exhibit No.	Description
1.1	Equity Distribution Agreement, dated as of May 7, 2021, between Codexis, Inc. and Piper Sandler & Co. (incorporated by reference to Exhibit 1.1 to the Company's Current Report on Form 8-K, filed on May 7, 2021).
3.1	Amended and Restated Certificate of Incorporation of Codexis, Inc. filed with the Secretary of the State of the State of Delaware on April 27, 2010 and effective as of April 27, 2010 (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed on May 28, 2010).
3.2	Certificate of Designations of Series A Junior Participating Preferred Stock of Codexis, Inc., filed with the Secretary of State of the State of Delaware on September 4, 2012 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on September 4, 2012).
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Codexis, Inc., filed with the Secretary of the State of the State of Delaware on June 14, 2023 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
3.4	Amended and Restated Bylaws of Codexis, Inc. effective as of April 27, 2010February 8, 2024 (incorporated by reference to Exhibit 3.2 3.1 to the Company's Quarterly Current Report on Form 10-Q for the quarter ended March 31, 20108-K, filed on May 28, 2010). February 9, 2024).
4.1	Reference is made to Exhibits 3.1 through 3.3.3.4.
4.2	Form of the Company's Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
4.3	Form of Warrant to Purchase Common Stock for Codexis, Inc., issued pursuant to the Loan and Security Agreement by and between the Company and Innovatus Life Sciences Fund I, LP. (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed on February 13, 2024).
4.4	Description of Codexis' Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934(incorporated by reference to Exhibit 4.3 to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 28, 2022). 1934.
10.1A*	Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of February 1, 2004.
10.1B*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of June 1, 2004.
10.1C*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 9, 2007.
10.1D*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 31, 2008.
10.1E	Fourth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of September 17, 2010 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010, filed on November 4, 2010).
10.1F	Fifth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 16, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, filed on May 6, 2011).
10.1G	Sixth Amendment to Lease by and between the Company and Metropolitan Life Insurance Company dated as of September 27, 2012 (incorporated by reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 7, 2012).

Exhibit No.	Description
10.1H	Seventh Amendment to Lease by and between the Company and Metropolitan Life Insurance Company dated as of October 11, 2016 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, filed on November 8, 2016).
10.1I***	Eighth Amendment to Lease, dated as of February 8, 2019, by and between the Company and Metropolitan Life Insurance Company (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 8, 2019).
10.2+*	Codexis, Inc. 2010 Equity Incentive Award Plan and Form of Stock Option Agreement.

Exhibit No.	Description
10.3A+	Codexis, Inc. 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.1 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3B+	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.2 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3C+	Form of Stock Option Grant Notice and Stock Option Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.3 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3D+	Form of Stock Option Grant Notice and Stock Option Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.4 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3E+	Form of Performance Stock Unit Award Grant Notice and Performance Stock Unit Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.5 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3F+	Form of Restricted Stock Award Grant Notice and Restricted Stock Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.6 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3G+	Amendment to the Codexis, Inc. 2019 Incentive Award Plan (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
10.3G+ 10.4A+	Codexis, Inc. 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.1 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.3H+10.4B+	Form of Stock Option Grant Notice and Stock Option Agreement under the 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.2 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.3I+10.4C+	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under the 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.3 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.5+	Codexis, Inc. 2023 Employee Stock Purchase Plan (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
10.4 10.6	Form of Indemnification Agreement between the Company and each of its directors, officers and certain employees. employees (incorporated by reference to Exhibit 10.4 to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.5+10.7+	Form of Amended and Restated Change in Control Severance Agreement between the Company and certain of its officers (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).

Exhibit No.	Description
10.610.8	Asset Purchase Agreement, dated October 28, 2010, by and among the Company, Codexis Mayflower Holdings, LLC and Maxygen, Inc. (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed on October 28, 2010).
10.7A†10.9A+	Manufacture and Supply Agreement, dated May 16, 2011, by and between the Company and Lactosan GmbH & Co. KG (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, filed on August 3, 2011).
10.7B	Amendment No. 1 to the Manufacture and Supply Agreement by and between the Company and Lactosan GmbH & Co. KG dated as of March 9, 2012 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, filed on May 10, 2012).
10.8A+	Employment Agreement by and between the Company and Ross Taylor effective as of August 4, 2019 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.8B+10.9B+	Transition and Separation Agreement by and between the Company and Ross Taylor, dated as of February 3, 2023. (incorporated by reference to Exhibit 10.8B to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).

Exhibit No.	Description
10.10A+	
10.9A+	Employment Agreement by and between the Company and John Nicols effective as of May 28, 2012 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.9B+10.10B+	John Nicols Stock Option Grant Notice and Stock Option Agreement dated June 13, 2012 between John J. Nicols and the Company (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.9C+	Amendment to Employment Agreement between the Company and John Nicols, dated April 21, 2016 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, filed on August 9, 2016).
10.9D+10.10C+	Amendment to Employment Agreement between the Company and John Nicols, dated November 16, 2017 (incorporated by reference to Exhibit 10.8E to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018).
10.9E+10.10D+	Amendment to Employment Agreement between the Company and John Nicols, effective as of June 28, 2019 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.9F+10.10E+	Transition and Separation Agreement by and between the Company and John Nicols, dated as of July 18, 2022 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.10A† 10.11†	Sitagliptin Catalyst Supply Agreement by and between Merck Sharp and Dohme Corp. and the Company dated as of February 1, 2012 (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2012, filed on April 2, 2013). Acquisition Agre
10.10B†	Amendment to Sitagliptin Catalyst Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of October 1, 2013 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013, filed on November 12, 2013). ement
10.10C	Amendment No. 2 to Sitagliptin Catalyst Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of February 25, 2015 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, filed on May 7, 2015).
10.10D	Amendment No. 3 to Sitagliptin Catalysts Supply Agreement between Merck Sharp and Dohme Corp. and the Company dated as of December 17, 2015 (incorporated by reference to Exhibit 10.11D to the Company's Annual Report on Form 10-K for the year ended December 31, 2015, filed on March 8, 2016).
10.10E	Amendment No. 4 to Sitagliptin Catalysts Supply Agreement, effective as of January 1, 2016, by and between the Company and Merck Sharp and Dohme Corp. (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, filed on November 8, 2016).
10.10F	Amendment No. 5 to Sitagliptin Catalysts Supply Agreement, effective as of July 1, 2021, by and between the Company and Merck Sharp and Dohme Corp. (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2021, filed on November 5, 2021).
10.11A†	Global Development, Option and License Agreement by and among the Company, Societé des Produits Nestlé S.A., formerly known as Nestec Ltd. ("Nestlé Health Science"), effective as of October 12, 2017 (incorporated by reference to Exhibit 10.10 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018) December 26, 2023.
10.11B†10.12A	Amendment No. 1 to Global Development, Option and License Agreement by and among the Company, Nestec Ltd. and Nestlé Amendment No. 1 to Global Development, Option and License Agreement by and among the Company, Nestec Ltd. and Nestlé Health Science S.A., effective as of July 26, 2018(incorporated by reference to Exhibit 10.12B to the Company's Annual Report on Form 10-K for the year ended December 31, 2018, filed on March 3, 2019).

Exhibit No.	Description
10.11C†	Letter Agreement to Global Development, Option and License Agreement by and among the Company, Nestec Ltd. and Nestlé Health Science S.A., effective as of December 12, 2018. (incorporated by reference to Exhibit 10.12C to the Company's Annual Report on Form 10-K for the year ended December 31, 2018, filed on March 3, 2019).
10.12A†	Platform Technology Transfer, Collaboration and License Agreement by and between the Company and GlaxoSmithKline Intellectual Property Limited, effective as of July 10, 2014 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 31, 2014, filed on November 6, 2014).
10.12B†	Letter Agreement, effective as of February 21, 2020, by and between Codexis, Inc. and GlaxoSmithKline Intellectual Property Development Limited (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, filed on May 8, 2020).
10.13A***	Platform Technology Transfer and License Agreement by and between the Company and Merck Sharp & Dohme Corp., dated as of August 3, 2015(incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2021, filed on February 28, 2022).
10.13B†	Amendment No. 1 to Platform Technology Transfer and License Agreement by and between the Company and Merck Sharp & Dohme Corp., dated as of October 10, 2018(incorporated by reference to Exhibit 10.14A to the Company's Annual Report on Form 10-K for the year ended December 31, 2018, filed on March 3, 2019).
10.13C***	Amendment No. 2 to Platform Technology Transfer and License Agreement by and between Merck and the Company dated as of January 1, 2019 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 8, 2019).
10.14***	Platform Technology Transfer and License Agreement, dated May 2, 2019, by and between the Company and Novartis Pharma AG (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2019, filed on August 6, 2019).
10.15***	Strategic Collaboration and License Agreement by and between Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda Pharmaceutical Company Limited and the Company, dated March 23, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, filed on May 8, 2020).
10.16A†	Loan and Security Agreement effective as of June 30, 2017 by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, filed on August 9, 2017).
10.16B†	First Amendment to Loan and Security Agreement effective as of September 28, 2017 by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017, filed on November 9, 2017).
10.16C†	Second Amendment to Loan and Security Agreement effective as of November 7, 2017 by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.15B to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018).
10.16D†	Third Amendment to Loan and Security Agreement by and between the Company and Western Alliance Bank dated as of June 29, 2018 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, filed on August 9, 2018).
10.16E†	Fourth Amendment to Loan and Security Agreement effective as of September 28, 2018 by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018, filed on November 9, 2018).
10.16F	Fifth Amendment to Loan and Security Agreement effective as of January 23, 2019 by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 8, 2019).

Exhibit No.	Description
10.16G	Sixth Amendment to Loan and Security Agreement by and between the Company and Western Alliance Bank dated as of July 11, 2019 (incorporated by reference to Exhibit 10.1A to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.16H	Seventh Amendment to Loan and Security Agreement by and between the Company and Western Alliance Bank dated as of September 30, 2019 (incorporated by reference to Exhibit 10.1B to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.16I	Eighth Amendment to Loan and Security Agreement by and between the Company and Western Alliance Bank dated as of September 30, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, filed on November 6, 2020.)
10.16J	Ninth Amendment to Loan and Security Agreement by and between the Company and Western Alliance Bank dated as of September 30, 2021 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2021, filed on November 5, 2021).
10.17	Lease Agreement by and between the Company and ARE-SAN FRANCISCO NO. 63, LLC dated as of January 29, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, filed on May 7, 2021).
10.18***10.12B†	Platform Technology Transfer, Collaboration Assignment and License Agreement Assumption of Lease by and between the Company and GlaxoSmithKline Intellectual Property Limited, effective Vaxcyte, Inc. dated as of July 10, 2014 September 1, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 September 30, 2023, filed on August 5, 2022 November 3, 2023).
10.19A***10.12C†	Enzyme Supply Consent to Assignment and First Amendment to Lease Agreement by and between the Company, Vaxcyte Inc. and Pfizer Ireland Pharmaceuticals, ARE-San Francisco No. 63, LLC dated as of July 14, 2022. September 6, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023, filed on November 3, 2023).
10.19B10.13+	Amendment No. 1 to the Enzyme Supply Agreement by and between the Company and Pfizer Ireland Pharmaceuticals, effective as of December 19, 2022.
10.19C	Amendment No. 2 to the Enzyme Supply Agreement by and between the Company and Pfizer Ireland Pharmaceuticals, effective as of February 1, 2023.
10.20+	Employment Agreement by and between the Company and Stephen Dilly dated as of August 9, 2022 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.21A+10.14A+	Offer Letter by and between the Company and Kevin Norrett dated as of September 12, 2022 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.21B+10.14B+	Change in Control Severance Agreement by and between the Company and Kevin Norrett dated September 12, 2022 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).

Exhibit No.	Description
10.22A+10.15A+	Offer Letter by and between the Company and Margaret Fitzgerald dated as of October 5, 2022. (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.22B+10.15B+	Change in Control Severance Agreement by and between the Company and Margaret Fitzgerald dated October 10, 2022. (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.23A+10.16A+	Offer Letter by and between the Company and Sriram Ryali dated as of December 30, 2023. (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.23B+10.16B+	Change in Control Severance Agreement by and between the Company and Sriram Ryali dated January 27, 2023 (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.17	Loan and Security Agreement by and between the Company and Innovatus Life Sciences Fund I, LP., effective as of February 13, 2024
23.1	Consent of BDO USA, LLP, P.C., independent registered public accounting firm.
24.1	Power of Attorney (see signature page to this Annual Report on Form 10-K).

Exhibit No.	Description
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1**	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.
97.1	Codexis, Inc. Clawback Policy effective August 24, 2023
101	The following materials from Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 December 31, 2023 formatted in Inline Extensible Business Reporting Language (iXBRL) includes: (i) Consolidated Balance Sheets at December 31, 2022 December 31, 2023 and December 31, 2021 December 31, 2022, (ii) Consolidated Statements of Operations for the years ended December 31, 2022 December 31, 2023, December 31, 2021 December 31, 2022 and December 31, 2020 December 31, 2021, (iii) Consolidated Statements of Cash Flows for the years ended December 31, 2022 December 31, 2023, December 31, 2021 December 31, 2022 and December 31, 2020 December 31, 2021, (vi) Consolidated Statements of Stockholders' Equity for the years ended December 31, 2022 December 31, 2023, December 31, 2021 December 31, 2022 and December 31, 2020 December 31, 2021 and (vii) Notes to Consolidated Financial Statements.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document

Exhibit No.	Description
104	The cover page from the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 December 31, 2023, formatted in Inline XBRL and contained in Exhibit 101.

+ Indicates a management contract or compensatory plan or arrangement.

† Confidential treatment has been granted for certain information contained in this exhibit. Such information has been omitted and filed separately with the Securities and Exchange Commission.

* Filed as exhibits to the registrant's Registration Statement on Form S-1 (File No. 333-164044), effective April 21, 2010, and incorporated herein by reference.

** Pursuant to Item 601(b)(32) of Regulation S-K this exhibit is furnished rather than filed with this report.

*** Portions of the exhibit, marked by brackets, have been omitted because the omitted information is (i) not material and (ii) would be competitively harmful if publicly disclosed. customarily and actually treated as private or confidential.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CODEXIS, INC.

Date: February 27, 2023 28, 2024

By: /s/ Stephen Dilly

President and Chief Executive Officer

(Principal Executive Officer)

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Stephen Dilly, Sriram Ryali and Margaret Fitzgerald, and each of them, with full power of substitution and resubstitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this annual report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

SIGNATURE	TITLE		DATE
/s/ Stephen Dilly Stephen Dilly	President, Chief Executive Officer and Director (Principal Executive Officer)	Date:	February 27, 2023 28, 2024
/s/ Sriram Ryali Sriram Ryali	Chief Financial Officer (Principal Financial and Accounting Officer)	Date:	February 27, 2023 28, 2024
/s/ Byron L. Dorgan Byron L. Dorgan	Chairman of the Board of Directors	Date:	February 27, 2023 28, 2024
/s/ Jennifer Aaker Jennifer Aaker	Director	Date:	February 27, 2023 28, 2024
/s/ Esther Martinborough Esther Martinborough	Director	Date:	February 27, 2023 28, 2024
/s/ Alison Moore Alison Moore	Director	Date:	February 27, 2023 28, 2024
/s/ John J. Nicols John J. Nicols	Director	Date:	February 27, 2023
/s/ H. Stewart Parker H. Stewart Parker	Director	Date:	February 27, 2023 28, 2024
/s/ Rahul Singhvi Rahul Singhvi	Director	Date:	February 27, 2023 28, 2024
/s/ David V. Smith David V. Smith	Director	Date:	February 27, 2023 28, 2024
/s/ Dennis P. Wolf Dennis P. Wolf	Director	Date:	February 27, 2023 28, 2024
/s/ Patrick Y. Yang Patrick Y. Yang	Director	Date:	February 27, 2023

Exhibit 4.4

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

As of February 28, 2024, Codexis, Inc. ("we," "us" or "our") had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our common stock, $0.0001 par value per share ("common stock").

Description of Common Stock

The following description of our common stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our amended and restated certificate of incorporation, our certificate of designations of Series A Junior Participating Preferred Stock and our amended and restated bylaws, each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.4 is a part. We encourage you to read our amended and restated certificate of incorporation, our certificate of designations of Series A Junior Participating Preferred Stock, our amended and restated bylaws and the applicable provisions of the Delaware General Corporation Law for additional information.

Authorized Capital Stock

Our authorized capital stock consists of:

- 200,000,000 shares of common stock, $0.0001 par value per share; and
- 5,000,000 shares of preferred stock, $0.0001 par value per share, of which 100,000 shares have been designated as Series A Junior Participating Preferred Stock.

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Our stockholders do not have cumulative voting rights in the election of directors. Accordingly, holders of a majority of the voting shares are able to elect all of the directors. In addition, the affirmative vote of holders of 66 2/3% of the voting power of all of the then outstanding voting stock will be required to take certain actions, including amending certain provisions of our amended and restated certificate of incorporation, such as the provisions relating to amending our amended and restated bylaws, the classified board and director liability.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Preferred Stock – Limitations on Rights of Holders of Common Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights,

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terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action.

Anti-Takeover Effects of Provisions of our Amended and Restated Certificate of Incorporation, our Amended and Restated Bylaws and Delaware Law

Some provisions of Delaware law and our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following transactions more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy contest or otherwise; or removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the market price for our shares.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. Under Section 203, we would generally be prohibited from engaging in any business combination with any interested stockholder for a period of three years following the time that this stockholder became an interested stockholder unless:

- prior to this time, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding shares owned by persons who are directors and also officers, and by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to such time, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Under Section 203, a “business combination” includes:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder, subject to limited exceptions;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Special Stockholder Meetings

Our amended and restated certificate of incorporation provides that a special meeting of stockholders may be called only by our chairman of the board of directors, Chief Executive Officer or President, or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our amended and restated bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our amended and restated certificate of incorporation eliminates the right of stockholders to act by written consent without a meeting.

Classified Board; Election and Removal of Directors; Filling Vacancies

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of common stock outstanding will be able to elect all of our directors. Our amended and restated certificate of incorporation provides for the removal of any of our directors (i) with cause by the affirmative vote of the holders of a majority of the voting power of all the then-outstanding shares of voting stock entitled to vote at an election of directors, or (ii) without cause by the affirmative vote of the holders of at least a 66 2/3% of the voting power of all the then-outstanding shares of voting stock entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of the board of directors, may only be filled by a resolution of the board of directors unless the board of directors determines that such vacancies shall be filled by the stockholders. This system of electing and removing directors and filling vacancies may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least 66-2/3% of the voting power of our then outstanding voting stock.

The provisions of the Delaware General Corporation Law, our amended and restated certificate of incorporation and our amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Limitations of Liability and Indemnification Matters

Our amended and restated certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will

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not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation provides that we may, and our amended and restated bylaws provide that we are required to, indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our amended and restated bylaws also provide that we shall advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage.

The Nasdaq Global Select Market Listing

Our common stock is listed on The Nasdaq Global Select Market under the symbol "CDXS."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is EQ Shareowner Services.

ACQUISITION AGREEMENT

between

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

and

CODEXIS, INC.

INDEMNIFICATION AGREEMENT

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

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ACQUISITION AGREEMENT

This Indemnification Acquisition Agreement (" (this "**Agreement**") is effectivedated as of December 16, 2022, by and between Codexis, Inc., a Delaware corporation December 26, 2023 (the "**Company Effective Date**")is entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware, having an office located at 200 Penobscot Drive, Redwood City, CA 94063, USA **(**"**Seller**"or "**Codexis**"),and [INDEMNITEE] (" Société des Produits Nestlé S.A., a *Indemnitee sociéte anonyme* organized and existing under the laws of Switzerland, having an office located at 55 Avenue Nestlé, 1800 Vevey, Switzerland **(**"**Buyer**"or "**NHSc**").

RECITALS

A. WHEREAS The Company recognizes ,Buyer (as successor in interest to Nestec Ltd.), and Seller are parties to that certain Strategic Collaboration Agreement, dated as of October 12, 2017 (as amended through the continued difficulty date hereof, the "**Strategic Collaboration Agreement**"or "**SCA**"),pursuant to which the parties agreed to collaborate to discover enzymes as candidates for use as healthcare products and to perform initial preclinical evaluation of the efficacy of such enzymes;

WHEREAS,Buyer and Seller are parties to that certain Development Agreement, dated as of January 1, 2020 (as amended through the date hereof, the "**Development Agreement**"and, together with the Strategic Collaboration Agreement and including, if either or both such agreements expire or are otherwise terminated, all terms, conditions, and obligations in obtaining liability insurance each that survive such expiration or other termination, the "**Existing Agreements**"),pursuant to which the parties agreed to conduct certain development activities with respect to certain enzymes discovered pursuant to the Strategic Collaboration Agreement;

WHEREAS,the parties desire for its directors, officers, employees, controlling persons, fiduciaries Buyer to have the right to further develop and commercialize those certain lipase enzymes that were discovered under the Strategic Collaboration Agreement and that were further developed pursuant to the Development Agreement, including that certain lipase enzyme currently identified as CDX-7108 **(**"**CDX-7108**"and, together with [***], the "**Lipase Project Enzyme**");

WHEREAS,pursuant to the terms of the Existing Agreements, each party has agreed not to Develop or Commercialize the Lipase Project Enzyme, including the use of any Jointly Owned Invention in connection therewith, unless agreed by the parties in a separate written agreement;

WHEREAS,Seller wishes to sell and assign to Buyer certain identified Patent Rights, Contracts, and other agents assets related to the Lipase Project Enzyme, and affiliates, Buyer wishes to purchase and assume from Seller such assets and certain corresponding liabilities, and Seller otherwise wishes to authorize Buyer's Development and Commercialization of, the significant increases Lipase Project Enzyme, in each case, subject to the cost of such insurance terms and conditions set forth herein;

WHEREAS,Buyer and Seller have also developed the A&P Enzymes (as defined below) under the Existing Agreements; and

WHEREAS,Seller has agreed to grant Buyer an option to acquire certain assets related to the A&P Enzymes and the general reductions right to Develop and Commercialize the A&P Enzymes upon the payment of an agreed upon purchase price, in each case, subject to the coverage of such insurance. terms and conditions set forth herein;

B. NOW The Company further recognizes the substantial increase in corporate litigation in general, subjecting directors, officers, employees, controlling persons, fiduciaries and other agents and affiliates to expensive litigation risks at the same time as the availability and coverage of liability insurance has been severely limited.

C. ,**The current protection available to directors, officers, employees, controlling persons, fiduciaries and other agents and affiliates of the Company may not be adequate under the present circumstances, and directors, officers, employees, controlling persons, fiduciaries and other agents and affiliates of the Company (or persons who may be alleged or deemed to be the same), including the Indemnitee, may not be willing to continue to serve or be associated with the Company in such capacities without additional protection.**

D. THEREFORE The Company (a) desires to attract and retain the involvement of highly qualified persons, such as Indemnitee, to serve and be associated with the Company, and (b) accordingly, wishes to provide for the indemnification and advancement of expenses to the Indemnitee to the maximum extent permitted by law. ,

E. In view of the considerations set forth above, the Company desires that Indemnitee shall be indemnified and advanced expenses by the Company as set forth herein.

In in consideration of the mutual promises covenants and covenants contained herein, agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

ARTICLE I
PURCHASE AND SALE

1. Section 1.01 Purchase and Sale of AssetsCERTAIN DEFINITIONS. .

(a) "*Change in Control*" shall be deemed Subject to have occurred if, on or after the date of this Agreement, (i) any "person" (as such term is used in Sections 13(d) terms and 14(d) of the Securities Exchange Act of 1934, as amended), other than a trustee or other fiduciary holding securities under an employee benefit plan of the Company acting in such capacity or a corporation owned directly or indirectly by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company, becomes the "beneficial owner" (as defined in Rule 13d-3 under said Act), directly or indirectly, of securities of the Company representing more than 50% of the total voting power represented by the Company's then outstanding Voting Securities (as defined below), (ii) during any period of two (2) consecutive years, individuals who conditions set forth herein, at the beginning Closing, Seller shall, and shall cause its Affiliates to, sell, convey, assign, transfer, and deliver to Buyer (or its designated Affiliate), and Buyer shall purchase from Seller and its Affiliates, all of such period constitute the Board of Directors of the Company Seller's (or its applicable Affiliate's) right, title, and any new director whose election by the Board of Directors or nomination for election by the Company's stockholders was approved by a vote of at least two thirds (2/3) of the directors then still interest in, office who either were directors at the beginning of the period or whose election or nomination for election was previously so approved, cease for any reason to, constitute a majority thereof, or (iii) the stockholders of the Company approve a merger

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or consolidation of the Company with any other corporation other than a merger or consolidation which would result in the Voting Securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into Voting Securities of the surviving entity) at least 80% of the total voting power represented by the Voting Securities of the Company or such surviving entity outstanding immediately after such merger or consolidation, or (iv) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of (in one transaction or a series of related transactions) all or substantially and under all of the Company's assets. following (the "**Purchased Assets**"):

(a) the patents and patent applications set forth on Section 1.01(a) of the Disclosure Schedules (the "**Purchased Patents**"),and all of Seller's and its Affiliates interest in, to and under the Purchased Patents, including the right to sue for past infringement;

(b) all Contracts set forth on Section 1.01(b) of the Disclosure Schedules (the "**Claim Assigned Contracts**" shall mean with)and the rights to assert claims and take other actions in respect to a Covered Event (as defined below): any threatened, asserted, pending of breaches or completed action, suit, proceeding or alternative dispute resolution mechanism, or any hearing, inquiry or investigation that Indemnitee in good faith believes might lead to other violations of the institution of any such action, suit, proceeding or alternative dispute resolution mechanism, whether civil, criminal, administrative, investigative or other. foregoing occurring after the Closing;

(c) the inventory and other materials set forth on Section 1.01(c) of the Disclosure Schedules (the "**References Inventory**");

(d) all Jointly Owned Inventions relating [***] to the Lipase Project Enzyme (the "**Company Purchased Know-How**" shall include, in addition to Codexis, Inc., any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger to which Codexis, Inc. (or any of);

(e) all Regulatory Documentation owned [***] by Seller and its wholly owned subsidiaries) is a party, which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, employees, agents or fiduciaries, so that if Indemnitee is or was a director, officer, employee, agent or fiduciary of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee, agent or fiduciary of another corporation, partnership, joint venture, employee benefit plan, trust or other enterprise, Indemnitee shall stand in the same position under the provisions of this Agreement with respect Affiliates [***] relating to the resulting or surviving corporation as Indemnitee would have with respect to such constituent corporation if its separate existence had continued.

(d) other Purchased Assets (the "**Covered Event Acquired Regulatory Documentation**" shall mean any event or occurrence related to the fact that Indemnitee is or was a director, officer, employee, agent or fiduciary of the Company, or any subsidiary, direct or indirect, of the Company, or is or was serving at the request of the Company as a director, officer, employee, agent or fiduciary of another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action or inaction on the part of Indemnitee while serving in such capacity.);

(e) "*Expenses*" shall mean any and all direct and indirect costs, losses, claims, damages, fees, expenses, and liabilities, joint or several (including attorneys' fees and all other costs, expenses and obligations incurred in connection with investigating, defending, being a witness in or participating in (including on appeal), or preparing to defend, to be a witness in or to participate in, any action, suit, proceeding, alternative dispute resolution mechanism, hearing, inquiry or investigation), judgments, fines, penalties and amounts paid in settlement (if such settlement is approved in advance by the Company, which approval shall not be unreasonably withheld) actually and reasonably incurred, of any Claim and any federal, state, local or foreign taxes imposed on the Indemnitee as a result of the actual or deemed receipt of any payments under this Agreement.

(f) all other Books and Records owned [***] by Seller and its Affiliates relating [***] to the other Purchased Assets, [***] (collectively, the "**Expense Advance Acquired Books and Records**").For clarity, Acquired Books and Records shall mean a payment specifically exclude all Tax Returns and related workpapers including or relating to Indemnitee pursuant the Purchased Assets. Books and Records that do not relate [***] to the other Purchased Assets may be redacted to exclude information that does not relate to the other Purchased Assets.

Section 3 1.02 Excluded Assets.Other than the Purchased Assets, Buyer expressly understands and agrees that it is not purchasing or acquiring, and Seller is not selling or assigning, any other assets or properties of Expenses in advance Seller or its Affiliates, and all such other assets and properties shall be excluded from the Purchased Assets and remain the sole and exclusive property of Seller and/or its Affiliates (collectively, the "**Excluded Assets**").Excluded Assets include, but are not limited to, the assets, properties and rights specifically set forth on Section 1.02 of the settlement of or final judgement in any action, suit, proceeding or alternative dispute resolution mechanism, hearing, inquiry or investigation, which constitutes a Claim. Disclosure Schedules.

(g) "*Independent Legal Counsel*" shall mean an attorney or firm of attorneys, selected in accordance with the provisions of Section 2(d) hereof, who shall not have otherwise performed services for the Company or Indemnitee within the last three (3) years (other than

with respect to matters concerning the rights of Indemnitee under this Agreement, or of other indemnitees under similar indemnity agreements).

(h) References to "*other enterprises*" shall include employee benefit plans; references to "*fines*" shall include any excise taxes assessed on Indemnitee with respect to an employee benefit plan; and references to "*serving at the request of the Company*" shall include any service as a director, officer, employee, agent or fiduciary of the Company which imposes duties on, or involves services by, such director, officer, employee,

agent or fiduciary with respect to an employee benefit plan, its participants or its beneficiaries; and if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan, Indemnitee shall be deemed to have acted in a manner "*not opposed to the best interests of the Company*" as referred to in this Agreement.

(i) "*Reviewing Party*" shall mean, subject to the provisions of Section 2(d), any person or body appointed by the Board of Directors in accordance with applicable law to review the Company's obligations hereunder and under applicable law, which may include a member or members of the Company's Board of Directors, Independent Legal Counsel or any other person or body not a party to the particular Claim for which Indemnitee is seeking indemnification, exoneration or hold harmless rights.

(j) "*Section*" refers to a section of this Agreement unless otherwise indicated.

(k) "*Voting Securities*" shall mean any securities of the Company that vote generally in the election of directors.

2. INDEMNIFICATION 1.03 Assumed Liabilities.

(a) Indemnification of Expenses. Subject to the provisions of terms and conditions set forth herein, including Section 2(b) below, 1.03(b), at the Company Closing, Buyer shall indemnify, exonerate or hold harmless Indemnitee for Expenses to the fullest extent permitted by law if Indemnitee was or is or becomes a party to or witness or other participant in, or is threatened to be made a party to or witness or other participant in, any Claim (whether by reason of or arising in part out of a Covered Event), including all interest, assessments assume and other charges incurred in connection with or in respect of such Expenses.

(b) Review of Indemnification Obligations. Notwithstanding the foregoing, in the event any Reviewing Party shall have determined (in a written opinion, in any case in which Independent Legal Counsel is the Reviewing Party) that Indemnitee is not entitled to be indemnified, exonerated or held harmless hereunder under applicable law, (i) the Company shall have no further obligation under Section 2(a) to make any payments to Indemnitee not made prior to such determination by such Reviewing Party and (ii) the Company shall be entitled to be reimbursed by Indemnitee (who hereby agrees to reimburse the Company) for all Expenses theretofore paid in indemnifying, exonerating or holding harmless Indemnitee (within thirty (30) days after such determination); provided, however, that if Indemnitee has commenced or thereafter commences legal proceedings in a court of competent jurisdiction to secure a determination that Indemnitee is entitled to be indemnified, exonerated or held harmless hereunder under applicable law, any determination made by any Reviewing Party that Indemnitee is not entitled to be indemnified hereunder under applicable law shall not be binding and Indemnitee shall not be required to reimburse the Company for any Expenses theretofore paid in indemnifying, exonerating or holding harmless Indemnitee until a final judicial determination is made with respect thereto (as to which all rights of appeal therefrom have been exhausted or lapsed). Indemnitee's obligation to reimburse the Company for any Expenses shall be unsecured and no interest shall be charged thereon.

(c) Indemnitee Rights on Unfavorable Determination; Binding Effect. If any Reviewing Party determines that Indemnitee substantively is not entitled to be indemnified, exonerated or held harmless hereunder in whole or in part under applicable law, Indemnitee shall have the right to commence litigation seeking an initial determination by the court or challenging any such determination by such Reviewing Party or any aspect thereof, including the legal or factual bases therefor, and, subject to the provisions of Section 15, the Company hereby consents to service of process and to appear in any such proceeding. Absent such litigation, any determination by any Reviewing Party shall be conclusive and binding on the Company and Indemnitee.

(d) Selection of Reviewing Party; Change in Control. If there has not been a Change in Control, any Reviewing Party shall be selected by the Board of Directors, and if there has been such a Change in Control (other than a Change in Control which has been approved by a majority of the Company's Board of Directors who were directors immediately prior to such Change in Control), any Reviewing Party with respect to all matters thereafter arising concerning Indemnitee's indemnification, exoneration or hold harmless rights for Expenses under this Agreement or any other agreement or under the Company's Certificate of Incorporation or bylaws as now or hereafter in effect, or under any other applicable law, if desired by Indemnitee, shall be Independent Legal Counsel selected by the Indemnitee and approved by Company (which approval shall not be unreasonably withheld). Such counsel, among other things, shall render its written opinion to the Company and Indemnitee as to whether and to what extent Indemnitee would be entitled to be indemnified, exonerated or held harmless hereunder under applicable law and the Company agrees to abide by such opinion. The Company agrees agree to pay, the reasonable fees of the Independent Legal Counsel referred to above perform, and to fully indemnify, exonerate and hold harmless such counsel against discharge when due any and all expenses (including attorneys' fees), claims, liabilities and damages Liabilities of Seller arising out, of or relating to, ownership of the Purchased Assets or operation of the Business on or after the Closing (collectively, the "**Assumed Liabilities**"),including, but not limited to, the following:

(i) all Liabilities arising under the Assigned Contracts from and after the Closing Date (but, for clarity, this does not limit any Liabilities under any Assigned

Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates prior to the Closing Date pursuant to any Existing Agreement or its engagement other agreement between the parties); and

(ii) all Liabilities for (A) Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) beginning on or after the Closing Date ([***]) and (B) Taxes for which Buyer is liable pursuant hereto. Notwithstanding any other provision of this Agreement, the Company to Section 5.09.

(b) Buyer shall not assume and shall not be required responsible to pay, Expenses perform or discharge any Liabilities of Seller or its Affiliates other than the Assumed Liabilities (collectively, the "**Excluded Liabilities**"),which Excluded Liabilities shall include, but not necessarily be limited to:

(i) any Liabilities arising out of or relating to Seller's ownership of the Purchased Assets prior to the Closing Date or attributable to any breach of any Assigned Contract on the part of Seller or its Affiliate prior to the Closing Date (but excluding all Liabilities under any Assigned Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates pursuant to any Existing Agreement or other agreement between the parties hereto);

(ii) any Liabilities [***];

(iii) any Liabilities [***];

(iv) any Liabilities arising out of or relating to the Excluded Assets; and

(v) any Liabilities (A) for Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) ending on or prior to the Closing Date; (B) [***].

Section 1.04 Purchase Price.The aggregate purchase price for the Purchased Assets shall be the sum of (a) $5,000,000 (the "**Initial Purchase Price**");*plus* (b) the amount of any Milestone Earnout Payments due and payable under Section *1.05, plus* (c) the amount of any Sales Earnout Payments due and payable under Section 1.06 (such sum, the "**Purchase Price**").

Section 1.05 Milestone Earnout.Buyer shall pay to Seller the following one-time, non-refundable, non-creditable milestone payments (each, a "**Milestone Earnout Payment**")upon and subject to the achievement of each identified event below (each, a "**Milestone**"):

(a) upon [***] (the "**[***] Milestone**"):$[***];

(b) upon [***] (the "**[***] Milestone**"):$[***];

(c) upon [***]: $[***];

(d) upon [***]: $[***];

(e) upon consumption of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits;

(f) upon consumption of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits; and

(g) upon consumption of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits.

For the avoidance of doubt, each of the Milestone Earnout Payments set forth above will be payable only one time, upon the first occurrence of the corresponding Milestone, and no additional payment will be due in the event of any repeated occurrence of such Milestone, including in relation to more than one Independent Legal Counsel Product. Under no circumstances shall Buyer be obligated to pay Seller more than $[***] in connection with all matters concerning a single Indemnitee, and such Independent Legal Counsel shall be the Independent Legal Counsel for any or all other Indemnitees unless (i) the Company otherwise determines or (ii) any Indemnitee aggregate pursuant to subsections (a) through (d) of this Section 1.05.

Buyer shall provide a written statement setting forth in detail a reasonable objection to such Independent Legal Counsel representing other Indemnitees.

(e) Mandatory Payment Seller with [***] notice of Expenses. Notwithstanding any other provision of this Agreement other than Section 10 hereof, to the extent that Indemnitee has been successful on the merits or otherwise, including, without limitation, the dismissal of an action without prejudice, in defense achievement of any Claim, Indemnitee shall be indemnified, exonerated and held harmless against all Expenses incurred by Indemnitee in connection therewith.

(f) Contribution. If the indemnification, exoneration or hold harmless rights provided for in this Agreement is for any reason held by a court of competent jurisdiction to be unavailable to an Indemnitee, then in lieu of indemnifying, exonerating or holding harmless Indemnitee thereunder, the Company shall contribute to the amount paid or payable by Indemnitee as a result of such Expenses (i) in such proportion as is appropriate to reflect the relative benefits received by the Company and Indemnitee, or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company and Indemnitee in connection with the action or inaction which resulted in such Expenses, Milestone, as well as [***] notice after each time Buyer or any other relevant equitable considerations. In connection with of its Affiliates actually receives any Sell-On Transaction Profits (including pursuant to the registration release of any proceeds from escrow or provided as part of an earnout). Following the receipt of such notice of achievement of a Milestone or notice of receipt of Sell-On Transaction Profits, Seller shall issue an invoice to Buyer for the corresponding Milestone Earnout Payment or documenting that portion of the Company's securities, Sell-On Transaction Profits owed by Buyer to Seller (each such amount, the relative benefits received by the Company and Indemnitee shall be deemed to be in the same respective proportions that the net proceeds from the offering (before deducting expenses) received by the Company and Indemnitee, in each case as set forth in the table on the cover page of the applicable prospectus, bear to the aggregate public offering price of the securities so offered. The relative fault of the Company and "

Indemnitee shall be determined by reference to, among other things, whether the untrue **Sell-On Transaction Payment**").Each Milestone Earnout Payment or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or Indemnitee and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The Company and Indemnitee agree that it would not be just and equitable if contribution Sell-On Transaction Payment owing pursuant to this Section 2(f) were determined by pro rata or by any other method of allocation which does not take account of the equitable considerations referred to in the immediately preceding paragraph. In connection with the registration of the Company's securities, in no event shall Indemnitee be required to contribute any amount under this Section 2(f) in excess of the net proceeds received by Indemnitee from its sale of securities under such registration statement. No person found guilty of fraudulent misrepresentation (within the meaning of Section 11(1) of the Securities Act) 1.05 shall be entitled to contribution from any person who was not found guilty of such fraudulent misrepresentation.

3. EXPENSE ADVANCES**.**

(a) Obligation to Make Expense Advances. The Company shall make Expense Advances to Indemnitee upon due by Buyer within [***] following Buyer's receipt of a written undertaking an invoice therefor. Buyer shall pay each Milestone Earnout Payment and Sell-On Transaction Payment by or on behalf wire transfer of the Indemnitee immediately available funds to repay such amounts if it shall ultimately be determined that the Indemnitee is not entitled to be indemnified, exonerated or held harmless therefor by the Company.

(b) Form of Undertaking. Any written undertaking by the Indemnitee to repay any Expense Advances hereunder shall be unsecured and no interest shall be charged thereon.

4. PROCEDURES FOR INDEMNIFICATION AND EXPENSE ADVANCES**.**

(a) Timing of Payments. All payments of Expenses (including without limitation Expense Advances) by the Company to the Indemnitee pursuant to this Agreement shall be made to the fullest extent permitted by law as soon as practicable after written demand by Indemnitee therefor is presented to the Company, but in no event later than forty-five (45) days after such written demand by Indemnitee is presented to the Company, except in the case of Expense Advances, which shall be made no later than twenty (20) days after such written demand by Indemnitee is presented to the Company.

(b) Notice/Cooperation by Indemnitee. Indemnitee shall, as a condition precedent to Indemnitee's right to be indemnified, exonerated or held harmless or Indemnitee's right to receive Expense Advances under this Agreement, give the Company notice in writing as soon as practicable of any Claim made against Indemnitee for which indemnification, exoneration or hold harmless right will or could be sought under this Agreement. Notice to the Company shall be directed to the President or Chief Executive Officer of the Company at the address shown on the signature page of this Agreement (or such other address as the Company shall designate in writing to Indemnitee). In addition, Indemnitee shall give the Company such information and cooperation as it may reasonably require and as shall be within Indemnitee's power.

(c) No Presumptions; Burden of Proof. For purposes of this Agreement, the termination of any Claim by judgment, order, settlement (whether with or without court approval) or conviction, or upon a plea of *nolo contendere*, or its equivalent, shall not create a presumption that Indemnitee did not meet any particular standard of conduct or have any particular belief or that a court has determined that indemnification, exoneration or hold harmless right is not permitted by this Agreement or applicable law. In addition, neither the failure of any Reviewing Party to have made a determination as to whether Indemnitee has met any particular

standard of conduct or had any particular belief, nor an actual determination by any Reviewing Party that Indemnitee has not met such standard of conduct or did not have such belief, prior to the commencement of legal proceedings by Indemnitee to secure a judicial determination that Indemnitee should be indemnified,

exonerated or held harmless under this Agreement or applicable law, shall be a defense to Indemnitee's claim or create a presumption that Indemnitee has not met any particular standard of conduct or did not have any particular belief. In connection with any determination by any Reviewing Party or otherwise as to whether the Indemnitee is entitled to be indemnified, exonerated or held harmless hereunder, the burden of proof shall be on the Company to establish that Indemnitee is not so entitled.

(d) Notice to Insurers. If, at the time of the receipt by the Company of a notice of a Claim pursuant to Section 4(b) hereof, the Company has liability insurance in effect which may cover such Claim, the Company shall give prompt notice of the commencement of such Claim to the insurers Seller in accordance with the procedures set forth wire transfer instructions provided by Seller in writing prior to the respective policies. The Company due date for such payment.

In the event that Buyer consummates any Sell-On Transaction, Buyer shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf remain responsible for the payment of the Indemnitee, all amounts payable as a result of such Claim Earnout Payments to Seller [***] in accordance with the terms of such policies. this Agreement.

Section 1.06 Sales Earnout.

(e) (a) Selection of Counsel Base Line Calculation. In Within [***] after the event Launch Date, Buyer shall provide to Seller a report detailing the Company aggregate Net Sales of Zenpep (including Combination Products with Zenpep as the Covered Component) during the [***] period [***] (the "**Baseline Zenpep [***] Sales**").Buyer shall include in such report sufficient details to show Buyer's calculation of such Net Sales, including each subpart thereof. Buyer shall also provide Seller with all supporting documentation [***] requested by Seller [***] to confirm such calculations and amounts. If Seller does not dispute in writing the Baseline Zenpep [***] Sales amount set forth in Buyer's report within [***] after the delivery thereof, such Baseline Zenpep [***] Sales amount shall be obligated hereunder deemed final and binding on the parties. If Seller disagrees with the Baseline Zenpep [***] Sales amount as set forth in Buyer's report, Seller shall deliver a written notice of dispute to Buyer setting forth in reasonable detail the specific amount(s) disputed, [***], and its proposed calculation of such disputed amount(s), together with reasonable supporting documentation (collectively, the "**Baseline Disputed Items**")within [***] after the delivery of Buyer's report and the parties shall negotiate in good faith a mutually agreeable final Baseline Zenpep [***] Sales amount to be used by the parties. If the parties are not able to agree upon the Baseline Zenpep [***] Sales amount within [***] after Seller provides Buyer with such notice of the dispute, then Seller shall engage an independent certified public accounting firm of internationally recognized standing that is reasonably acceptable to Buyer to audit the calculations. The audit shall be limited to the Baseline Disputed Items that remain unresolved after the parties' good faith negotiations (the "**Unresolved Baseline Disputed Items**").The

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accounting firm shall be required to enter into a reasonable and customary confidentiality and non-use agreement with Buyer to protect the confidentiality of Buyer's books and records. Buyer and its Affiliates shall make the relevant books and records available during normal business hours for examination by the accounting firm. Except as may otherwise be agreed, the accounting firm shall be provided access to such books and records at Buyer's or its Affiliates' facilities where such books and records are normally kept. Upon completion of the audit, the accounting firm shall provide indemnification for both parties a written report disclosing (i) whether or make any Expense Advances not Buyer's report is correct with respect to the Expenses Unresolved Baseline Disputed Items, (ii) if any Unresolved Baseline Disputed Item is not correct, the auditor's determination of the value for such Unresolved Baseline Disputed Item, and (iii) the specific details concerning any Claim, discrepancies. The decision of the Company, if appropriate, accounting firm shall be entitled final and binding on the parties absent manifest error. The parties shall initially share the costs of the auditor equally; following completion of the auditor, if (1) the value of the Baseline Zenpep [***] Sales determined by the auditor is [***] than the value of the Baseline Zenpep [***] Sales as put forth by Buyer in its initial report on the Baseline Zenpep [***] Sales, then Buyer shall pay the entire costs of the auditor, including reimbursing Seller for any amounts paid to assume such auditor by Seller or its Affiliates and (2) the defense value of the Baseline Zenpep [***] Sales Items determined by the auditor is [***] of the value of the Baseline Zenpep [***] Sales as put forth by Buyer in its initial report on the Baseline Zenpep [***] Sales, [***]. The accounting firm shall not provide Seller with [***] access to Buyer's confidential information. The "**[***] Baseline**"is equal to the product of (i) the Baseline Zenpep [***] Sales as determined pursuant to this Section 1.06(a); *multiplied by* (ii) [***]. The "**Quarterly Baseline**"is equal to the quotient of (A) the [***] Baseline; *divided by* (B) four.

(b) Sales Earnout Payments. For each Calendar Quarter, the "**Earnout Sales**"means the difference of (i) the Net Sales for such Calendar Quarter, less (ii) the Quarterly Baseline, provided that if such amount is less than $0, the Earnout Sales for the Calendar Quarter will be deemed to be $0. During the Earnout Period, for each Calendar Quarter occurring on or after the Launch Date (including the Calendar Quarter in which the Launch Date occurs), Buyer shall pay to Seller an amount equal to [***] of the Earnout Sales (the "**Sales Earnout Payments**"and, collectively with the Milestone Earnout Payments, the "**Earnout Payments**")in accordance with Section 1.06(d).

(c) Combination Products. If Buyer, any of its Affiliates, or any Licensee sells any Earnout Product in the form of a Combination Product, Net Sales of such Claim with counsel approved by Indemnitee (which approval Combination Product for the purpose of determining the Baseline Zenpep [***] Sales pursuant to Section 1.06(a) and Sales Earnout Payments due to Seller pursuant to Section 1.06(b) will be calculated as follows:

(i) [***];

(ii) [***];

(iii) [***]; or

(iv) [***].

[***].

(d) Payment Terms and Earnout Statements.

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(i) Buyer shall not be unreasonably withheld) upon the delivery to Indemnitee of written notice of the Company's election to do so. After delivery of such notice, approval of such counsel by Indemnitee and the retention of such counsel by the Company, the Company will not be liable to Indemnitee pay all Sales Earnout Payments due under this Agreement for any fees or expenses of separate counsel subsequently employed by or on behalf of Indemnitee with respect to each Calendar Quarter within [***] after the same Claim; *provided, however*, that (i) Indemnitee shall have the right to employ Indemnitee's separate counsel in any such Claim at Indemnitee's expense and (ii) if (A) the employment of separate counsel by Indemnitee has been previously authorized by the Company, (B) Indemnitee shall have reasonably concluded that there may be a conflict of interest between the Company and Indemnitee in the conduct of any such defense, or (C) the Company shall not continue to retain such counsel to defend such Claim, then the fees and expenses of Indemnitee's separate counsel shall be Expenses for which Indemnitee may receive indemnification, exoneration or hold harmless rights or Expense Advances hereunder. The Company shall have the right to conduct such defense as it sees fit in its sole discretion, including the right to settle any claim, action or proceeding against Indemnitee without the consent of Indemnitee, provided that the terms end of such settlement include either: (i) a full release Calendar Quarter. Buyer shall make all payments in U.S. dollars by wire transfer of Indemnitee immediately available funds to bank account(s) as designated in writing by Seller from time to time. For the claimant from all liabilities or potential liabilities under such claim; or (ii), purpose of converting the local currency in which any Net Sales arise into U.S. dollars, the event such full release rate of exchange to be applied will be the rate of exchange [***].

(ii) If any Earnout Payment is not obtained, received by Seller when due, Buyer shall pay to Seller interest on the terms of overdue payment from the date such settlement do not limit any indemnification, exoneration or hold harmless rights Indemnitee may now, or hereafter, be entitled payment was due to under this Agreement, the Company's Certificate of Incorporation, bylaws, any agreement, any vote of stockholders or disinterested directors, the General Corporation Law of the State of Delaware (the "DGCL") or otherwise.

5. Additional Indemnification Rights; Nonexclusivity**.**

(a) Scope. The Company hereby agrees to indemnify, exonerate and hold harmless the Indemnitee to the fullest extent permitted by law, notwithstanding that such indemnification, exoneration or hold harmless right is not specifically authorized by the other provisions of this Agreement, the Company's Certificate of Incorporation, the Company's bylaws or by statute. In the event of any change after the date of this Agreement in any applicable law, statute or rule which expands actual payment at an annual rate equal to [***] percentage points above the right of a Delaware corporation to indemnify, exonerate or hold harmless a member of its board of directors or an officer, employee, agent or fiduciary, it is U.S. prime interest rate, as reported by The Wall Street Journal (New York edition) for the intent first Business Day of the parties hereto that Indemnitee month in which such due date occurs, or if lower, the maximum amount permitted under applicable Law.

(iii) On or before the due date for all payments to Seller pursuant to Section 1.06(d)(i), Buyer shall enjoy by this Agreement the

greater benefits afforded by such change. In the event of any change in any applicable law, statute or rule which narrows the right of provide Seller with a Delaware corporation to indemnify, exonerate or hold harmless a member of its board of directors or an officer, employee, agent or fiduciary, such change, to the extent not otherwise required by such law, statute or rule to be applied to this Agreement, shall have no effect on this Agreement or the parties' rights and obligations hereunder except as set forth in Section 10(a) hereof.

(b) statement (an "**Nonexclusivity Earnout Statement**. The indemnification, exoneration or hold harmless rights and the payment of Expense Advances provided by this Agreement shall be in addition to any rights to which Indemnitee may be entitled under the Company's Certificate of Incorporation, its bylaws, any other agreement, any vote of stockholders or disinterested directors, the DGCL, or otherwise. The indemnification, exoneration or hold harmless rights and the payment of Expense Advances provided under this Agreement shall continue as to Indemnitee for any action taken or not taken while serving in an indemnified, exonerated or held harmless capacity even though subsequent thereto Indemnitee may have ceased to serve in such capacity. ")

6. No Duplication of Payments**.** The Company shall not be liable under this Agreement to make any payment in connection with any Claim made against Indemnitee to the extent Indemnitee has otherwise actually received payment (under any insurance policy, provision of the Company's Certificate of Incorporation, bylaws or otherwise) of the amounts otherwise payable hereunder.

7. Partial Indemnification**.** If Indemnitee is entitled under any provision of this Agreement to indemnification, exoneration or hold harmless rights by the Company for some or a portion of Expenses incurred in connection with any Claim, but not, however, showing for the total amount thereof, relevant Calendar Quarter on an Earnout Product-by-Earnout Product basis:

(A) the Company shall nevertheless indemnify, exonerate or hold harmless Indemnitee Gross Sales for the portion sale of such Expenses to which Indemnitee is entitled. Earnout Products; and

8. Mutual Acknowledgment**.** Both (B) the Company calculation of Deductions, Net Sales, and Indemnitee acknowledge that in certain instances, federal law or applicable public policy may prohibit the Company from indemnifying, exonerating or holding harmless its directors, officers, employees, agents or fiduciaries under this Agreement or otherwise. Indemnitee understands and acknowledges that the Company may be required in the future to undertake with the Securities and Exchange Commission to submit the question of indemnification, exoneration or hold harmless rights to a court in certain circumstances for a determination of the Company's right under public policy to indemnify, exonerate or hold harmless Indemnitee.

9. Liability Insurance**.** To the extent the Company maintains liability insurance applicable to directors, officers, employees, agents or fiduciaries, Indemnitee shall be covered by such policies in such a manner as to provide Indemnitee the same rights and benefits as are provided to the most favorably insured of the Company's directors, if Indemnitee is a director; or of the Company's officers, if Indemnitee is not a director of the Company but is an officer; or of the Company's key employees, agents or fiduciaries, if Indemnitee is not an officer or director but is a key employee, agent or fiduciary.

10. Exceptions**.** Notwithstanding any other provision of this Agreement, the Company shall not be obligated pursuant to the terms of this Agreement:

(a) Excluded Action or Omissions. To indemnify, exonerate or hold harmless Indemnitee for Expenses resulting from acts, omissions or transactions for which Indemnitee is prohibited from receiving indemnification, exoneration or hold harmless rights under this Agreement or applicable law; *provided, however*, that notwithstanding any limitation set forth in this Section 10(a) regarding the Company's obligation to provide indemnification, exoneration or hold harmless rights to Indemnitee shall be entitled under Section 3 to receive Expense Advances

hereunder with respect to any such Claim unless and until a court having jurisdiction over the Claim shall have made a final judicial determination (as to which all rights of appeal therefrom have been exhausted or lapsed) that Indemnitee has engaged in acts, omissions or transactions for which Indemnitee is prohibited from receiving indemnification under this Agreement or applicable law.

(b) Claims Initiated by Indemnitee. To indemnify, exonerate or hold harmless or make Expense Advances to Indemnitee with respect to Claims initiated or brought voluntarily by Indemnitee and not by way of defense, counterclaim or cross claim, except (i) with respect to actions or proceedings brought to establish or enforce an indemnification, exoneration or hold harmless right under this Agreement or any other agreement or insurance policy or under the Company's Certificate of Incorporation or bylaws now or hereafter in effect relating to Claims for Covered Events, (ii) in specific cases if the Board of Directors has approved the initiation or bringing of such Claim, or (iii) as otherwise required under Section 145 of the DGCL, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, exoneration, hold harmless right, Expense Advances or insurance recovery, as the case may be.

(c) Lack of Good Faith. To indemnify, exonerate or hold harmless Indemnitee for any Expenses incurred by the Indemnitee with respect to any action instituted (i) by Indemnitee to enforce or interpret this Agreement, if a court having jurisdiction over such action determines as provided in Section 13 that each of the material assertions made by the Indemnitee as a basis for such action was not made in good faith or was frivolous, or (ii) by or in the name of the Company to enforce or interpret this Agreement, if a court having jurisdiction over such action determines as provided in Section 13 that each of the material defenses asserted by Indemnitee in such action was made in bad faith or was frivolous.

(d) Claims Under Section 16(b). To indemnify, exonerate or hold harmless Indemnitee for expenses and the payment of profits arising from the purchase and sale by Indemnitee of securities in violation of Section 16(b) of the Securities Exchange Act of 1934, as amended, or any similar successor statute; *provided, however*, that notwithstanding any limitation set forth in this Section 10(d) regarding the Company's obligation to provide indemnification or exoneration or hold harmless, Indemnitee shall be entitled under Section 3 to receive Expense Advances hereunder with respect to any such Claim unless and until a court having jurisdiction over the Claim shall have made a final judicial determination (as to which all rights of appeal therefrom have been exhausted or lapsed) that Indemnitee has violated said statute.

11. Counterparts**.** This Agreement may be executed in counterparts and by facsimile or electronic transmission, each of which shall constitute an original and all of which, together, shall constitute one instrument.

12. Binding Effect; Successors and Assigns**.** This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors, assigns, including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business and/or assets of the Company, spouses, heirs, and personal and legal representatives. The Company shall require and cause any successor (whether direct or indirect by purchase, merger, consolidation or otherwise) to all, substantially all, or a substantial part, of the business and/or assets of the Company, by written agreement in form and substance satisfactory to Indemnitee, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place. This Agreement shall continue in effect regardless of whether Indemnitee continues to serve as a director, officer, employee, agent or fiduciary (as applicable) of the Company or of any other enterprise at the Company's request.

13. Expenses Incurred in Action Relating to Enforcement or Interpretation**.** In the event that any action is instituted by Indemnitee under this Agreement or under any liability insurance policies maintained by the Company to enforce or interpret any of the terms hereof or thereof, Indemnitee shall be entitled to be indemnified for all Expenses incurred by Indemnitee Sales Earnout Payments with respect to such action (including without limitation attorneys' fees), regardless of whether Indemnitee is ultimately successful in such action, unless as a part of such action a court having jurisdiction over such action makes a final judicial determination (as Earnout Products, subject to which all rights of appeal therefrom have been exhausted or lapsed) that each of the material assertions made by Indemnitee as a basis for such action was not made in good faith or was frivolous; *provided, however,* that until such final judicial determination is made, Indemnitee shall be entitled under Section 3 to receive payment of Expense Advances hereunder 1.06(c) with respect to Combination Products; and

(C) the exchange rate used for calculating any Sales Earnout Payments.

Upon Seller's request, Buyer shall provide Seller with such action. In additional documentation as may be reasonably requested by Seller that is [***] for the event of an action instituted by or information included in the name of the Company under this Agreement to enforce or interpret any of the terms of this Agreement, Indemnitee shall be entitled to be indemnified, exonerated or held harmless for all Expenses incurred by Indemnitee in defense of such action (including without limitation costs and expenses incurred with respect to Indemnitee's counterclaims and cross-claims made in such action), unless as a part of such action a court having jurisdiction over such action makes a final judicial determination (as to which all rights of appeal therefrom have been exhausted or lapsed) that each of the material defenses asserted by Indemnitee in such action was made in bad faith or was frivolous; *provided, however,* that until such final judicial determination is made, Indemnitee shall be entitled under Section 3 to receive payment of Expense Advances hereunder with respect to such action. Earnout Statement.

14. Notices Section 1.07 Reports and Reporting. All notices, requests, demands and other communications under this Agreement shall be in writing and shall be deemed duly given (i) if delivered by hand and signed for by the party addressed, on the date of such delivery, or (ii) if mailed by domestic certified or registered mail with postage prepaid, on the third business day after the date postmarked. Addresses for notice to either party are as shown on the signature page of this Agreement or as subsequently modified by written notice.

15. Consent to Jurisdiction**.** The Company and Indemnitee each hereby irrevocably consent to the jurisdiction of the courts of the State of Delaware for all purposes in connection with any action or proceeding which arises out of or relates to this Agreement and agree that any action instituted under this Agreement shall be commenced, prosecuted and continued only in the Court of Chancery of the State of Delaware in and for Kent County, which shall be the exclusive and only proper forum for adjudicating such a claim.

16. Severability**.** The provisions of this Agreement shall be severable in the event that any of the provisions hereof (including any provision within a single section, paragraph or sentence) are held by a court of competent jurisdiction to be invalid, void or otherwise unenforceable, and the remaining provisions shall remain enforceable to the fullest extent permitted by law. Furthermore, to the fullest extent possible, the provisions of this Agreement (including without limitation each portion of this Agreement containing any provision held to be invalid, void or otherwise unenforceable, that is not itself invalid, void or unenforceable) shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal or unenforceable.

17. Choice of Law**.** This Agreement, and all rights, remedies, liabilities, powers and duties of the parties to this Agreement, shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflicts of laws.

18. Amendment and Termination**.** No amendment, modification, termination or cancellation of this Agreement shall be effective unless it is in writing signed by both the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed to be or shall

constitute a waiver of any other provisions hereof (whether or not similar), nor shall such waiver constitute a continuing waiver.

19. Integration and Entire Agreement**.** This Agreement sets forth the entire understanding between the parties hereto and supersedes and merges all previous written and oral negotiations, commitments, understandings and agreements relating to the subject matter hereof between the parties hereto.

20. No Construction as Employment Agreement**.** Nothing contained in this Agreement shall be construed as giving Indemnitee any right to employment by the Company or any of its subsidiaries or affiliated entities.

21. Additional Acts. If for the validation of any of the provisions in this Agreement any act, resolution, approval or other procedure is required, the Company undertakes to cause such act, resolution, approval or other procedure to be affected or adopted in a manner that will enable the Company to fulfill its obligations under this Agreement.

(The remainder of this page is intentionally left blank.)

IN WITNESS WHEREOF, the parties hereto have executed this Indemnification Agreement as of the date first above written.

CODEXIS, INC.

By:
Name: Stephen Dilly
Title: President and CEO

Agreed to and accepted by:

INDEMNITEE:

Name: [INDEMNITEE]

TRANSITION AND SEPARATION AGREEMENT

This Transition and Separation Agreement (the "Agreement") by and between Ross Taylor ("Executive") and Codexis, Inc., a Delaware corporation (the "Company"), is made effective as of the eighth day later than [***] following the date Executive signs this Agreement (the "Effective Date") end of each Calendar Quarter, Buyer shall provide Seller with reference to the following facts:

A. Executive's employment with the Company will end as a report of the Termination Date (as defined below);

B. Executive and the Company are parties to that certain Change of Control Severance Agreement (the "Change of Control Agreement");

C. Executive has agreed to continue to serve as the Company's Senior Vice President and Chief Financial Officer through the date the Company appoints a new Chief Financial Officer; and

D. Executive and the Company want to end their relationship amicably and also to establish the obligations of the parties including, without limitation, all amounts due and owing to Executive.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as follows:

1. Termination Date. Executive and the Company acknowledge and agree that Executive's status as Net Sales booked by Buyer on an employee of the Company shall continue through the earliest of (a) March 6, 2023 (the "Planned Termination Date"), (b) the date the Company terminates Executive's employment with the Company for other than Cause (as defined in the Change of Control Agreement) (together with the Planned Terminate Date, Earnout Product-by-Earnout Product basis, during such Calendar Quarter ended (each, a "**Covered Termination Date**"), (c) the date the Company terminates Executive's employment for Cause or (d) the date Executive voluntarily terminates Executive's employment (the earliest such date, the "Termination Date Quarterly Estimate"). Executive further acknowledges and agrees that Executive's status as an officer of the Company and of each of its affiliates, shall end effective as of the earlier of the Termination Date. Executive hereby agrees to execute such further document(s) as shall be determined by the Company as necessary or desirable to give effect to the termination of Executive's status as an officer of the Company and each of its affiliates as of such earlier date; provided that such documents shall not be inconsistent with any of the terms of this Agreement.

2. Chief Financial Officer Employment.

(a) *Chief Financial Officer Employment Period; Duties*. During the period (the "Chief Financial Officer Employment Period") commencing on the date hereof and ending on the earlier of (i) the date the Company appoints a new interim or permanent Chief Financial Officer or (ii) the Termination Date (such earlier date, the "Chief Financial Officer Service End Date"), Executive shall continue to be employed by the Company as the Company's Senior Vice President and Chief Financial Officer reporting to the Company's Chief Executive Officer ("CEO") and shall perform such duties as are customarily associated with such positions and such other duties as are assigned to Executive by the CEO. During the Chief Financial Officer Employment Period, Executive shall devote Executive's best efforts and substantially all of Executive's business time and attention to the business of the Company. On the Chief Financial Officer Service End Date, Executive shall cease to serve as an officer of the Company and each of its subsidiaries. Executive agrees to execute such further documents as determined necessary or appropriate by the Company to evidence such cessation of officer status.

(b) *Advisor Employment Period; Duties*. In the event the Chief Financial Officer Service End Date occurs prior to the Termination Date, then during the period (the "Advisor Employment Period" and, together with the Chief Financial Officer Employment

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Period, the "Continued Employment Period") commencing on the Chief Financial Officer Service End Date and ending on the Termination Date, Executive shall continue to be employed as an advisor to the CEO and shall perform such duties as are requested by the CEO. During the Advisor Employment Period, Executive shall devote Executive's best efforts and such amount of Executive's business time and attention as reasonably necessary to fulfill such duties to the business of the Company.

(c) *Salary and Benefits Continuation*. During the Continued Employment Period, Executive will continue to be paid base salary at the rate in effect on the date of this Agreement in accordance with the Company's regular payroll procedures, accrue paid vacation, be eligible for all employee benefit plans available to senior executives of the Company and continue to vest into outstanding equity awards, in each case, in accordance with their terms. All payments made to Executive during the Continued Employment Period will be subject to required withholding taxes and authorized deductions.

(d) *Protection of Information*. Executive reaffirms Executive's commitment to remain in compliance with that certain Confidential Information and Inventions Assignment Agreement entered into between Executive and the Company (the "Confidentiality Agreement"). Without limiting the foregoing, Executive acknowledges and agrees that, during the Continued Employment Period, Executive shall not, directly or indirectly, become employed by or provide assistance to any competitor of the Company.

3. Final Paycheck; Payment of Accrued Wages and Expenses.

(a) *Final Paycheck.* As soon as administratively practicable on or after the Termination Date, the Company will pay Executive all accrued but unpaid wages and accrued and unused vacation earned through the Termination Date, subject to standard payroll deductions and withholdings. Executive is entitled to retain these payments regardless of whether Executive executes this Agreement.

(b) *Business Expenses*. The Company shall reimburse Executive for all outstanding, unreimbursed expenses incurred prior to the Termination Date which are consistent with the Company's policies in effect from time to time with respect to travel, entertainment and other business expenses, subject to the Company's requirements with respect to reporting and documenting such expenses. Executive is entitled to these reimbursements regardless of whether Executive executes this Agreement.

(c) *Unvested Equity Awards*. Executive acknowledges that on the Termination Date, the unvested portion of each outstanding equity award (after giving effect to any accelerated vesting provided under Section 4 of this Agreement), including, without limitation, the unvested portion of each

stock option, restricted stock unit award and performance stock unit award held by Executive will be automatically terminated without payment of any consideration therefor.

4. Separation Benefits. Without admission of any liability, fact or claim, the Company hereby agrees, subject to the execution of this Agreement and the delivery to the Company of a copy of the General Release of Claims attached hereto as Exhibit A (the "Release of Claims") signed on or after the Termination Date that becomes effective and irrevocable within thirty days following the Termination Date, and further subject to Executive remaining employed hereunder through the Covered Termination Date and continued compliance with the terms and conditions of the Confidentiality Agreement, to provide Executive the severance benefits set forth below. For the avoidance of doubt, in the event the Company terminates Executive's employment Quarterly Estimates are provided for other than Cause or Executive terminates Executive's employment with the Company before the Covered Termination Date, then Executive shall be entitled to the Separation Payments and Benefits described in this Section 4. Specifically, the Company and Executive agree as follows:

(a) *Cash Severance.* On the first payroll date that is at least five (5) business days following the date the Release of Claims becomes effective and irrevocable,

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the Company shall pay to Executive an amount equal to twelve (12) months of Executive's base salary, subject to continuing compliance by Executive with the terms hereof. Such payment shall be made in a single cash lump sum, subject to withholding taxes and authorized deductions.

(b) *Annual Bonus.* Executive shall be paid an amount equal to $185,725, which represents 85% of Executive's target annual bonus for fiscal year 2022 informational purposes only and shall be paid subject in full satisfaction thereof, irrespective all respects to the Earnout Statements provided for the applicable Calendar Quarter. No later than [***] after the expiration of each Calendar Year, Buyer shall furnish Seller with a written report (each, an "**Annual Report**")setting forth: (a) through and including the Company's or Executive's performance. Such payment Calendar Year in which the first Launch Date occurs, [***] its, its Affiliates,' and its Licensees' progress on the Development, Manufacture, and Commercialization of all Products for the Calendar Year just ended, including [***] their progress and efforts towards the achievement of each Milestone; (b) Buyer's then-current estimates as to the date of achievement for the [***] Milestone and the [***] Milestone; and (c) its, its Affiliates,' and its Licensees' projections of Net Sales and Sales Earnout Payments for the then-current Calendar Year; provided [***]. [***]. Upon Seller's reasonable advance notice (which in no event shall be made less than [***]), Buyer shall make its relevant management personnel reasonably available to Seller's personnel to discuss in a single cash lump sum, subject to withholding taxes greater detail each Annual Report, the information therein, and authorized deductions.

(c) *Restricted Stock Units and Performance Stock Units*. To the extent the Covered Termination Date occurs prior to March 6, 2023, then the vesting of any restricted stock units and performance stock units scheduled to vest on or prior to March 6, 2023 related questions Seller may have; provided that such access shall be accelerated as during normal local business hours [***].

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

Section 1.08 Allocation of immediately prior to Purchase Price.The Purchase Price and the Covered Termination Date. The shares of Company common stock underlying Assumed Liabilities (and any restricted stock units and performance stock units other amounts, if any, properly included for which vesting is accelerated pursuant to the preceding sentence Tax purposes) shall be issued allocated in accordance with the agreement evidencing such restricted and performance stock units.

(d) *Continued Healthcare*. If Executive elects to receive continued healthcare coverage pursuant to the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), the Company shall directly pay, or reimburse Executive for, the premium for Executive and Executive's covered dependents from the Termination Date through the earlier of (i) the twelve (12) month anniversary of the Termination Date and (ii) the date Executive, Executive's covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s), provided, however, that if (1) any plan pursuant to which such benefits are provided is not, or ceases prior to the expiration of the continuation coverage period to be, exempt from the application of Section 409A 1060 of the Internal Revenue Code of 1986, as amended (the "**Code**") under Treasury Regulation among the Purchased Assets for all U.S. federal income tax purposes as shown on the allocation schedule set forth on Section 1.409A-1(a)(5), (2) the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 1.08 of the Public Health Service Act), then, Disclosure

Schedules (the "**Allocation Schedule**").Neither the parties nor any of their respective Affiliates shall take any position on any Tax Return or in any such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over Tax contest, proceeding, audit, appeals or litigation which is inconsistent with the remaining period agreed upon allocation unless otherwise required by a final determination within the Company would otherwise directly pay meaning of Section 1313(a) of the Code (or any similar provision of state, local or reimburse Executive. After the Company ceases to pay premiums pursuant non-U.S. Tax Law).

Section 1.09 Non-Assignable Assets; Previously Transferred Assets.

(a) Notwithstanding anything to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance with the provisions of COBRA.

(e) *Taxes*. Executive understands and agrees that all benefits under this Agreement will be subject to appropriate tax withholding and other deductions. To the extent any taxes may be payable by Executive for the benefits provided to Executive by this Agreement beyond those withheld by the Company, Executive agrees to pay them and to indemnify and hold the Company and the other entities released herein harmless for any tax claims or penalties, and associated attorneys' fees and costs, resulting from any failure by Executive to make required payments.

(f) *Sole Separation Benefit*. Executive agrees that the benefits provided by this Section 4 are not required under the Company's normal policies and procedures and are provided as a severance solely in connection with this Agreement. Executive acknowledges and agrees that the benefits referenced contrary in this Section 4 constitute adequate and valuable consideration, in and of themselves, for the promises contained in this Agreement.

5. Full Payment. Executive acknowledges that the payment and arrangements herein shall constitute full and complete satisfaction of any and all amounts properly due and owing to Executive as a result of Executive's employment with the Company and the termination thereof. Executive further acknowledges that, other than the Confidentiality Agreement, agreements

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evidencing Executive's equity awards (as modified under Section 4(c) hereof) and as explicitly set forth in Section 11 hereof, this Agreement shall supersede each agreement entered into between Executive and the Company regarding Executive's employment, including, without limitation, the offer letter entered into between the Company and Executive as of August 4, 2019, the Change of Control Agreement and any other employment agreement, bonus plan not constitute a sale, assignment, or arrangement, severance and/or change in control agreement, and each such agreement shall be deemed terminated and of no further effect as of the Effective Date.

6. *Executive's Release of the Company*. Executive understands that by agreeing to the release provided by this Section 6, Executive is agreeing not to sue, or otherwise file any claim against, the Company or any of its directors, officers, employees, investors or other agents for any reason whatsoever based on anything that is the subject of this release and that has occurred as of the date Executive signs this Agreement.

(a) *Released Claims.* On behalf of Executive and Executive's heirs, assigns, executors, administrators, trusts, spouse and estate, Executive hereby releases and forever discharges the "Releasees" hereunder, consisting of the Company and each of its owners, affiliates, subsidiaries, predecessors, successors, assigns, agents, directors, officers, partners, employees, and insurers, and all persons acting by, through, under or in concert with them, or any of them, of and from any and all manner of action or actions, cause or causes of action, in law or in equity, suits, debts, liens, contracts, agreements, promises, liability, claims, demands, damages, loss, cost or expense, transfer of any nature whatsoever, known Purchased Asset if such sale, assignment, or unknown, fixed transfer: (i) violates applicable Law; or contingent (hereinafter called "Claims"), which Executive now has (ii) without the consent or may hereafter have against the Releasees, or any waiver of them, by reason of any matter, cause, or thing whatsoever from the beginning of time to the date hereof, including, without limiting the generality of the foregoing, any Claims arising out of, based upon, or relating to Executive's hire, employment, remuneration or termination by the Releasees, or any of them, Claims arising under federal, state, or local laws relating to employment, Claims of any kind that may be brought in any court or administrative agency, including any Claims arising under Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000, et seq.; Americans with Disabilities Act, as amended, 42 U.S.C. § 12101 et seq.; the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 701 et seq.; the Age Discrimination in Employment Act, as amended, 29 U.S.C. § 621, et seq.; Civil Rights Act of 1866, and Civil Rights Act of 1991; 42 U.S.C. § 1981, et seq.; Equal Pay Act, as amended, 29 U.S.C. § 206(d); regulations of the Office of Federal Contract Compliance, 41 C.F.R. Section 60, et seq.; The Family and Medical Leave Act, as amended, 29 U.S.C. § 2601 et seq.; the Fair Labor Standards Act of 1938, as amended, 29 U.S.C. § 201 et seq.; the Employee Retirement Income Security Act, as amended, 29 U.S.C. § 1001 et seq.; the Worker Adjustment and Retraining Notification Act, as amended, 29 U.S.C. § 2101 et seq.; the California Fair Employment and Housing Act, as amended, Cal. Lab. Code § 12940 et seq.; the California Equal Pay Law, as amended, Cal. Lab. Code §§ 1197.5(a),199.5; the Moore-Brown-Roberti Family Rights Act of 1991, as amended, Cal. Gov't

Code §§12945.2, 19702.3; California Labor Code §§ 1101, 1102; the California WARN Act, California Labor Code §§ 1400 et. seq; California Labor Code §§ 1102.5(a),(b); Claims for wages under the California Labor Code and any other federal, state or local laws of similar effect; the employment and civil rights laws of California; Claims for breach of implied or express contract; Claims arising in tort, including, without limitation, Claims of wrongful dismissal or discharge, discrimination, harassment, retaliation, fraud, misrepresentation, defamation, libel, slander, defamation, infliction of emotional distress, violation of public policy, and/or breach of the implied covenant of good faith and fair dealing; and Claims for damages or other remedies of any sort, including, without limitation, compensatory damages, punitive damages, injunctive relief and attorney's fees.

(b) *Unreleased Claims.* Notwithstanding the generality of the foregoing, Executive does not release the following claims:

(i) Claims for unemployment compensation or any state disability insurance benefits pursuant to the terms of applicable state law;

(ii) Claims for workers' compensation insurance benefits under the terms of any worker's compensation insurance policy or fund of the Company;

(iii) Claims to continued participation in certain of the Company's group benefit plans pursuant to the terms and conditions of COBRA;

(iv) Claims to accrued but unpaid base salary or any benefit entitlements vested as the date Executive signs this Agreement, pursuant to written terms of any Company or affiliate employee benefit plan, program, or policy, including to vested equity awards;

(v) Claims for indemnification under any indemnification agreement, the Company's Bylaws or other organizational documents, applicable directors' and officers' insurance coverage, or any applicable law;

(vi) Executive's right to enforce the terms of this Agreement; and

(vii) Executive's right to bring to the attention of the Equal Employment Opportunity Commission claims of discrimination; *provided*, *however*, that Executive does release Executive's right to secure any damages for alleged discriminatory treatment.

(c) *Acknowledgement.* In accordance with the Older Workers Benefit Protection Act of 1990, Executive has been advised of the following:

(i) Executive should consult with an attorney before signing this Agreement;

(ii) Executive has been given at least twenty-one (21) days to consider this Agreement; and

(iii) Executive has seven (7) days after signing this Agreement to revoke it. If Executive wishes to revoke this Agreement, Executive must deliver notice of Executive's revocation in writing, no later than 5:00 p.m. on the 7th day following Executive's execution of this Agreement to Karen Frechou-Armijo at karen.armijo@codexis.com. Executive understands that if Executive revokes this Agreement, it will be null and void in its entirety, and Executive will not be entitled to any payments or benefits provided in this Agreement that are not otherwise required by applicable law.

(d) EXECUTIVE ACKNOWLEDGES THAT EXECUTIVE HAS BEEN ADVISED OF AND IS FAMILIAR WITH THE PROVISIONS OF CALIFORNIA CIVIL CODE SECTION 1542, WHICH PROVIDES AS FOLLOWS:

"A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY."

BEING AWARE OF SAID CODE SECTION, EXECUTIVE HEREBY EXPRESSLY WAIVES ANY RIGHTS EXECUTIVE MAY HAVE THEREUNDER, AS WELL AS UNDER ANY OTHER STATUTES OR COMMON LAW PRINCIPLES OF SIMILAR EFFECT.

7. Non-Disparagement, Transition and Transfer of Company Property. Executive further agrees that:

(a) *Non-Disparagement*. Executive agrees that Executive shall not disparage, criticize or defame the Company, its affiliates and their respective affiliates, directors, officers, agents, partners, stockholders, employees, products, services, technology or business, either publicly or privately. The Company agrees that it shall not, and shall instruct its officers and directors to not, disparage, criticize or defame Executive, either publicly or privately. Nothing in this Section 7(a) shall have application to any evidence or testimony required by any court, arbitrator or government agency.

(b) *Transition*. Each of the Company and Executive shall use their respective reasonable efforts to cooperate with each other in good faith to facilitate a smooth transition of Executive's duties to other executive(s) of the Company, including but not limited to assisting in the filing of the upcoming Form 10-K.

(c) *Transfer of Company Property*. On or before the Termination Date, Executive shall turn over to the Company all files, memoranda, records, and other documents, and any other physical or personal property which are the property of the Company and which Executive had in Executive's possession, custody or control at the time Executive signed this Agreement.

8. Executive Representations. Executive warrants and represents that (a) Executive has not filed or authorized the filing of any complaints, charges or lawsuits against the Company or any affiliate of the Company with any governmental agency or court, and that if, unbeknownst to Executive, such a complaint, charge or lawsuit has been filed on Executive's behalf, Executive will immediately cause it to be withdrawn and dismissed, (b) Executive has reported all hours worked as of the date of this Agreement and has been paid all compensation, wages, bonuses, commissions, and/or benefits to which Executive may be entitled and no other compensation, wages, bonuses, commissions and/or benefits are due to Executive, except as provided in this Agreement, (c) Executive has no known workplace injuries or occupational diseases and has been provided and/or has not been denied any leave requested under the Family and Medical Leave Act or any similar state law, (d) the execution, delivery and performance of this Agreement by Executive does not and will not conflict with, breach, violate or cause a default under any agreement, contract or instrument to which Executive Person who is a party or any judgment, order or decree to which Executive is subject, and (e) upon the execution and delivery of this Agreement by the Company and Executive, this Agreement will be a valid and binding obligation of Executive, enforceable in accordance with its terms.

9. No Assignment by Executive. Executive warrants and represents that no portion of any of the matters released herein, and no portion of any recovery or settlement to which Executive might be entitled, has been assigned or transferred to any other person, firm or corporation not a party to this Agreement or an Affiliate of a party to this Agreement would result in a breach or violation of an Assigned Contract, result in the termination, cancellation, or revocation of an Assigned Contract, or result in the creation of any manner, including by way of subrogation lien on any Purchased Asset, and such consent or operation of law waiver has not been obtained prior to the Closing.

(b) Following the Closing, Seller and Buyer shall use [***] efforts, and shall cooperate with each other, to obtain any such required consent or otherwise. If any claim, action, demand or suit should be made or instituted against the Company waiver, or any other Releasee because of release, substitution, or amendment required to assign all Liabilities under any actual assignment, subrogation or transfer by Executive, Executive agrees to indemnify and hold harmless the Company and all Assigned Contracts or other Releasees against Liabilities that constitute Assumed Liabilities; [***]. Once such claim, action, suit consent, waiver, release, substitution, or demand, including necessary expenses amendment is obtained, Seller shall promptly sell, assign, and transfer to Buyer the relevant Purchased Asset to which such consent, waiver, release, substitution, or amendment relates [***].

(c) To the extent that any Purchased Asset or Assumed Liability cannot be transferred to Buyer pursuant to this Section 1.09, Buyer and Seller shall use [***] efforts to enter into such arrangements (such as subleasing, sublicensing, or subcontracting) to provide to the parties the economic and, to the extent permitted under applicable Law, operational equivalent of investigation, attorneys' fees the transfer of such Purchased Asset or Assumed Liability to Buyer as of the Closing. Buyer shall, to the extent it receives the benefits of the applicable Purchased Asset, as agent or subcontractor for Seller, pay, perform, and costs. In discharge fully the event liabilities and obligations related to such Purchased Asset or Assumed Liability from and after the Closing Date. To the extent permitted under applicable Law, Seller shall, at Buyer's expense, hold in trust for and pay to Buyer promptly upon receipt thereof, all income, proceeds, and other monies received by Seller from and after the Closing Date, to the extent related to such Purchased Asset in connection with the arrangements under this Section 1.09. [***].

(d) The Parties acknowledge that the Assigned Contracts and Inventory set forth in Section 1.09(d) of Executive's death, the Disclosure Schedules, and Assumed Liabilities specifically related thereto were assigned and transferred to, and assumed by, Buyer prior to the date of this Agreement (such Assigned Contracts and Inventory, the "**Previously Transferred Assets**"and such Assumed Liabilities, the "**Previously Assumed Liabilities**").Such Previously Transferred Assets shall inure to the benefit be Purchased Assets and, as applicable, Assigned Contracts and Inventory for all purposes of Executive and Executive's executors, administrators, heirs, distributees, devisees, and legatees. None of Executive's rights or obligations may be assigned or transferred by Executive, this Agreement, other than Executive's rights the obligation of Seller to payments hereunder, which may be transferred only upon Executive's death by will or operation of law. assign and transfer the same at Closing, and

10. Governing Law. This Agreement

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

such Previously Assumed Liabilities shall be construed and enforced in accordance with, and the rights Assumed Liabilities for all purposes of the parties shall be governed by, the laws of the State of California or, where applicable, United States federal law, in each case, without regard to any conflicts of laws provisions or those of any state this Agreement, other than California.

11. Miscellaneous. Executive acknowledges that there are no other agreements, written, oral or implied, and that Executive may not rely on any prior negotiations, discussions,

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representations or agreements. This Agreement may be modified only in writing, and such writing must be signed by both parties and recited that it is intended the obligation of Buyer to modify this Agreement. This Agreement may be executed in separate counterparts, each of which is deemed to be an original and all of which taken together constitute one and assume the same agreement. at Closing.

12. Company Assignment and Successors. The Company shall assign its rights and obligations under this Agreement to any successor to all or substantially all of the business or the assets of the Company (by merger or otherwise). This Agreement shall be binding upon and inure to the benefit of the Company and its successors, assigns, personnel and legal representatives.

13. Maintaining Confidential Information Section 1.10 Withholding Taxes. Executive reaffirms Executive's obligations under [***]. [***]. The parties shall use [***] efforts to cooperate to mitigate or eliminate any such withholding. To the Confidentiality Agreement. For extent that amounts are so withheld and paid over to the appropriate Tax authority by Buyer, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the person in respect of which such deduction and withholding was made.

Section 1.11 Exploitation of Products.Seller agrees and acknowledges that [***]. Seller acknowledges and agrees that (a) [***], (b) [***], (c) [***], and (d) the parties solely intend the express provisions of this Agreement (and, for the avoidance of doubt, nothing in this Agreement or not the Confidentiality Agreement will be construed Existing Agreements) to prohibit Executive from filing a charge with, reporting possible violations to, or participating or cooperating with any governmental agency or entity, including but not limited to the EEOC, the Department of Justice, the Securities and Exchange Commission, Congress, or any agency Inspector General, or making other disclosures that are protected under the whistleblower, anti-discrimination, or anti-retaliation provisions of federal, state or local law or regulation; provided, however, that Executive may not disclose information of the Company or any of govern their affiliates that is protected by the attorney-client privilege, except as otherwise required by law. Executive does not need the prior authorization of the Company to make any such reports or disclosures, and Executive is not required to notify the Company that Executive has made such reports or disclosures. Furthermore, in accordance with 18 U.S.C. § 1833, notwithstanding anything to the contrary in the Confidentiality Agreement or this Agreement: (i) Executive will not be in breach of the Confidentiality Agreement or this Agreement, and will not be held criminally or civilly liable under any federal or state trade secret law (x) for the disclosure of a trade secret that is made in confidence to a federal, state, or local government official or to an attorney solely for the purpose of reporting or investigating a suspected violation of law, or (y) for the disclosure of a trade secret that is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal; and (ii) if Executive files a lawsuit for retaliation by the Company for reporting a suspected violation of law, Executive may disclose the trade secret to Executive's attorney, and may use the trade secret information in the court proceeding, if Executive files any document containing the trade secret under seal, and does not disclose the trade secret, except pursuant to court order.

14. Executive's Cooperation. After the Termination Date, Executive shall cooperate with the Company and its affiliates, upon the Company's reasonable request, contractual relationship with respect to any internal investigation or administrative, regulatory or judicial proceeding involving matters within the scope of Executive's duties and responsibilities to the Company or its affiliates during Executive's employment with the Company (including, without limitation, Executive being available to the Company upon reasonable notice for interviews and factual investigations, appearing at the Company's reasonable request to give testimony without requiring service of a subpoena or other legal process, and turning over to the Company all relevant Company documents which are or may have come into Executive's possession during Executive's employment); *provided*, *however*, that (i) any such request by the Company shall not be unduly burdensome or interfere with Executive's personal schedule or ability to engage in gainful employment and (ii) this provision shall not apply to any such investigation or proceeding that arises out of or relates to a dispute between Executive Purchased Assets and the Company and/or any of its affiliates or if Executive's reasonable interests are adverse to the Company or its affiliates in any such investigation or proceeding. The Company agrees to promptly pay or reimburse Executive upon demand for all

of Executive's reasonable travel and other direct expenses reasonably incurred, or to be reasonably incurred, to comply with Executive's obligations under this Section 14.

(Signature page(s) follow)

IN WITNESS WHEREOF, the undersigned have caused this Transition and Separation Agreement to be duly executed and delivered as of the date indicated next to their respective signatures below.

DATED: _____, 2023

_____

Ross Taylor

CODEXIS, INC.

DATED: _____, 2023

By: _____

Name:

Title:

[Signature page to Codexis, Inc. - Transition and Separation Agreement]

EXHIBIT A

GENERAL RELEASE OF CLAIMS

This General Release of Claims ("Release") is entered into as of _____, 2023, between Ross Taylor ("Executive") and Codexis, Inc., a Delaware corporation (the "Company" and, together with Executive, the "Parties"), effective as of the eighth (8th) day after the date of Executive's signature hereto.

1. Executive's Release of the Company. Executive understands that by agreeing to this Release, Executive is agreeing not to sue, or otherwise file any claim against, the Company or any of its directors, officers, employees, investors or other agents for any reason whatsoever based on anything that has occurred in connection with Executive's employment or other relationship with the Company and the conclusion of that employment or other relationship that the Company as of the date Executive signs this Release.

(a) On behalf of Executive and Executive's heirs, assigns, executors, administrators, trusts, spouse and estate, Executive hereby releases and forever discharges the "Releasees" hereunder, consisting of the Company and each of its owners, affiliates, subsidiaries, predecessors, successors, assigns, agents, directors, officers, partners, employees, and insurers, and all persons acting by, through, under or in concert with them, or any of them, of and from any and all manner of action or actions, cause or causes of action, in law or in equity, suits, debts, liens, contracts, agreements, promises, liability, claims, demands, damages, loss, cost or expense, of any nature whatsoever, known or unknown, fixed or contingent (hereinafter called "Claims"), which Executive now has or may hereafter have against the Releasees, or any of them, by reason of any matter, cause, or thing whatsoever from the beginning of time to the date hereof, including, without limiting the generality of the foregoing, any Claims arising out of, based upon, or relating to Executive's hire, employment, remuneration or resignation by the Releasees, or any of them, Claims arising under federal, state, or local laws relating to employment, Claims of any kind that may be brought in any court or administrative agency, including any Claims arising under Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000, et seq.; Americans with Disabilities Act, as amended, 42 U.S.C. § 12101 et seq.; the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 701 et seq.; the Age Discrimination in Employment Act, as amended, 29 U.S.C. § 621, et seq.; Civil Rights Act of 1866, and Civil Rights Act of 1991; 42 U.S.C. § 1981, et seq.; Equal Pay Act, as amended, 29 U.S.C. § 206(d); regulations of the Office of Federal Contract

Compliance, 41 C.F.R. Section 60, et seq.; the Family and Medical Leave Act, as amended, 29 U.S.C. § 2601 et seq.; the Fair Labor Standards Act of 1938, as amended, 29 U.S.C. § 201 et seq.; the Employee Retirement Income Security Act, as amended, 29 U.S.C. § 1001 et seq.; the Worker Adjustment and Retraining Notification Act, as amended, 29 U.S.C. § 2101 et seq.; the California Fair Employment and Housing Act, as amended, Cal. Lab. Code § 12940 et seq.; the California Equal Pay Law, as amended, Cal. Lab. Code §§ 1197.5(a),199.5; the Moore-Brown-Roberti Family Rights Act of 1991, as amended, Cal. Gov't Code §§12945.2, 19702.3; California Labor Code §§ 1101, 1102; the California WARN Act, California Labor Code §§ 1400 et. seq; California Labor Code §§ 1102.5(a),(b); Claims for wages under the California Labor Code and any other federal, state or local laws of similar effect; the employment and civil rights laws of California; Claims for breach of contract; Claims arising in tort, including, without limitation, Claims of wrongful dismissal or discharge, discrimination, harassment, retaliation, fraud, misrepresentation, defamation, defamation, infliction of emotional distress, violation of public policy, and/or breach of the implied covenant of good faith and fair dealing; and Claims for damages or other remedies of any sort, including, without limitation, compensatory damages, punitive damages, injunctive relief and attorney's fees.

(b) Notwithstanding the generality of the foregoing, Executive does not release the following claims:

(i) Claims to enforce Executive's rights under the Transition and Separation Agreement entered into between the Company and Executive on [_____], 2023 (the "Transition and Separation Agreement").

(ii) Claims for unemployment compensation or any state disability insurance benefits pursuant to the terms of applicable state law;

(iii) Claims for workers' compensation insurance benefits under the terms of any worker's compensation insurance policy or fund of the Company;

(iv) Claims to continued participation in certain of the Company's group benefit plans pursuant to the terms and conditions of COBRA;

(v) Claims to any benefit entitlements vested as the date of Executive's employment termination, pursuant to written terms of any Company or affiliate employee benefit plan, program or policy;

(vi) Claims for indemnification under the Company's Bylaws, California Labor Code Section 2802 or any other applicable law; and

(vii) Executive's right to bring to the attention of the Equal Employment Opportunity Commission claims of discrimination; *provided*, *however*, that Executive does release Executive's right to secure any damages for alleged discriminatory treatment.

(c) *Acknowledgement.* In accordance with the Older Workers Benefit Protection Act of 1990, Executive has been advised of the following:

(i) Executive should consult with an attorney before signing this Release;

(ii) Executive has been given at least twenty-one (21) days to consider this Release; and

(iii) Executive has seven (7) days after signing this Release to revoke it. If Executive wishes to revoke this Release, Executive must deliver notice of Executive's revocation in writing, no later than 5:00 p.m. on the 7th day following Executive's execution of this Release to Karen Frechou-Armijo at karen.armijo@codexis.com. Executive understands that if Executive revokes this Release, it will be null and void in its entirety, and Executive will not be entitled to any payments or benefits provided in the Transition and Separation Agreement, other than as provided in Sections 2 and 3 thereof.

(d) EXECUTIVE ACKNOWLEDGES THAT EXECUTIVE HAS BEEN ADVISED OF AND IS FAMILIAR WITH THE PROVISIONS OF CALIFORNIA CIVIL CODE SECTION 1542, WHICH PROVIDES AS FOLLOWS:

"A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY."

BEING AWARE OF SAID CODE SECTION, EXECUTIVE HEREBY EXPRESSLY WAIVES ANY RIGHTS EXECUTIVE MAY HAVE THEREUNDER, AS WELL AS UNDER ANY OTHER STATUTES OR COMMON LAW PRINCIPLES OF SIMILAR EFFECT.

2. Executive Representations. Executive warrants and represents that (a) Executive has not filed or authorized the filing of any complaints, charges or lawsuits against the Company or any of its affiliates with any governmental agency or court, and that if, unbeknownst to Executive, such a complaint, charge or lawsuit has been filed on Executive's behalf, Executive will immediately cause it to be withdrawn and dismissed, (b) Executive has been paid all compensation, wages, bonuses, commissions, and/or benefits to which Executive may be entitled and no other compensation, wages, bonuses, commissions and/or benefits are due to Executive, except as provided in Sections 2 and 3 of the Transition and Separation Agreement, (c) Executive has no known workplace injuries or occupational diseases and has been provided and/or has not been denied any leave requested under the Family and Medical Leave Act or any similar state law, (d) the execution, delivery and performance of this Release by Executive does not and will not conflict with, breach, violate or cause a default under any agreement, contract or instrument to which Executive is a party or any judgment, order or decree to which Executive is subject, and (e) upon the execution and delivery of this Release by the Company and Executive, this Release will be a valid and binding obligation of Executive, enforceable in accordance with its terms.

3. Maintaining Confidential Information.Executive reaffirms Executive's obligations under the Confidentiality Agreement (as defined in the Transition and Separation Agreement). Executive acknowledges and agrees that the payments provided in Section 3 of the Transition and Separation Agreement shall be subject to Executive's continued compliance with Executive's obligations under the Confidentiality Agreement. For the avoidance of doubt, nothing in this Release, the Transition and Separation Agreement or the Confidentiality Agreement will be construed to prohibit Executive from filing a charge with, reporting possible violations to, or participating or cooperating with any governmental agency or entity, including but not limited to the EEOC, the Department of Justice, the Securities and Exchange Commission, Congress, or any agency Inspector General, or making other disclosures that are protected under the whistleblower, anti-discrimination, or anti-retaliation provisions of federal, state or local law or regulation; *provided*, however, that Executive may not disclose information of the Company or any of their affiliates that is protected by the attorney-client privilege, except as otherwise required by law. Executive does not need the prior authorization of the Company to make any such reports or disclosures, and Executive is not required to notify the Company that Executive has made such reports or disclosures. Furthermore, in accordance with 18 U.S.C. § 1833, notwithstanding anything to the contrary in the Confidentiality Agreement, this Release or the Transition and Separation Agreement: (i) Executive will not be in breach of the Confidentiality Agreement, this Release or the Transition and Separation Agreement, and will not be held criminally or civilly liable under any federal or state trade secret law (x) for the disclosure of a trade secret that is made in confidence to a federal, state, or local government official or to an attorney solely for the purpose of reporting or investigating a suspected violation of law, or (y) for the disclosure of a trade secret that is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal; and (ii) if Executive files a lawsuit for retaliation by the Company for reporting a suspected violation of law, Executive may disclose the trade secret to Executive's attorney, and may use the trade secret information in the court proceeding, if Executive files any document containing the trade secret under seal, and does not disclose the trade secret, except pursuant to court order.

4. Cooperation With the Company. Executive reaffirms Executive's obligations to cooperate with the Company pursuant to Section 14 of the Transition and Separation Agreement.

5. Severability.The provisions of this Release are severable. If any provision is held to be invalid or unenforceable, it shall not affect the validity or enforceability of any other provision.

6. Choice of Law. This Release shall in all respects be governed and construed in accordance with the laws of the State of California, including all matters of construction, validity and performance, without regard to conflicts of law principles.

7. Integration Clause. This Release, the Transition and Separation Agreement and the Confidentiality Agreement contain the Parties' entire agreement with regard to the transition and separation of Executive's employment, and supersede and replace any prior

agreements as to those matters, whether oral or written, including the Offer Letter (as defined in the Transition and Separation Agreement). This Release may not be changed or modified, in whole or in part, except by an instrument in writing signed by Executive and the Chief Executive Officer of the Company.

8. Execution in Counterparts. This Release may be executed in counterparts with the same force and effectiveness as though executed in a single document. Facsimile signatures shall have the same force and effectiveness as original signatures.

9. Intent to be Bound. The Parties have carefully read this Release in its entirety; fully understand and agree to its terms and provisions; and intend and agree that it is final and binding on all Parties.

(*Signature page(s) follow*)

IN WITNESS WHEREOF, and intending to be legally bound, the Parties have executed the foregoing on the dates shown below.

DATED: _____, 2023

_____

Ross Taylor

DATED: _____, 2023

By: _____

CONFIDENTIAL

Certain information is this document, marked by brackets, has been omitted because it is both (i) not material and (ii) is the type that the registrant treats as private or confidential.

ENZYME SUPPLY AGREEMENT

THIS ENZYME SUPPLY AGREEMENT, including the exhibits attached hereto (the "**Agreement**"), effective as of October 30, 2021 (the "**Effective Date**"), is made and entered into by and between **Codexis, Inc.**, a Delaware corporation, having a place of business at 200 Penobscot Drive, Redwood City, California 94063, United States of America ("**Codexis**"), and Pfizer Ireland Pharmaceuticals, an Irish corporation, with its principal place of business at Operations Support Group, Ringaskiddy, Cork, Ireland, and its Affiliates ("**Pfizer**"). Codexis and Pfizer each may be referred to herein individually as a "**Party**," or collectively as the "**Parties.**"

WHEREAS, Codexis has proprietary rights in certain enzymes, chemical synthesis and biocatalysis process technology, and possesses certain valuable business and/or technical knowledge, information, and/or expertise, relating to enzymatically catalyzed manufacturing processes;

WHEREAS, Pfizer and its Affiliates are engaged in the business of manufacturing and supplying pharmaceutical ingredients and intermediates thereof and has proprietary rights in certain compounds, including the Intermediate and the Product, methods of manufacturing the Intermediate and the Product and methods of use of the Intermediate and the Product; and

WHEREAS, Codexis desires to supply Codexis Enzyme to Pfizerand its Affiliates, and Pfizer desires to use (whether through itself, its Affiliates or Pfizer Designees) such Codexis Enzyme in the manufacture and supply of Intermediate for use by Pfizer and its Affiliates in the manufacture and supply of Product to customers in the Territory, as more fully set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and obligations set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. DEFINITIONS

1.1 **"Accounting Standards"** means IFRS or U.S. GAAP, as applicable.

1.2 **"Acquisition Cost"** shall mean Pfizer's or it's Affiliate's [***], payable to Codexis during the Quarter for which the Acquisition Cost is being measured, to acquire a kilogram of Codexis Enzyme from either a Qualified Enzyme Manufacturing Facility (pursuant to Section 4.3(a)) or a Third Party Enzyme Manufacturing Facility (pursuant to Section 4.3 (c)) under a Technology Transfer for use by Pfizer and its Affiliates in the manufacture of Intermediate for use in the manufacture of Product, as such actual average cost is calculated in accordance with the Accounting Standards, consistently applied.

1.3 "**[***]**" Products. [***].

ARTICLE II
CLOSING

1.4 "**[***] Facility**" means, [***], the Qualified Enzyme Production Facility owned by [***] and located at [***].

1.5 **"Affiliate"** shall mean any entity that is controlled by, controls, or is under common control with a Party on or after the Effective Date, as the case may be. For purposes of this Section 1.5, the term "control" means (a) direct or indirect ownership of more than fifty percent (50%) of the voting interest in the entity in question, or more than fifty percent (50%) interest in the income of the entity in question; provided, however,

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that, if local law requires a minimum percentage of local ownership of greater than fifty percent (50%), control will be established by direct or indirect beneficial ownership of one hundred percent (100%) of the maximum ownership percentage that may, under local law, be owned by foreign interests, or (b) possession, directly or indirectly, of the power to direct or cause the direction of management or policies of the entity in question (whether through ownership of securities or other ownership interests, by contract or otherwise).

1.6 **"Agency"** shall mean any applicable local, national or supranational Government Authority involved in granting approvals for the manufacturing, marketing and/or pricing of Product.

1.7 **"Applicable Law"** shall mean all international, supranational, national, federal, state, provincial, regional and local laws, statutes, ordinances, codes, rules, regulations, orders, decrees or other pronouncements of any governmental, administrative or judicial authority having the effect of law, including, without limitation, Environmental Laws, and Global Trade Control Laws, in each case to the extent that the same are applicable to the performance by the Parties of their respective obligations under this Agreement.

1.8 **"[***]" [***] 2.01 Closing**.

1.9 **"Calendar Year"** shall mean any twelve (12) consecutive month period commencing on January 1 and ending December 31 during the Term. For example, Calendar Year 2022, for purposes of this Agreement, shall mean the period from January 1, 2022 through December 31, 2022.

1.10 **"Claims"** shall have the meaning set forth in Section 12.1.

1.11 **"Codexis Enzyme"** shall mean Codexis' proprietary CDX-616 lyophilized enzyme powder.

1.12 **"Codexis Enzyme Technology"** shall mean (a) the Licensed Patents, and (b) know-how and other information further to the Licensed Patents required to implement the manufacturing process of making Codexis Enzyme [***].

1.13 **"Codexis Inventions"** shall have the meaning set forth in Section 10.1.

1.14 **"Codexis Rolling Forecast"** shall have the meaning set forth in Section 2.4.

1.15 **"Codexis Technology"** shall mean (a) the Licensed Patents, and (b) know-how and other information further to the Licensed Patents required to implement the manufacturing process of making Intermediate from the Codexis Enzyme as described in [***].

1.16 **"Confidential Information"** shall mean any information of a confidential and/or proprietary nature, including without limitation the data, results, inventories, know-how, processes, machines, methods, developments, compositions of matter, inventions, invention disclosures, patent applications, proprietary materials and/or techniques, economic information, business or research strategies, purchase orders (and any information included therein), trade secrets, or other information of any type or kind, and material embodiments thereof, disclosed by a Party, either directly or indirectly to the

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other Party in written form marked "confidential," or in oral form if designated as "confidential" at the time of disclosure, or which, under the circumstances of disclosure, is reasonably apparent to be confidential.

1.17 **"Conflict Minerals"** means (a) cassiterite, columbite-tantalite (coltan), gold, wolframite, and the derivatives tantalum, tin and tungsten, and (b) any other mineral or its derivatives designated (i) by the U.S. Secretary of State as a Conflict Mineral for purposes of Rule 13p-1 under the Securities Exchange Act of 1934, as amended, or (ii) under any other conflict minerals regime to which Pfizer may become subject, in each case irrespective of the location of origin of the mineral or derivative metal.

1.18 **"Control"** shall mean, with respect to an item, information or intellectual property right, possession of the ability, whether arising by ownership or license, to grant a license or sublicense as provided for herein under such item, information or intellectual property right without violating the terms of a written agreement with any Third Party.

1.19 **"Environmental Laws"** means all laws or other legal requirements of any kind, whether currently in existence or hereafter promulgated, enacted, adopted or amended, relating to (i) safety (including occupational health and safety); (ii) pollution, conservation, preservation or protection of human health, drinking water, natural resources, biota and the environment; (iii) the introduction of any chemical substances, products or finished articles into the stream of commerce; (vi) the imposition of any discharge levy or other economic instrument to prevent or reduce discharge or Release of pollutants or Hazardous Materials; (v) the conduct of environmental impact assessment in connection with the design, development and operation of any facility or project; (vi) the notification, classification, registrations and labeling of new chemical substances; and/or (vii) the generation, use, storage, handling, treatment, transportation or disposal of Waste including without limitation any matters related to Releases or threatened Releases of Hazardous Materials.

1.20 **"Environmental Losses"** means any and all fines, penalties, costs, liabilities, damages or losses incurred by Pfizer or an Affiliate of Pfizer, or for which Pfizer or an Affiliate of Pfizer is liable or obligated pursuant to or in connection with any Environmental Law or Release or threatened Release of Hazardous Materials (i) arising out of the operation or ownership of Qualified Enzyme Manufacturing Facilities supplying Codexis Enzyme to Codexis or (ii) relating to, arising from, or in any way connected with testing, manufacture, packaging, generation, processing, storage, transportation, distribution, treatment, disposal or other handling of the Codexis Enzyme or materials used in the manufacture, packaging, handling or storage of the Codexis Enzyme, or associated by-products, raw materials, intermediates, Wastes or returned Codexis Enzyme, by Codexis, Affiliates of Codexis, or subcontractors of Codexis or such subcontractor's Affiliates, or their respective officers, directors, employees, agents or contractors.

1.21 **"Enzyme Specification(s)"** shall have the meaning set forth in Section 2.6.

1.22 **"Excluded List(s)"** means the Department of Health and Human Service's List of Excluded Individuals/Entities and the General Services Administration's Lists of Parties Excluded from Federal Procurement and Non-Procurement Programs.

1.23 **"Existing Order"** shall have the meaning set forth in Section 2.5(a).

1.24 **"FD&C Act"** means the United States Federal Food, Drug and Cosmetic Act and regulations promulgated thereunder, as each may be amended from time to time.

1.25 **"Global Trade Control Laws"** shall mean applicable economic sanctions, import, and export control laws, regulations, and orders.

1.26 **"Government Authority"** shall mean any supranational, national, regional, state or local government, court, governmental agency, authority, board, bureau, instrumentality, regulatory body, or other government entity, including without limitation any of the foregoing that is involved in the granting of approvals, licenses, registrations, or authorizations including but not limited to Regulatory Authority.

1.27 "**Government Official**" shall be broadly interpreted and means: (i) any elected or appointed non-U.S. Government official (e.g., a legislator or a member of a non-U.S. Government ministry); (ii) any employee or individual acting for or on behalf of a non-U.S. Government official, non-U.S. Government agency, or enterprise performing a function of, or owned or controlled by, a non-U.S. Government (e.g., a healthcare professional employed by a non-U.S. Government hospital or researcher employed by a non-U.S. Government university); (iii) any non-U.S. political party officer, candidate for non-U.S. public office, or employee or individual acting for or on behalf of a non-U.S. political party or candidate for public office; (iv) any employee or individual acting for or on behalf of a public international organization; (v) any member of a royal family or a member of a non-U.S. military, and (vi) any individual otherwise categorized as a Government Official under applicable Law.

1.28 **"Hazardous Materials"** means any and all materials (including without limitation substances, chemicals compounds, mixtures, products, byproducts, biologic agents, living or genetically modified materials, wastes, pollutants and contaminants), that (A) (i) are listed, classified, characterized or regulated pursuant to Environmental Laws; (ii) are identified, defined, or classified as "hazardous," "dangerous," "toxic," "pollutant," "contaminant," "waste," "irritant," "corrosive," "flammable," "radioactive," "reactive," "carcinogenic," "mutagenic," "bio-accumulative," or "persistent" in the environment; or (iii) harm, endanger or cause injury to human health, natural resources or the environment; or (B) petroleum products and their derivatives, asbestos-containing material, lead-based paint, polychlorinated biphenyls, urea formaldehyde, or viral, bacterial or fungal material.

1.29 **"IFRS"** shall mean International Financial Reporting Standards, consistently applied.

1.30 **"Initial Term"** shall have the meaning set forth in Section 11.1.

1.31 **"Intermediate"** shall mean methyl (1*R*,2*S*,5*S*) 6,6-dimethyl-3-azabicyclo[3.1.0]hexane-2-carboxylate hydrochloride (CAS # 565456-77-1) (Pfizer Identifier: PF-04349713-01).

1.32 "[***] **Facility**" shall mean the manufacturing facility owned by Pfizer or its Affiliates which has been Qualified to manufacture Codexis Enzyme for Pfizer and its Affiliates under a Technology Transfer and is located [***].

1.33 **"[***]"** [***].

1.34 **"[***] Facility"** means the Qualified Enzyme Manufacturing Facility owned by [***] and located at [***].

1.35 "**Latent Defect**" means defects in the Codexis Enzyme which are not readily discoverable based on, as applicable, Pfizer's, Pfizer Affiliates' or Pfizer Designees' normal incoming-goods inspections.

1.36 **"Licensed Patents"** means those patents listed at Exhibit 1.36.

1.37 **"Marketing Authorization"** shall mean, with respect to any country in the Territory, a marketing authorization or similar, registration or certification necessary to market Product in such country.

1.38 **"Minimum Order Quantity"** shall have the meaning set forth in Section 2.5(b).

1.39 **"[***]"** shall mean that certain [***].

1.40 **"New Order"** shall have the meaning set forth in Section 2.5(e).

1.41 **"New Qualified Enzyme Manufacturing Facility"** shall mean any new Qualified Enzyme Manufacturing Facility ([***]) that is Qualified after the Effective Date to manufacture and supply Codexis Enzyme for supply by Codexis to Pfizer and its Affiliates.

1.42 **"Order"** shall mean a binding commitment in writingthrough issuance of a purchase order, made by Pfizer or its Affiliates, to purchase a specified amount of Codexis Enzyme from Codexis. Orders may be either **Existing Orders** or **New Orders**.

1.43 **"Pfizer Designee'** shall mean a Third Party who is under written contract with either Pfizer or an Affiliate of Pfizer to perform one or more manufacturing activities in respect of manufacture of the Intermediate on behalf of Pfizer or its Affiliates. Pfizer Designee(s) are shown in Exhibit 1.43 which may be updated from time to time upon prior written notification by Pfizer to Codexis, subject to Codexis' approval within thirty days of receipt (such approval not to be unreasonably withheld and approval to be considered as given in absence of any negative response within such thirty days).

1.44 **"Pfizer Rolling Forecast"** shall have the meaning set forth in Section 2.4.

1.45 **"Third Party Enzyme Manufacturing Facility"** shall mean a Third Party manufacturing facility (other than a Qualified Enzyme Manufacturing Facility) which is under written contract with Pfizer or an Affiliate of Pfizer to manufacture and supply Codexis Enzyme to Pfizer and its Affiliates under a Technology Transfer.

1.46 **"Product"** shall mean (1R,2S,5S)-N-{(1S)-1-cyano-2-[(3S)-2-oxopyrrolidin3-yl]ethyl}-6,6-dimethyl-3-[3-methyl-N-(trifluoroacetyl)-L-valyl]-3-azabicyclo[3.1.0]hexane-2-carboxamide ("nirmatrelvir") (CAS # 2628289040-8) (Pfizer Identifier: PF-07321332).

1.47 **"Qualified,"** and the correlative terms "Qualification,", "Qualify" and "Qualifying," shall mean, in relation to a facility seeking to manufacture Codexis Enzyme under this Agreement, a facility meeting the then required standards for quality and quality assurance established by Codexis for the manufacture of Codexis Enzyme,

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which has produced, at commercially relevant scale, Codexis Enzyme which meets the Enzyme Specification and which Codexis Enzyme has been tested by Pfizer, its Affiliates and/or its Pfizer Designee manufacturing Intermediate for Pfizer and confirmed in writing (e-mail being acceptable) by Pfizer as acceptable for use in the manufacture of Intermediate.

1.48 **"Qualified Enzyme Manufacturing Facility"** shall mean a manufacturing facility that has been Qualified to manufacture and supply Codexis Enzyme for supply by Codexis to Pfizer and its Affiliates. Qualified Enzyme Manufacturing Facilities include the [***] Facility and, [***], the [***] Facility and any New Qualified Enzyme Manufacturing Facility.

1.49 **"Quarter"** shall mean each of the three consecutive calendar months ending March 31, June 30, September 30, and December 31.

1.50 "**Regulatory Authority**"means the FDA with respect to the United States and the corresponding agencies or authorities responsible for regulation of the Product with respect to jurisdictions in the applicable country in the Territory other than the United States where the Product is to be marketed and sold.

1.51 **"Release"** means the release, spill, emission, leaking, pumping, pouring, emptying, escaping, dumping, injection, deposit, disposal, discharge, dispersal, leaching or migration into the indoor or outdoor environment, including the uncontrolled presence or the movement of Hazardous Materials through the ambient air, soil, subsurface water, groundwater, wetlands, lands or subsurface strata or threat thereof.

1.52 **"Renewal Term"** shall have the meaning set forth in Section 11.1.

1.53 **"Restricted Market(s)"** for purposes of this Agreement means the Crimean Peninsula, Cuba, the Donbass Region, Iran, North Korea, and Syria, or any other country or region subject to sanctions by the United States or European Union.

1.54 **"Restricted Party(ies)"** for purposes of this Agreement means the means an individual or entity on the list of sanctioned entities maintained by the United Nations; the Specially Designated Nationals List and the Sectoral Sanctions Identifications List of the U.S. Treasury Department's Office of Foreign Assets Control; the U.S. Denied Persons List, the U.S. Entity List, and the U.S. Unverified List of the U.S. Department of Commerce; entities subject to restrictive measures and the Consolidated List of Persons, Groups and Entities Subject to E.U. Financial Sanctions, as implemented by the E.U. Common Foreign and Security Policy; the List of Excluded Individuals / Entities published by the U.S. Health and Human Services Office of Inspector General; any lists of prohibited or debarred parties established under the U.S. Federal Food Drug and Cosmetic Act; the list of parties suspended or debarred from contracting with the U.S. government; and similar lists of restricted parties maintained by the governmental entities of the countries that have jurisdiction over the activities conducted under this Agreement.

1.55 "**Retest Date**" means for each lot of the Codexis Enzyme the required retest date as specified on the CoA of such lot, and "**Retest Period**" shall mean the period from delivery of the Enzyme until the first Retest Date and subsequent to the first Retest Date the period between Retest Dates.

1.56 **"Section 4.3 Replacement Quantities"** means those quantities of Codexis Enzyme (i) which are purchased by or for Pfizer or its Affiliates directly from a Qualified Enzyme Manufacturing Facility (pursuant to Section 4.3(a)), (ii) self-manufactured by Pfizer (or Pfizer Inc.) at the [***] Facility (pursuant to Section 4.3(b)), or (iii) sourced by Pfizer or its Affiliates from a Third Party Enzyme Manufacturing Facility (pursuant to Section 4.3(c)).

1.57 **"Section 4.6(a) Use Fee"** shall have the meaning set forth in Section 4.6(a).

1.58 **"Section 4.6(b) Use Fee"** shall have the meaning set forth in Section 4.6(b).

1.59 **"Services"** means the manufacturing, testing, and packaging of Codexis Enzyme to the applicable Enzyme Specification.

1.60 **"Technology Transfer"** shall mean a technology transfer (pursuant to Section 4.5 or Section 5.4) by Codexis of technology and know-how reasonably necessary for the manufacture of the Codexis Enzyme at the [***] Facility or at a Third Party Enzyme Manufacturing Facility.

1.61 **"Term"** shall have the meaning set forth in Section 11.1.

1.62 **"Territory"** shall mean all of the countries of the world.

1.63 **"Third Party"** (and with its correlative meaning, "**Third Parties**") shall mean any party other than Codexis, Pfizer, or an Affiliate of either Codexis or Pfizer.

1.64 **"Trigger Event"** means (a) any failure by Codexis to supply the quantities of Codexis Enzyme which are the subject of an Existing Order or an accepted New Order [***] or (b) the good faith belief by Codexis that it will not be capable of supplying the quantities of Codexis Enzyme which are the subject of an Existing Order on or before the delivery date(s) set forth in the Existing Order [***] or (c) the good faith belief by Codexis that it is not capable during any [***] period of supplying to Pfizer or its Affiliates a cumulative quantity of Codexis Enzyme equivalent to [***].

1.65 **"U.S."** means the 50 States of the United States of America, the District of Columbia, and U.S. territories.

1.66 **"U.S. GAAP"** means United States generally accepted accounting principles, consistently applied.

1.67 **"Waste"** means all wastes which arise from the manufacture, handling or storage by Codexis, Affiliates of Codexis, or subcontractors of Codexis or such subcontractor's Affiliates, or their respective officers, directors, employees, agents or contractors, of the Codexis Enzyme hereunder, or which is otherwise produced through the operations of Codexis, Affiliates of Codexis, or subcontractors of Codexis or such subcontractor's Affiliates, or their respective officers, directors, employees, agents or contractors. or such through implementation of this Agreement including Hazardous Materials.

2. ENZYME SUPPLY

2.1 **Codexis Enzyme Supply.** Subject to the terms and conditions of this Agreement, Codexis the consummation of the transactions contemplated by this Agreement (the "**Closing**") shall supply Codexis Enzyme take place remotely by exchange of documents and signatures (or their electronic counterparts), on January 5th, 2024 at 8:00 a.m. PST, provided that all of the conditions to Pfizer, its Affiliates Closing set forth in ARTICLE VI are either satisfied or waived by the party entitled to the benefits of such conditions on such date (other than conditions, which by their nature, are to be satisfied on the Closing Date, but subject to the satisfaction of such conditions on the Closing Date or waiver by the party entitled to the benefits of such conditions), or at such other time or place or in such other manner as Seller and Buyer may mutually agree upon in writing. The date on which the Closing is to occur is herein referred to as the "**Closing Date**."Each party shall use [***] efforts to satisfy all conditions to Closing set forth in ARTICLE VI that are within such party's control, obtain all internal approvals and complete all internal procedures necessary to proceed to Closing, and otherwise proceed to Closing as soon as possible after the Effective Date.

Section 2.02 Closing Deliverables.

(a) At the Closing, Seller shall deliver to Buyer the following:

(i) a bill of sale in the form of **Exhibit C** attached hereto and made a part hereof (the "**Bill of Sale**")duly executed by Seller, transferring the Inventory, Acquired Books and Records, and any other tangible Purchased Assets to Buyer;

(ii) an assignment and assumption agreement in the form of **Exhibit D** attached hereto and made a part hereof (the "**Assignment and Assumption Agreement**")duly executed by Seller, effecting the assignment to and assumption by Buyer of the Purchased Assets and the Pfizer Designees Assumed Liabilities;

(iii) an assignment in the form of **Exhibit E** attached hereto and made a part hereof (the "**Patent Assignment**")duly executed by Seller, transferring all of Seller's right, title, and interest in and to the Purchased Patents to Buyer; and

(iv) a license agreement in the form of **Exhibit F** attached hereto and made a part hereof (the "**Expression System License Agreement**"and, collectively with this

Agreement, the Assignment and Assumption Agreement, and the Patent Assignment, the "**Transaction Documents**")duly executed by Seller;

(v) a duly executed signature page to the A&P Acquisition Agreement, to be held in escrow subject to and in accordance with Orders placed Section 9.02;

(vi) a properly completed IRS Form W-9; and

(vii) a certificate, dated the Closing Date and signed by Pfizer a duly authorized officer of Seller, that each of the conditions set forth in Section 6.01(a) and Section 6.01(b) have been satisfied.

(b) At the Closing, Buyer shall deliver to Seller the following:

(i) the Assignment and Assumption Agreement duly executed by Buyer;

(ii) the Patent Assignment duly executed by Buyer;

(iii) the Expression System License Agreement duly executed by Buyer;

(iv) the Initial Purchase Price by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions set forth on Section 2.02(b)(iv) of the Disclosure Schedules; and

(v) a certificate, dated the Closing Date and signed by a duly authorized officer of Buyer, that each of the conditions set forth in Section 6.02(a) and Section 6.02(b) have been satisfied.

Section 2.03 Delivery of Records.Promptly and in any eventwithin [***] after the Closing Date, Seller shall deliver to Buyer copies of the Acquired Regulatory Documentation and the Acquired Books and Records via virtual data room or other file-share platform reasonably acceptable to Buyer (or such other method as mutually agreed by the parties), provided that Seller shall have no obligation to deliver to Buyer any such Acquired Regulatory Documentation or Acquired Books and Records that are already in Buyer's or its Affiliates possession or that are publicly available.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF SELLER

Except as set forth in the Disclosure Schedules, Seller represents and Pfizer shall purchase from Codexis, warrants to Buyer that the statements contained in this ARTICLE III are true and cause Pfizer's Affiliates correct as of the date hereof.

Section 3.01 Organization and Authority of Seller.Seller is a corporation duly organized,validly existing, and in good standing under the Laws of the State of Delaware. Seller has all necessary corporate power and authority to purchase from Codexis, all of Pfizer's, its Affiliates' enter into this Agreement and the Pfizer Designees' requirements for Codexis Enzyme, for use in other Transaction Documents to which Seller is a party, to carry out its obligations hereunder and thereunder, and to consummate the manufacture transactions contemplated hereby and thereby. The execution and delivery by Seller of Intermediate this Agreement and any other Transaction Document to which Seller is a party, the performance by or for Pfizer, Seller of its Affiliates or obligations hereunder and thereunder, and the Pfizer Designees for use in consummation by Seller of the manufacture transactions contemplated hereby and sale thereby have been duly authorized by all requisite corporate action on the part of Product in Seller. This Agreement and the Territory during the Term. Transaction Documents constitute legal, valid, and binding obligations of Seller enforceable against Seller

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

2.2 Section 3.02 No Conflicts or Consents Terms. The execution, delivery, and Conditions. performance by Seller of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Seller; (b) violate or breach any provision of any Law or Governmental Order applicable to Seller or the Purchased Assets; (c) except as set forth in Section 3.02 of the Disclosure Schedules, require the consent, notice, or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any Assigned Contract; or (d) except as set forth in Section 3.02 of the Disclosure Schedules, require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority; except, in the cases of clauses (b) and

(c), where the violation, breach, conflict, default, acceleration, or failure to obtain consent or give notice would not have a Material Adverse Effect and, in the case of clause (d), where such consent, permit, Governmental Order, filing, or notice which, in the aggregate, would not have a Material Adverse Effect.

Section 3.03 Intellectual Property All supply .Section 3.03 of Codexis Enzyme the Disclosure Schedules contains a current and complete list of all Purchased Patents, specifying as to each, as applicable: the title; the jurisdiction by Codexis or in which it has been issued, registered, or filed; the patent, registration or application serial number; and the issue, registration, or filing date. The Purchased Patents constitute all currently-existing Patents owned by Seller that [***] for the Manufacturing or use of CDX-7108 as it currently exists, other than any Patents covered by the Expression System License Agreement. Except for the Purchased Patents and any Patents covered by the Expression System License Agreement, Seller Controls no Patents that [***] for the Manufacturing or use of, CDX-7108 as it currently exists. Other than with respect to Pfizer, any ownership right, title, or interest of Buyer or any of its Affiliates, Seller owns all right, title, and interest in and to the Purchased Patents and Seller has not granted any license or other right under Orders placed any of the Purchased Patents to any Third Party other than to service providers under the Assigned Contracts. All assignments and other instruments necessary to establish and record Seller's ownership interest in the Purchased Patents have been executed, delivered, and filed with the relevant Governmental Authorities and authorized registrars. All required filings and fees related to the Purchased Patents due and payable prior to the Effective Date have been submitted with and paid to the relevant Governmental Authorities and authorized registrars. To Seller's Knowledge, (a) no Person is infringing any Purchased Patents, and (b) except as set forth on Section 3.03(b) of the Disclosure Schedules, there are no actual or threatened claims that (i) the currently-listed inventorship of the Purchased Patents is incorrect, (ii) CDX-7108 (as existing on the date hereof) infringes any Third Party intellectual property rights or (iii) the use of the Codexis Expression System (as defined in the Expression System License Agreement) to manufacture any Cell Bank (as defined in the Expression System License Agreement) or CDX-7108 as it currently exists infringes any Third Party intellectual property rights.

Section 3.04 Assigned Contracts.

(a) Correct and complete copies of each Assigned Contract, have been made available to Buyer and its Representatives, including all amendments and modifications and side agreements relating thereto.

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

(b) Except as set forth on Section 3.04 of the Disclosure Schedules: (i) each of the Assigned Contracts represents a legal, valid and binding obligation of Seller and, to Sellers' Knowledge, each other party thereto, and is enforceable against Seller and, to Seller's Knowledge, each other party thereto, in accordance with its terms, and is in full force and effect, and (ii) none of Seller or, to Seller's Knowledge, any other party thereto is in material breach of, or material default under, or has provided or received any notice of any intention to terminate, any of the Assigned Contracts, or has committed or failed to perform any act which, with or without notice, lapse of time or both would constitute a material breach of or material default under any of the Assigned Contracts.

Section 3.05 Title to Inventory.Seller has good and valid title to all Inventory included in the Purchased Assets, free and clear of any lien, charge, claim, pledge, security interest, or other similar encumbrance ("collectively, "**Encumbrances**"),except for: (a) liens for Taxes not yet due and payable or being contested in good faith by Pfizer appropriate procedures; (b) mechanics', carriers', workmen's, repairmen's, warehouse, or other like liens arising or incurred in the ordinary course of business; and (c) liens arising under original purchase price conditional sales contracts with third parties entered into in the ordinary course of business (collectively, "**Permitted Encumbrances**").

Section 3.06 Legal Proceedings; Governmental Orders.

(a) Except as set forth in Section 3.06(a) of the Disclosure Schedules, there are no material claims, actions, suits, investigations, or other legal proceedings (collectively, "**Actions**")pending or, to Seller's Knowledge, threatened against or by Seller or its Affiliates relating to or affecting the Pfizer Designees, shall be subject Purchased Assets or the Assumed Liabilities.

(b) Except as set forth in Section 3.06(b) of the Disclosure Schedules, there are no outstanding Governmental Orders against, relating to, or affecting the terms and conditions of this Agreement. Any terms of Purchased Assets, which would have a Material Adverse Effect.

Section 3.07 Brokers.No broker, finder, or investment banker is entitled to any Order brokerage, finder's, or acknowledgement given other fee or received which are inconsistent commission in connection with the transactions contemplated by this Agreement given by either Party shall have no effect, and such terms are hereby excluded and rejected.

2.3 Restricted Rights. Codexis Enzyme transferred to Pfizer, its Affiliates and the Pfizer Designees (under Orders placed by Pfizer or its Affiliates) under this Agreement is intended to be used solely for the manufacture of Intermediate any other Transaction Document based upon arrangements made by or on behalf of Pfizer, Seller or any of its Affiliates Affiliates.

Section 3.08 No Other Representations and Warranties.Except for the representations and warranties contained in this ARTICLE III (including the related portions of the Disclosure Schedules), neither Seller nor any other Person has made or makes any other express or implied representation or warranty,

either written or oral, on behalf of Seller, including any representation or warranty as to the accuracy or completeness of any information, documents, or material regarding the Products and the Pfizer Designees Purchased Assets furnished or made available to Buyer and its Representatives in any form (including any information, documents, or material delivered or made available to Buyer on behalf of Seller for use purposes of this Agreement), or as to the future revenue, profitability, or success of the Products, or any representation or warranty arising from statute or otherwise in Law.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF BUYER

Except as set forth in the manufacture Disclosure Schedules, Buyer represents and sale warrants to Seller that the statements contained in this ARTICLE IV are true and correct as of Product the date hereof

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

Section 4.01 Organization and Authority of Buyer.Buyer is a *société anonyme* duly organized, validly existing and in good standing under the Territory Laws of Switzerland. Buyer has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Buyer is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Buyer of this Agreement and any other Transaction Document to which Buyer is a party, the performance by Buyer of its obligations hereunder and thereunder, and the consummation by Buyer of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Buyer. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Buyer enforceable against Buyer in accordance with the their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and conditions by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 4.02 No Conflicts; Consents.The execution, delivery, and performance by Buyer of this Agreement. Codexis Enzyme transferred to Pfizer, its Affiliates Agreement and the Pfizer Designees other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Buyer; (b) violate or breach any provision of any Law or Governmental Order applicable to Buyer; (c) require the consent, notice or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any agreement to which Buyer is a party; or (d) require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority by or with respect to Buyer.

Section 4.03 Solvency; Sufficiency of Funds.Immediately after giving effect to the transactions contemplated hereby, Buyer shall be solvent and shall: (a) be able to pay its debts as they become due; (b) own property that has a fair saleable value greater than the amounts required to pay its debts (including a reasonable estimate of the amount of all Liabilities); and (c) have adequate capital to carry on its business. No transfer of property is being made and no obligation is being incurred in connection with the transactions contemplated hereby with the intent, on the part of Buyer, to hinder, delay, or defraud either present or future creditors of Buyer or Seller. In connection with the transactions contemplated hereby, Buyer has not incurred, nor plans to incur, debts beyond its ability to pay as they become absolute and matured.

Section 4.04 Legal Proceedings.There are no Actions pending or, to Buyer's knowledge, threatened against or by Buyer that challenge or seek to prevent, enjoin, or otherwise delay the transactions contemplated by this Agreement.

Section 4.05 Brokers.No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement is not intended or any other Transaction Document based upon arrangements made by or on behalf of Buyer or any of its Affiliates.

Section 4.06 Independent Investigation.Buyer has conducted its own independent investigation, review, and analysis of the Products and the Purchased Assets, and acknowledges that it has been provided adequate access to the personnel, properties, assets, premises, books and records, and other documents and data of Seller for use as a biocatalyst for other chemical reactions. such purpose. Buyer acknowledges and agrees that: (a) in making its decision to enter into this Agreement and to consummate the transactions contemplated hereby, Buyer has relied solely upon its own investigation and the express representations and warranties of Seller set forth in ARTICLE III of this Agreement (including related portions of the Disclosure Schedules); and (b)

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neither Seller nor any other distribution, use, Person has made any representation or other exploitation of Codexis Enzyme not in accordance with warranty as to Seller, the Products, the Purchased Assets, or this Agreement, shall be considered except as expressly set forth in ARTICLE III of this Agreement (including the related portions of the Disclosure Schedules).

Section 4.07 Other Representations and Warranties.Except for the representations and warranties contained in this ARTICLE IV, neither Buyer nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Buyer, including any representation or warranty as to be unlicensed the accuracy or completeness of any information, documents, or material furnished or made available to Seller and are hereby prohibited. Pfizer, its Affiliates and Representatives in any form (including any information, documents, or material delivered or made available to Seller on behalf of Buyer for purposes of this Agreement) or any representation or warranty arising from statute or otherwise in Law.

ARTICLE V
COVENANTS

Section 5.01 Certain Activities Prior to the Pfizer Designees shall not transfer any Codexis Enzyme to any Third Party (except to a Pfizer Designee, in which event Pfizer shall ensure that such Pfizer Designee complies with Pfizer's obligations under this Section 2.3, Section 2.8, Section 2.9, Section 2.14, Section 10.1 and Article 8) Closing. Pfizer, its Affiliates and From the Pfizer Designees shall not manufacture Codexis Enzyme or acquire Codexis Enzyme from any Third Party, Effective Date until the Closing, except as otherwise provided in the Agreement.

2.4 Forecasts. this Agreement, or consented to in writing by Buyer (which consent shall not be unreasonably withheld, conditioned, or delayed), Seller shall use [***]. Therefore, [***], Pfizer agrees efforts to provide maintain and preserve intact all Purchased Assets, and, without limiting the generality of the foregoing, shall not during such period:

(a) sell, assign, lease, transfer, abandon, fail to Codexis [***] a written (e-mail is acceptable), good faith, non-binding, rolling forecast maintain, permit to lapse, grant any license or sublicense under or with respect to, or otherwise dispose of Pfizer's, its Affiliates' and any of the Pfizer Designees' anticipated demand Purchased Assets;

(b) create, incur or otherwise allow the imposition of any Encumbrance upon any of the Purchased Assets, except for quantities (in kg) Permitted Encumbrances; or

(c) agree in writing to do any of Codexis Enzyme (" the foregoing.

Section 5.02 Supplement to Disclosure Schedules Pfizer Rolling Forecast .") for the upcoming [***] and Codexis agrees From time to provide to Pfizer [***] a written (e-mail is acceptable), good faith, non-binding, rolling forecast of Codexis' anticipated production capacity (in kg) for Codexis Enzyme which is available to Pfizer ("**Codexis Rolling Forecast**") for the upcoming [***]. The Pfizer Rolling Forecast and the Codexis Rolling Forecast will be delivered time prior to the other Party not later than [***] after the start of the first Quarter of the [***] forecast period and shall be updated as significant changes occur. See also Exhibit 3.1 for requirements for a separate annual forecast for pricing purposes.

2.5 Orders.

(a) Existing Orders. As of May 18, 2022, Pfizer or its Affiliates have placed with Codexis firm, binding, and non-cancelable written purchase orders for Codexis Enzyme as shown in Exhibit 2.5(a) ("**Existing Orders**"). The Existing Orders have been accepted by Codexis and at the time of acceptance constituted firm, binding and non-

cancelable purchase and sale obligations on the part of Codexis and Pfizer or its Affiliates.

(b) Existing Non-Cancelable Orders. As of the Effective Date, the Existing Orders listed in Exhibit 2.5(b) ("**Existing Non-Cancelable Orders**") continue to constitute firm, binding, and non-cancelable purchase and sale obligations on the part of Codexis and Pfizer or its Affiliates. The Existing Non-Cancelable Orders may not be changed or canceled.

(c) Existing Canceled Orders. As of the Effective Date, and subject to the provisions of Section 2.5(d), the Existing Orders listed in Exhibit 2.5(c) ("**Existing Canceled Orders**") are, by mutual agreement of Codexis and Pfizer or its Affiliates, canceled and no longer constitute firm, binding, and non-cancelable purchase obligations on the party of Codexis and Pfizer or its Affiliates.

(d) Retainer Fee.

(i) In consideration for cancelation of the Existing Canceled Orders, Pfizer shall pay to Codexis the following mutually agreed, non-refundable, non-creditable (except as provided in Section 2.5(d)(ii) and Section 2.5(d)(iii)) retainer fee (not as a penalty):

Retainer Fee for [***] ("**Retainer Fee")**	**US$25,880,000.00**

Codexis shall invoice Pfizer for the Retainer Fee within [***] of the Effective Date. Pfizer shall ensure the Retainer Fee payment is received by Codexis full by [***].

(ii) A total of 90% of the Retainer Fee paid by Pfizer to Codexis as provided in Section 2.5(d)(i) (i.e., US$23,292,000.00) ("**Creditable Amount**") is creditable against:

(a) [***] of the Adjusted Enzyme Price of any New Order(s) (as defined in Section 2.5(e)) placed by Pfizer or its Affiliates with and accepted by Codexis with a scheduled ship date (as reflected on the New Order) prior to December 31, 2023; and

(b) [***] of any fees invoiced by Codexis to Pfizer during the period January 1, 2022 through December 31, 2023 under mutually acceptable, executed, written definitive collaborative development(s)/licensing agreement(s) (not including this Agreement) executed by Codexis and Pfizer from the Effective Date through December 31, 2022. For clarity, such agreements may include standalone purchase orders.

(iii) A total of 50% of any portion of the Retainer Fee which has not been credited after the issuance of credits pursuant to Section 2.5(d)(ii) is creditable against the Adjusted Enzyme Price of any New Order(s) (as defined in Section 2.5(e)) placed by Pfizer or its Affiliates with and accepted by Codexis with a scheduled ship date (as reflected on the New Order) between January 1, 2024 and December 31, 2024.

(iv) Any portion of the Retainer Fee which had not been credited in the manner specified in Section 2.5(d)(ii) or Section 2.5(d)(iii) is non-creditable and non-refundable and will be retained by Codexis.

(e) New Orders. At any time during the Term, Pfizer or its Affiliates may place with Codexis a new written purchase order for Codexis Enzyme ("**New Order**"). Pfizer and its Affiliates are under no obligation to place New Orders. Unless otherwise agreed in writing (e-mail is acceptable), all New Orders shall be for a minimum of [***] of Codexis Enzyme and shall be in full lot quantities packaged in [***] ("**Minimum Order Quantity**").

(f) New Orders Acceptance. For New Orders which are for delivery of a quantity of Codexis Enzyme [***] and which [***], Codexis shall be deemed to have accepted the New Order. For New Orders which do not (i) [***] or which (ii) when the quantity of Codexis Enzyme which is the subject of the New Order is [***] and then existing New Orders then in place [***], Codexis Closing, Seller shall have the right [***] (but not the obligation) to reject supplement or amend the New Order [***] Disclosure Schedules hereto with respect to any matter hereafter arising after the Effective Date (each a "**Schedule Supplement**"),in which case, Codexis Seller shall promptly, and Pfizer and its Affiliates shall work together in good faith any event prior to establish alternative delivery date(s) and/or alternative order quantities which can be accepted by Codexis. Once accepted by Codexis, each New Order shall become Closing, deliver a firm, binding and non-cancelable purchase and sale obligation on revised version of the part of Codexis and Pfizer and its Affiliates and may not be changed or canceled except by mutual written consent. Each New Order shall specify the following:

1. [***];
2. [***];
3. [***]; and
4. [***].

(g) Form of Order. All New Orders shall be governed by the terms and conditions of this Agreement and any term or condition set forth in a New Order or acknowledgement that would materially amend or supplement the terms and conditions of this Agreement is rejected and without effect.

All of Pfizer's and its Affiliates' orders for Codexis Enzyme shall be made pursuant Disclosure Schedules to such written New Order form and shall provide for shipment in compliance with Section 2.8.

2.6 Enzyme Specification. Codexis shall manufacture and supply Codexis Enzyme in accordance with the Enzyme Specification (the "**Enzyme Specification(s)**") attached under **Exhibit 2.6**. The Parties may amend the Enzyme Specification(s) from time to time [***]. Codexis Enzyme shall be manufactured in accordance with appropriate quality controls, as may be mutually agreed upon by the Parties in a separate written Quality Agreement. Upon mutual execution of any Quality Agreement, such Quality Agreement shall be incorporated as an addendum to this Agreement. Buyer. [***].

Section 5.03 Confidentiality.

2.7 (a) Retest Period. Nondisclosure Except with . Each party agrees that, during the prior written consent Term and thereafter, a party (the "**Receiving Party**")receiving Confidential Information of Pfizer, Codexis shall not make the other party (the "**Disclosing Party**")(or that has received any delivery of Codexis Enzyme (i) [***] such Confidential Information from the other party prior to the delivery date of the Codexis Enzyme to Pfizer, its Affiliates or Pfizer Designees, and (ii) for which the Retest Date is Effective Date) shall (i) maintain in confidence such Confidential Information using not less than [***] after the delivery date of the Codexis Enzyme to Pfizer, its Affiliates or Pfizer Designees. Pfizer, its Affiliates and the Pfizer Designees shall have the right to refuse delivery of any Codexis Enzyme which does not meet the requirements of this Section 2.7. With Pfizer's consent, which will not be unreasonably withheld or delayed, Codexis will have the right to [***].

2.8 Delivery and Storage of Codexis Enzyme. Subject to Section 2.5, Codexis shall deliver to Pfizer, the Pfizer Affiliates or the Pfizer Designees the amount of Codexis Enzyme specified in each New Order no later than the date(s) specified therein. All Codexis Enzyme shall be shipped by Codexis [***]. Codexis shall provide any documentation required for shipment of Codexis Enzyme ([***]). Pfizer, its Affiliates and the Pfizer Designees shall store, handle and maintain the Codexis Enzyme in accordance with storage instructions as determined by Codexis (currently [***]), which storage instructions may be amended from time to time by Codexis in advance in writing. Pfizer, its Affiliates and the Pfizer Designees shall bear any and all costs from failure to comply with efforts such storage instructions, including without limitation any payments required for additional quantities of Codexis Enzyme purchased by Pfizer or its Affiliates due to such failure.

2.9 Inspection. Prior to shipment of any Codexis Enzyme, Codexis and/or any Third Receiving Party referenced in Section 2.15 shall test and inspect such shipment to ensure compliance with the applicable Enzyme Specification. Upon receipt of shipment of Codexis Enzyme, Pfizer, Pfizer Affiliate(s) or Pfizer Designee(s) shall inspect such Codexis Enzyme for compliance with the applicable Enzyme Specification for such Codexis Enzyme corresponding to such shipment. Pfizer or Pfizer Affiliate shall inform Codexis of the result of the inspection, including any claim with respect to all or part of a shipment, in writing within [***] after the receipt of such shipment of Codexis Enzyme. In the event that Codexis receives a written notice of claim from Pfizer or Pfizer Affiliate, which notice must include sufficient detail identifying the basis for claim, the Parties shall determine if such claim is proper pursuant to the dispute resolution mechanism set forth in Section 2.13 and shall enter into good faith discussions regarding supply of replacement quantities of Codexis Enzyme during the dispute resolution process. If Pfizer or Pfizer Affiliate fails to notify Codexis in writing of a claim (other than for Latent Defects in the Codexis Enzyme) within such [***] period, Pfizer's or Pfizer Affiliates' right to submit a claim for the shipment for any basis that would have been discoverable through an inspection will be deemed to have been waived. Where any failure of Codexis Enzyme to conform to applicable Enzyme Specification(s) is not readily discoverable based on Pfizer's, it's Affiliates', or Pfizer Designee(s)' normal incoming-goods inspections but is a Latent Defect, Pfizer or Pfizer Affiliate(s) shall have the right to submit a claim with respect to all or part of a shipment within [***], but in no event later than the last day of the then current Retest Period for such shipment of Codexis Enzyme.

2.10 Refund, Replacement of Non-conforming Codexis Enzyme

Pfizer, Pfizer Affiliates or Pfizer Designee(s) may return to Codexis at Codexis' expense any Codexis Enzyme rejected pursuant to Section 2.9 and which is not subject to a disputed claim under Section 2.13. [***], Codexis shall, [***]: (i) replace any Codexis Enzyme rejected by Pfizer or Pfizer Affiliates, at no additional cost to Pfizer or its Affiliates, as soon as reasonably practicable [***]; or (ii) provide a credit or refund to Pfizer or its Affiliates for the full amount invoiced to Pfizer for such Codexis Enzyme, which shall be credited or refunded (as the case may be) to Pfizer or its Affiliates within [***].

2.11 Root Cause Analysis. Upon notice by Pfizer or its Affiliates to Codexis that the Codexis Enzyme does not conform to the Enzyme Specifications or has Latent Defects, Codexis shall use commercially reasonable efforts to promptly and diligently: (i) investigate and attempt to determine the root cause of such non-conformance or defect;

(ii) undertake corrective action; and (iii) at all times keep Pfizer or its Affiliates promptly information of such investigation and the progress of such corrective action. If a root cause is determined, then Codexis shall promptly notify and report the results to Pfizer or its Affiliates, and Codexis and Pfizer or its Affiliates will cooperate in good faith on a corrective action plan.

2.12 Change Control. [***].

2.13 Disputes. If Codexis disputes Pfizer's or Pfizer Affiliates conclusion to submit a claim with respect to all or part of any shipment of any Codexis Enzyme as set forth in Section 2.10, Codexis shall notify Pfizer or Pfizer Affiliates within [***] after receipt of Pfizer's or Pfizer Affiliates written notice of such rejection. Such dispute shall be resolved by a Third Party within [***] of such notice by Codexis. Such Third Party shall have expertise in the [***], the identity of whom shall be mutually agreed upon by the Parties, and the appointment of whom shall not be unreasonably delayed or conditioned by either Party. The determination of such Third Party with respect to all or part of any shipment of any Codexis Enzyme shall be final and binding upon the Parties and shall be strictly limited to the determination of the financial liability set forth in this Section 2.13. If such Third Party determines that Pfizer's or Pfizer Affiliates claim with respect to the shipment or part thereof was: (x) proper, then [***], Codexis shall replace such shipment or reimburse or credit to Pfizer or Pfizer Affiliates, Pfizer's or Pfizer Affiliates direct costs and expenses associated with the nonconforming Codexis Enzyme; or (y) not proper, then no refund or credit shall be due to Pfizer or Pfizer Affiliates. The fees and expenses of such Third Party shall be paid by [***]. [***].

2.14 Use of Codexis Enzymes.

(a) Except as expressly set forth in this Agreement, and only insofar as it relates to Codexis Enzymes in their actual possession, custody or control, Pfizer and its Affiliates will not, and will cause Pfizer Designees to not, without the prior written consent of Codexis, (i) extract information from, reverse engineer, deconstruct, disassemble, sequence or in any way determine, or attempt to extract information from, reverse engineer, deconstruct, disassemble, sequence or in any way determine, the biological, chemical or physical structure or composition of any of the Codexis Enzyme or its components; (ii) copy, alter, immobilize, stabilize, add to, alter, modify or otherwise design or create any derivative of Codexis Enzyme or its components; or (iii) transfer any Codexis Enzyme or its respective components, or sequence information pertaining thereto, to a Third Party (except as expressly provided for under Section 2.3) or otherwise sublicense or subcontract any of its rights or obligations under this Agreement to any Third Party in a manner not permitted hereunder.

(b) [***].

2.15 Third Party Contractors. Codexis may, with the prior written consent of Pfizer, which consent will not be unreasonably withheld or delayed, satisfy its supply obligations to Pfizer and its Affiliates under this Agreement either in whole or in part through arrangements with Third Parties engaged to perform services or supply facilities or goods in connection with the manufacture, testing, and/or packaging of Codexis Enzyme; provided, that Codexis shall remain responsible for the actions of such Third Parties and for compliance with its obligations under this Agreement. Pfizer and its Affiliates recognize that the [***] Facility is currently Codexis' Qualified Enzyme

Manufacturing Facility for the Codexis Enzyme and, subject to the terms and conditions set forth herein, including without limitation this Section 2.15, Pfizer and its Affiliates accept the use of the [***] Facility as a Qualified Enzyme Manufacturing Facility. Codexis shall, and shall cause all Third Party contractors, including without limitation [***], to perform Services: (a) in a professional and good scientific manner, meeting the standards of diligence, safety, and skill customary in the field; (b) in compliance with all Applicable Laws; and (c) in compliance with this Agreement and any Quality Agreement between the Parties. Without limiting the foregoing, Codexis shall use its commercially reasonable efforts to complete the objectives and activities agreed upon between the Parties, and to achieve the milestones and meet the timelines and schedules agreed upon between the Parties. [***].

3. PAYMENT; TAXES

3.1 Pricing. Pfizer and its Affiliates shall pay Codexis for Codexis Enzyme delivered hereunder as established in accordance with **Exhibit 3.1** of this Agreement. All deliveries are [***]. [***].

3.2 Invoicing. All invoices shall be sent to the address designated in the applicable purchase order, and shall include the following information: the applicable purchase order number and billing address; and shall also include, where applicable, the type, description, part number and quantity of the Codexis Enzyme shipped; the actual date of shipment; the prices; any applicable taxes, transportation charges or other charges provided for in the applicable purchase order; and the ship-to destination.

3.3 Payment. Codexis shall invoice Pfizer or the applicable Pfizer Affiliate upon [***]. Pfizer or the Pfizer Affiliate shall pay all undisputed amounts due within [***] from the date of receipt of the invoice by Pfizer or the Pfizer Affiliate. All payments made under this Agreement shall be made by direct wire transfer of United States Dollars in immediately available funds in the requisite amount to:

Bank Name: [***]
Bank Address: [***]
[***]
ABA#: [***]
Beneficiary: Codexis, Inc.
Account No.: [***]
SWIFT Code: [***]

or such other bank account as Codexis may from time to time designate in writing. If Pfizer or the Pfizer Affiliate disputes all or any portion of an invoice, Pfizer or its Affiliate shall notify Codexis promptly in writing of the amount and nature of the dispute and the Parties shall attempt to resolve the dispute in good faith. In the event of any unresolved dispute regarding an invoice, the Parties shall resolve the dispute in accordance with Section 13.4. Payment by Pfizer or its Affiliate shall not result in a waiver of any of its rights under this Agreement. [***].

3.4 Taxes.

(a) Each Party shall be responsible for its own taxes, duties, levies, imposts, assessments, deductions, fees, withholdings or similar charges imposed on or measured by net income or overall gross income (including branch profits), gross receipts, capital,

ability or right to do business, payroll, property and franchise or similar taxes pursuant to applicable law.

(b) Pfizer and its Affiliates shall be entitled to withhold or deduct from any payment due to Codexis any taxes, fees, duties, charges, or similar payments as required by applicable laws, such payment shall decrease by an equivalent amount, and such withheld amount shall be treated as paid to Codexis. Pfizer and its Affiliates will provide to Codexis reasonable documentation that evidences Pfizer's payment of any tax on behalf of Codexis. The Parties agree, upon request, to use all reasonable efforts to obtain or provide any valid certificate, form, or other document or information from any governmental entity or any other person as may be necessary to lawfully withhold, report, mitigate, reduce or eliminate any tax

that could be imposed on the payments contemplated by this Agreement. Codexis shall indemnify and hold harmless Pfizer for any withholding agent liability for withholding taxes, including interest and penalties thereon.

(c) Except as otherwise agreed to in writing by the Parties, all costs and prices are exclusive of any value added tax, ad valorem, goods and services or similar tax chargeable on the supply or deemed supply of goods or services, sales taxes, transaction taxes, consumption taxes and other similar taxes required by applicable law to be imposed on the sale of the Codexis Enzyme and borne by Pfizer or its Affiliates, including any interest, penalties or other additions to tax thereon required under applicable Law ("**VAT**"). If any VAT is so required, Pfizer or its Affiliates shall pay such VAT at the applicable rate in respect of any such payments following the receipt of a valid VAT invoice in the appropriate form issued by the payee in respect of those payments, such VAT to be payable on the later of the due date of the payment to which such VAT relates and [***] after the receipt by Pfizer or its Affiliates of the applicable valid invoice relating to that VAT payment. If Codexis requires any Pfizer or its Affiliates location information in order to assess any VAT requirements, Codexis shall reasonably request such information from Pfizer or its Affiliates in advance of issuing such relevant valid invoices. Codexis hereby agrees to segregate and allocate VAT on each of its invoices, including between costs subject to VAT and amounts not subject to VAT. Pfizer and its Affiliates shall not be responsible for any penalties and interest resulting from the failure by the Codexis to collect (if not included on a timely and valid VAT invoice), report or remit any such VAT. Codexis shall provide notice to Pfizer or its Affiliates of the VAT it determines is required to be included on invoices, and the legal basis therefore, at least [***] prior to the first valid VAT invoice issued to Pfizer which include such determined VAT, or any changes to such determination, to provide Pfizer or its Affiliates a reasonable opportunity to furnish certificates, documentation or other information that would eliminate or minimize such VAT under applicable law. The Parties will reasonably cooperate to issue valid VAT invoices for all amounts due under this Agreement consistent with VAT requirements and to report, eliminate or minimize the amount of any such VAT imposed on the transactions contemplated in this Agreement, including the use of valid and sufficient certificates, documentation and other information under applicable law.

(d) Pfizer and its Affiliates shall be responsible for import VAT if Pfizer or its Affiliates are the importer of record of the Codexis Enzyme into the destination country.

4. SECURITY OF SUPPLY

4.1 Efforts by Codexis. Codexis shall use all commercially reasonable efforts to supply Codexis Enzyme in accordance with Article 2. If Codexis encounters any issues in respect of supply or delivery, including but not limited to feasibility issues

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or scale-up issues, Codexis shall promptly notify Pfizer and its Affiliates, and the Parties shall work together in good faith to establish a timeline for supply and delivery of Codexis Enzyme by initiating supply from any Qualified Enzyme Manufacturing Facility.

4.2 Occurrence of a Trigger Event. Upon the occurrence of a Trigger Event, Codexis shall promptly notify Pfizer and its Affiliates in writing (e-mail is acceptable) of the details related to the Trigger Event and the failure or potential failure of Codexis to supply Codexis Enzyme under Order(s) which are the subject of a Trigger Event and Codexis' estimated timeline to correct the Trigger Event. In the event of a Trigger Event, Codexis shall use its best efforts to prioritize delivery to Pfizer and its Affiliates of quantities of Codexis Enzyme to be delivered under an Order. These efforts shall [***]:

(a) [***];

(b) [***];

(c) [***];

(d) [***].

4.3 Alternate Sourcing. Codexis shall promptly notify Pfizer or its Affiliates in writing (e-mail is acceptable) of Codexis' efforts to resolve the Trigger Event and provide updates as soon as available. If, despite Codexis' efforts, Codexis is unable to resolve the Trigger Event to Pfizer's

reasonable satisfaction within [***], Pfizer and its Affiliates shall have the right, exercisable during the duration and within the scope of the Trigger Event (but not beyond) to source a quantity of Codexis Enzyme up to [***] the quantities of Codexis Enzyme that Codexis is unable to deliver under Order(s) which are the subject of the Trigger Event, from:

(a) first, directly from existing Qualified Enzyme Manufacturing Facilities;

(b) second, to the extent that Pfizer and its Affiliates are unable to source sufficient quantities of Codexis Enzyme directly from Qualified Enzyme Manufacturing Facilities under Section 4.3(a), request from Codexis a Technology Transfer, in order to utilize the [***] Facility as a manufacturing facility Qualified to self-manufacture such quantity of Codexis Enzyme, which quantities of Codexis Enzyme self-manufactured by Pfizer or its Affiliates may be used only by Pfizer and its Affiliates for the manufacture of Intermediate for use in the manufacture of Product for sale and distribution by Pfizer and its Affiliates.

(c) third, to the extent that Pfizer or its Affiliates are unable to source sufficient quantities of Codexis Enzyme directly from Qualified Enzyme Manufacturing Facilities under Section 4.3(a) or from self-manufacture of Codexis Enzyme at the [***] under Section 4.3(b), request from Codexis a Technology Transfer, in order to qualify and utilize a Third Party Enzyme Manufacturing Facility in order to have a Third Party manufacture for Pfizer and its Affiliates such quantity of Codexis Enzyme, which quantities of Codexis Enzyme manufactured by the Third Party for Pfizer or its Affiliates may be used only by Pfizer and its Affiliates for the manufacture of Intermediate for use in the manufacture of Product for sale and distribution by Pfizer and its Affiliates. [***].

4.4 **Limitations**. For clarity, any right of Pfizer and its Affiliates to source quantities of Codexis Enzyme directly from Qualified Enzyme Manufacturing Facilities pursuant to Section 4.3(a), any right of Pfizer or its Affiliates to manufacture quantities of Codexis Enzyme under a Technology Transfer pursuant to Section 4.3(b), and any right of Pfizer and its Affiliates to source Codexis Enzyme from a Third Party Enzyme Manufacturing Facility under a Technology Transfer pursuant to Section 4.3(c) shall be effective only during that period of time in which Codexis is unable to supply the quantities of Codexis Enzyme which are the subject of an Order affected by a Trigger Event and shall only be effective for those quantities of Codexis Enzyme that Codexis is unable to supply to Pfizer or its Affiliates under Orders that are the subject of the Trigger Event. Pfizer and its Affiliates shall continue to purchase from Codexis, under the terms of this Agreement, all quantities of Codexis Enzyme that Codexis makes available to Pfizer and its Affiliates for purchase in lieu of any quantities of Codexis Enzyme that Pfizer or its Affiliates would or could purchase directly from an existing Qualified Enzyme Manufacturing Facility (under Section 4.3(a)) or manufacture (under Section 4.3(b)) under a Technology Transfer utilizing the license granted to Pfizer or its Affiliates under Section 4.5, or have manufactured (under Section 4.3(c)) under a Technology Transfer utilizing the license granted to Pfizer or its Affiliates under Section 4.5.

4.5 **Technology Transfer**. Effective upon a Technology Transfer under Section 4.3(b) or under Section 4.3(c), and only during the time period(s) and to the extent specifically provided in Section 4.3(b) or Section 4.3(c), Codexis grants to Pfizer ([***]) a non-exclusive, fee-bearing, non-transferrable, non-sublicensable ([***]) right and license under Codexis Enzyme Technology to manufacture the Codexis Enzyme for Pfizer and Pfizer Affiliates as permitted by Section 4.3(b) or Section 4.3(c) above for use of such Codexis Enzyme in Pfizer's, Pfizer Affiliates' and Pfizer Designee's manufacture of the Intermediate for use in the manufacturing of Product by or for Pfizer and its Affiliates. For clarity, neither Pfizer nor its Affiliates shall have any right to sell, have sold, market, distribute or transfer any Codexis Enzyme or any Intermediate manufactured under a Technology Transfer to any Third Party (including, without limitation, the Pfizer Designees) other than for use in manufacturing the Intermediate for Pfizer or its Affiliates for use in the manufacturing of Product by or for Pfizer and its Affiliates.

4.6 **Article 4 Use Fees**.

(a) With respect to Section 4.3 Replacement Quantities used by or for Pfizer or its Affiliates to replace quantities of Codexis Enzyme covered by Existing Non-Cancelable Orders in the manufacture of Intermediate, Pfizer shall pay to Codexis (or cause its Affiliate(s) to pay to Codexis) a use fee ("**Section 4.6(a) Use Fee**"). The Section 4.6(a) Use Fee shall be equal to [***] of the then current ([***]) Codexis Enzyme price as established pursuant to **Exhibit 3.1** ([***]) ("**Section 4.6(a) Codexis Enzyme Price**"). [***]. The Section 4.6(a) Use Fee shall be paid by Pfizer or its Affiliates to Codexis on a Quarterly basis. Pfizer shall provide to Codexis a written report (with documentation supporting Pfizer's calculations in accordance with Accounting Standards) within [***] establishing the volume of Codexis Enzyme sourced or produced by Pfizer and its Affiliates (pursuant to Sections

4.3(a), 4.3(b) and/or 4.3(c)) during such Quarter that is actually used by or for Pfizer or its Affiliates in the manufacture of Intermediate ("**Quarterly Section 4.6(a) Use Fee Report**") and, to the extent applicable, shall pay to Codexis the aggregate Section 4.6(a) Use Fee for all such Codexis Enzyme produced and used in the manufacture of Intermediate during such

Quarter within [***]. [***]. Any disputes arising out of, relating to or in connection with the calculation or payment of the Section 4.6(a) Use Fee under this Section 4.6(a) shall be governed by arbitration as provided for under Section 13.3 of this Agreement. Any information disclosed to Codexis hereunder shall be deemed Pfizer Confidential Information and may not be disclosed by Codexis to any third parties without Pfizer's prior written consent.

(b) With respect to Section 4.3 Replacement Quantities used by or for Pfizer or its Affiliates to replace quantities of Codexis Enzyme covered by New Orders in the manufacture of Intermediate, Pfizer shall pay to Codexis (or cause its Affiliate(s) to pay to Codexis) a use fee ("**Section 4.6(b) Use Fee**"). The Section 4.6(b) Use Fee shall be [***]. The Section 4.6(b) Use Fee shall be paid by Pfizer or its Affiliates to Codexis on a Quarterly basis. Pfizer shall provide to Codexis a written report (with documentation supporting Pfizer's calculations in accordance with Accounting Standards) within [***] establishing the volume of Codexis Enzyme sourced or produced by Pfizer and its Affiliates (pursuant to Sections 4.3(a), 4.3(b) and/or 4.3(c)) during such Quarter that is actually used by or for Pfizer or its Affiliates in the manufacture of Intermediate ("**Quarterly Section 4.6(b) Use Fee Report**") and, to the extent applicable, shall pay to Codexis the aggregate Section 4.6(b) Use Fee for all such Codexis Enzyme produced and used in the manufacture of Intermediate during such Quarter within [***]. [***]. Any disputes arising out of, relating to or in connection with the calculation or payment of the Section 4.6(b) Use Fee under this Section 4.6(b) shall be governed by arbitration as provided for under Section 13.3 of this Agreement. Any information disclosed to Codexis hereunder shall be deemed Pfizer Confidential Information and may not be disclosed by Codexis to any third parties without Pfizer's prior written consent.

4.7 Risks and Costs. Pfizer and its Affiliates shall be solely responsible for arranging supply of Codexis Enzyme and all costs and expenses of acquiring or manufacturing Codexis Enzyme under Section 4.3. Except as provided in Section 4.5, Codexis shall have no obligations with respect to any Codexis Enzyme acquired by Pfizer or its Affiliates under Section 4.3 and makes no warranty, representation or guarantee with respect to Codexis Enzyme sourced by Pfizer or its Affiliates under Section 4.3, including without limitation no warranty of conformance to specifications, merchantability, or fitness for any particular purpose, or for any Intermediate and/or Product manufactured therefrom. Pfizer and its Affiliates assume all risks associated with the acquisition and use of the Codexis Enzyme produced by or for Pfizer and its Affiliates under the provisions of Section 4.3.

4.8 Reserve Inventory. Starting [***] following the Effective Date, the parties may mutually agree for Codexis uses to maintain in inventory an amount confidence its own proprietary industrial information of Codexis Enzyme, similar kind and value, which shall be no more less than an amount sufficient to fulfill [***] a reasonable degree of estimated Pfizer and Pfizer Affiliate demand for Codexis Enzyme based on the forecast provided pursuant to Section 2.4. Codexis reserves the right to deliver such reserve inventory of Codexis Enzyme to Pfizer and its Affiliates on a first-in, first-out basis. No later than [***] before the effective date of termination or expiration of this Agreement, the parties will mutually cooperate to reduce the quantities of Codexis Enzyme in reserve inventory to zero by the effective date of termination or expiration. Within [***] of any termination or expiration of this Agreement, Pfizer or its Affiliates shall be required to purchase all quantities of Codexis Enzyme that remain in the reserve inventory as of the effective date of termination or expiration at the price which was in effect as of the effective date of termination or expiration.

5. [***]

5.1 [***].

5.2 [***].

5.3 [***].

5.4 [***].

5.5 [***].

5.6 **Risks and Costs**. Pfizer and its Affiliates shall be solely responsible for arranging supply of Codexis Enzyme and all costs and expenses of acquiring or manufacturing Codexis Enzyme under Section 5.3. Except as provided in Section 5.4, Codexis shall have no obligations with respect to any Codexis Enzyme acquired by Pfizer or its Affiliates under Section 5.3 and makes no warranty, representation or guarantee with respect to Codexis Enzyme sourced by Pfizer or its Affiliates under Section 5.3, including without limitation no warranty of conformance to specifications, merchantability, or fitness for any particular purpose, or for any Intermediate and/or Product manufactured therefrom. Pfizer and its Affiliates assume all risks associated with the acquisition and use of the Codexis Enzyme produced by or for Pfizer and its Affiliates under the provisions of Section 5.3.

6. RELATIONSHIP; RECORDS; REGULATORY OBLIGATIONS; REGULATORY NOTIFICATIONS; AUDIT

6.1 **Relationship.** As between the Parties, Pfizer and the Pfizer Affiliates shall be solely responsible for the production of Intermediate using Codexis Enzyme and for the manufacture of Product using Intermediate.

6.2 **Records.** Codexis shall maintain complete, true, and accurate books, records, test and laboratory data, reports, and all other information relating to Services, including the technical records pertaining to the methods, facilities, and equipment used for processing, in accordance with Applicable Laws and as is reasonably necessary to support regulatory filings by Pfizer with respect to Product. Codexis shall store all such records and information for a period of at least [***] or longer if required under Applicable Laws.

6.3 **Regulatory Obligations.** Pfizer and Pfizer Affiliates shall be solely responsible for preparation and submission of applications to Regulatory Authorities regarding Product. Pfizer and Pfizer's Affiliates will advise Codexis of document requirements in support of such applications by Pfizer or its Affiliates. Codexis will use commercially reasonable efforts to provide documents and additional information needed for such applications, and to cooperate with and assist Pfizer and its Affiliates in preparation and submission of such applications to the FDA (and other Regulatory Authorities, as appropriate). All such applications to Regulatory Authorities and related filings by Pfizer and its Affiliates shall be the sole and exclusive property of Pfizer and its

Affiliates. Pfizer and its Affiliates shall be solely responsible for all contacts and communications with any Regulatory Authority with respect to all matters relating to Product and services provided under this Agreement. At the request of Pfizer or its Affiliates, Codexis shall make appropriate personnel reasonably available for meetings with Regulatory Authorities related to manufacturing of Codexis Enzyme and the related processing of Product.

6.4 **Regulatory Notifications.** Codexis shall notify Pfizer immediately, and in no event later than [***], after receiving any contact or communication from any governmental, administrative or Regulatory Authority that in any way relates to the Codexis Enzyme, Intermediate or the Product. Codexis shall advise Pfizer no later than the next day that is not a Saturday, Sunday, or federal or state holiday if an authorized agent of any governmental, administrative or Regulatory Authority or any other regulatory body plans to visit the Facilitysolely in relation to the Codexis Enzyme, Intermediate or Product for Pfizer, and/or makes an inquiry regarding manufacturing of Codexis Enzyme for use in manufacturing Intermediate for Pfizer or regarding any part of the Facility that is used in manufacturing of Codexis Enzyme for use in manufacturing of Intermediate for Pfizer. Pfizer and Pfizer Affiliates shall have the right to be present at any visit relating to Codexis Enzyme, Intermediate and Product and to review in advance and comment on any response to the communication or investigation submitted by Codexis (and Codexis shall endeavor in good faith to satisfactorily address and incorporate all Pfizer comments prior to submission). Codexis shall cooperate fully with such Regulatory Authority and with Pfizer and its Affiliates in providing the information needed for any such communication. Codexis shall provide to Pfizer copies of any document delivered by such Regulatory Authority or regulatory body as a result of such visit. If an authorized agent of any Regulatory Authority or any other regulatory body visits the Facility in connection with another product or another part of the Facility and such visit results in a finding or other action that could materially and

adversely affect Codexis' performance of the Services under this Agreement, then Codexis shall notify Pfizer as soon as practicable and, within [***], shall provide Pfizer with information concerning Codexis' response to such finding or action.

6.5 Audits. During the Term and during any period thereafter during which Pfizer retains the license under Section 7.2(a), Pfizer or its authorized representatives, including its external auditors, at Pfizer's cost and expense, for the purposes of audit may visit the facilities of Codexis or its Third Party contractors where the Services are being performed, during normal business hours to ensure Codexis' compliance with the terms of this Agreement and Applicable Laws, including quality, business continuity, social responsibility (including labor and ethics), and/or environment, health, safety and sustainability requirements, which may be conducted together or separately. The detailed scope of audit shall be communicated to Codexis at least [***] prior to the requested date of audit and the Parties shall work in good faith to schedule a mutually agreeable date for such audit. Any such audit shall be conducted in accordance with Codexis' then-current policies (made available in writing to Pfizer prior to the anticipated audit date) and without material disruption to Codexis' or Codexis' Third Party contractor activities. Pfizer shall be entitled to conduct an audit hereunder once in any [***] during the Term of this Agreement, upon reasonable notice during regular business hours for a period not to exceed [***]; provided, however, that Pfizer shall be entitled to conduct audits following issuance of reports delivered by Regulatory Authorities to Codexis pertaining to manufacturing of Codexis Enzyme for use in manufacturing Intermediate for Pfizer or the occurrence of other events which are likely to adversely affect Pfizer's manufacturing of Intermediate or Product as frequently as requested by Pfizer at reasonable times and for reasonable duration (which may exceed [***]) until Codexis has corrected such

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deficiencies. Upon request, Pfizer may conduct additional audits, provided that Pfizer shall reimburse Codexis for reasonable time and expenses incurred by Codexis in connection with such audits.

7. GOVERNMENTAL LAW AND REGULATIONS

7.1 Applicable Law. Codexis' and Pfizer's and its Affiliates' obligations hereunder shall be subject to all Applicable Law. Codexis shall secure such permits and licenses necessary, at its sole expense, for the manufacture, supply and sale of Codexis Enzyme hereunder, unless otherwise agreed by the Parties in writing.

7.2 Regulatory Filings. As between the Parties, Pfizer and its Affiliates will be responsible for filing any regulatory approval application in connection with Intermediate and Product, at their own cost.

8. CONFIDENTIALITY

8.1 In General. In connection with this Agreement each Party may provide to the other Party, Confidential Information. Codexis Technology shall constitute the Confidential Information of Codexis.

8.2 Non-Disclosure and Non-Use. The receiving Party shall maintain the Confidential Information of the disclosing Party in confidence, shall care, (ii) not disclose such Confidential Information to any Third Party without the prior written consent of the Disclosing Party, except for disclosures expressly permitted below, and shall (iii) not use such Confidential Information for any purpose except as expressly those permitted under the terms and conditions of by this Agreement. Notwithstanding Each Receiving Party will promptly notify the previous sentence, the receiving Disclosing Party may disclose the upon gaining knowledge of any material use or disclosure of Confidential Information of the disclosing other party not permitted pursuant to this Section 5.03. [***]. For the further avoidance of doubt, all Licensed Know-How is and shall

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

be Confidential Information of Seller. The obligations in this Section 5.03 shall not apply with respect to any portion of the Confidential Information that the Receiving Party solely may receive to the extent that such information:

(i) is publicly disclosed by the Disclosing Party, either before or after it is disclosed to the Receiving Party hereunder;

(ii) was known to the Receiving Party or any of its Affiliates, without any obligation to keep it confidential or any restriction on its use, prior to disclosure by the Disclosing Party, and such prior knowledge can be properly documented by the Receiving Party;

(iii) is subsequently disclosed to the Receiving Party or any of its Affiliates by a "need Third Party lawfully in possession thereof and without any obligation to know basis" keep it confidential or any restriction on its use;

(iv) is published by a Third Party or otherwise becomes publicly available or enters the public domain, either before or after it is disclosed to the Receiving Party without the Receiving Party's breach of the terms of this Agreement; or

(v) is independently developed by employees or contractors of the Receiving Party or any of its Affiliates without the aid, application, or use of Confidential Information of the Disclosing Party, and such independent development can be properly documented by the Receiving Party.

(b) Authorized Disclosure. The Receiving Party may disclose Confidential Information belonging to the Disclosing Party only to the extent such disclosure is reasonably necessary in the following instances:

(i) complying with applicable Laws and regulations (including the rules and regulations of the Securities and Exchange Commission or any national securities exchange) and with judicial or administrative process, if in the reasonable opinion of the Receiving Party's counsel, such disclosure is so required for such compliance and the Receiving Party discloses no more than required in its reasonable judgment, and further provided that with respect to judicially or administratively required disclosures, the Receiving Party (to the extent legally permissible) shall promptly inform the other party of such required disclosure and use [***] efforts to provide the other party an opportunity to challenge or limit the disclosure obligations; and

(ii) disclosure to its Affiliates, and to its officers, directors, employees, advisors, legal counsel, contractors bona fide actual or potential (A) permitted Licensees, (B) investment bankers, investors, lenders, or acquirers, or permitted assignees under Section 11.06, in each case, solely for diligence purposes, and agents, (C) each of the parties' respective Representatives, in each case of (A), (B), and independent legal counsel, and Pfizer Designee(s) (C), each of whom prior to disclosure must be bound by obligations of nondisclosure confidentiality and non-use no less restrictive than the obligations set forth in this Article 8; Section 5.03; provided, , however, , that in each of the above situations, the receiving Receiving Party shall remain responsible for any failure by any person or entity Person who receives Confidential Information pursuant to this Section 8.2 5.03(b)(ii) to treat such Confidential Information as required under this Article 8. The receiving party shall take the same degree of care that the receiving Party uses to protect its own confidential and proprietary information of a similar nature and importance, but in no event shall such care be less than reasonable care. Section 5.03.

8.3 Exceptions. The obligations of non-disclosure

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If and non-use under Section 8.2 will not apply as to particular whenever any Confidential Information of a disclosing Party is disclosed in accordance with this Section 5.03(b), such disclosure shall not cause any such information to cease to be Confidential Information, except to the extent that such Confidential Information: (a) is at disclosure results in a public disclosure of such information (other than by breach of this Agreement).

(c) Tax Filings. Notwithstanding any provision of this Agreement to the time contrary, each party (and their Affiliates) shall be free to disclose this Agreement, the contents hereof, and the transactions contemplated hereby to any Governmental Authority in connection with the filing of receipt, any Tax Return and in any Tax audits, assessments, or thereafter becomes, through administrative or judicial proceedings or other Actions relating to Tax Returns or Taxes.

Section 5.04 Public Announcements. Unless otherwise required by applicable Law, no fault party to this Agreement shall make any public announcements in respect of this Agreement or the transactions contemplated hereby without the prior written consent of the receiving Party or its Affiliates, published or publicly known or available; (b) is known by the receiving Party or its Affiliates without any obligation of confidence to a Third Party at the time of receiving such information, as evidenced by competent records; (c) is hereafter furnished to the receiving Party or its Affiliates by a Third Party without breach of a duty to the disclosing Party; or (d) is independently discovered or developed by or for the receiving Party or its Affiliates without use of, application of, access to, or reference to Confidential Information of the disclosing Party, as evidenced by competent records.

8.4 Disclosure Required by Law. Disclosure of Confidential Information other party (which consent shall not be precluded unreasonably withheld, conditioned, or delayed), and the parties shall cooperate as to the timing and contents of any such announcement. Notwithstanding the foregoing, Seller may, following the Effective Date, issue a press release regarding this Agreement and the transactions contemplated hereby containing the information and generally in the form as set forth in **Exhibit G** attached to and made a part of this Agreement. The contents of any

announcement or similar publicity, which has been reviewed and approved by the reviewing party (including the press release referred to in the prior sentence), can be re-released by either party without a requirement for re-approval.

Section 5.05 Exclusivity.

(a) During the Restricted Period, Seller shall not, and shall not permit any of its Affiliates to, directly or indirectly engage in, for its own benefit or for, with, or through any other Person, [***], any other company, partnership, proprietorship, enterprise, organization or business venture of any kind whatsoever engaged in the Development, Manufacture, Commercialization or other Exploitation of any lipase-containing product in the field of pancreatic enzyme replacement therapy (the "**Restricted Business**")[***]. Notwithstanding the foregoing, Seller may own, directly or indirectly, solely as an investment, securities of any Person traded on any national securities exchange if such disclosure (a) Seller is in response to not a valid order, controlling Person of, or required under the regulations, a member of a court group which controls, such Person and does not, directly or other governmental body; indirectly, own [***] or more of any class of securities of such Person. The "**Restricted Period**"shall commence on the Closing Date and shall continue until the third (3rd) anniversary of the Closing Date; provided [***].

(b) is required Each party acknowledges that a breach or threatened breach by Applicable Law; provided, however, that the receiving Party, it of this Section 5.05 could give rise to irreparable harm to the extent practicable,

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first has given reasonable prior notice to the disclosing Party and at the disclosing Party's request, the receiving Party cooperates with the disclosing Party's efforts, as applicable, to obtain a protective order limiting the extent of such disclosure and requiring that the Confidential Information so disclosed be used only for the purposes other party, for which such order was issued or as required by such Applicable Law. Any disclosure made pursuant to this Section 8.4 shall monetary damages may not affect the confidential nature of the disclosed Confidential Information (except to the extent the disclosure was made publicly available, such as but not limited to filings with the United States Securities be an adequate remedy, and Exchange Commission, in which case such disclosed Confidential Information shall no longer be deemed confidential).

8.5 Remedies. The receiving Party agrees that its obligations under this Article 8 are necessary and reasonable to protect the disclosing Party's business interests and that the unauthorized disclosure or use of Confidential Information of the disclosing Party may cause irreparable harm and significant injury, the degree of which may be difficult to ascertain. The receiving Party further acknowledges and hereby agrees that in the event of any actual a breach or a threatened breach by such party of this Article 8, any such obligations, the disclosing Party may have no adequate remedy at law and, accordingly, that the disclosing Party will have the right other party shall, in addition to seek an immediate injunction, without an obligation to post a bond or any similar security, enjoining any breach or threatened breach of this Article 8, as well as the right to pursue any and all other rights and remedies that may be available to it in respect of such breach, be entitled to seek equitable relief, including a temporary restraining order, an injunction, specific performance, and any other relief that may be available from a court of competent jurisdiction (without any requirement to post bond, which such party hereby waives).

(c) Each party acknowledges that the restrictions contained in this Section 5.05 are reasonable and necessary to protect the legitimate interests of the other party and constitute a material inducement to each party to enter into this Agreement and consummate the transactions contemplated by this Agreement. In the event that any covenant contained in this Section 5.05

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should ever be adjudicated to exceed the time, geographic, product, or service or other limitations permitted by applicable Law in any jurisdiction, then any court is expressly empowered to reform such covenant, and such covenant shall be deemed reformed, in such jurisdiction to the maximum time, geographic, product, or service or other limitations permitted by applicable Law. The covenants contained in this Section 5.05 and each provision hereof are severable and distinct covenants and provisions. The invalidity or unenforceability of any such covenant or provision as written shall not invalidate or render unenforceable the remaining covenants or provisions hereof, and any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such covenant or provision in any other jurisdiction.

Section 5.06 Patent Prosecution and Maintenance.

(a) Following the Closing Date, Buyer shall have the sole right to Prosecute all Purchased Patents and Resultant Patents, including any Patent Term Extensions or Supplementary Protection Certificates thereto, and shall be solely responsible for the cost and expense thereof. Buyer shall have the sole right to determine the strategy and material aspects of Prosecution of the Purchased Patents and Resultant Patents, including where and when applications for Purchased Patents and Resultant Patents will be filed, and claims to be included, excluded, or modified in Purchased Patents and Resultant Patents applications, or on the selection of internal or external patent counsel or patent agents to be used for filing, Prosecuting and maintaining the Purchased Patents and Resultant Patents.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with Prosecution under this Section 5.06, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel and inventors who may have possession of information relevant to the Prosecution. Any such cooperation by Seller and its Affiliates with respect to the Purchased Patents and Resultant Patents or any such Prosecution shall be at law or in equity Buyer's cost and expense and Buyer shall reimburse Seller for such breach reasonable and documented costs and expenses of Seller and its Affiliates.

Section 5.07 Patent Enforcement.

(a) Buyer shall have the sole right to enforce the Purchased Patents and Resultant Patents and intellectual property rights in Purchased Know-How, including for past infringement, against Third Party infringers (and enter into settlement agreements with such Third Party infringers). Any recovery obtained in any such enforcement action (or settlement thereof) shall belong to Buyer and Buyer shall treat that portion of the recovery that is attributable to lost sales or threatened breach.disgorged profits (net of any non-reimbursed costs and expenses directly related to such enforcement action (or settlement thereof)) as Net Sales hereunder. Buyer shall be responsible for all costs and expenses associated with such enforcement.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with any Action under this Section 5.07, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel who may have possession of information relevant to the Action. Any such cooperation by Seller with respect to the Purchased Patents and Resultant Patents or any such Action shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller.

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8.6 Section 5.08 Bulk Sales Laws Agreement Terms. .The parties hereby waive compliance with the provisions of any bulk sales, bulk transfer or similar Laws of any jurisdiction that may otherwise be applicable with respect to the sale of any or all of the Purchased Assets to Buyer.

Section 5.09 VAT.The Purchase Price is exclusive of VAT. Any party receiving a supply under this Agreement hereby covenants that it will pay any such VAT correctly charged in addition to any amounts due under this Agreement. The supplying party agrees that it will raise a Tax invoice (or equivalent document) to support the charge to VAT. Where the prevailing legislation requires a VAT reverse charge, then the receiving party covenants that it shall correctly account for VAT in respect of the services received. To the extent that any VAT is chargeable on any Purchased Assets transferred pursuant to this Agreement, Seller shall deliver to Buyer: (i) a valid VAT invoice where required by applicable Law or practice and (ii) any other documentation as may be reasonably requested by Buyer to assist it to recover the VAT chargeable or payable, in each case, in such form and within such timing as may be required by Law. An amount equal to the amount of VAT chargeable or payable by Seller on the Purchased Assets transferred shall be paid in addition to the consideration provided in this Agreement, by Buyer to Seller within [***] of receipt of a valid VAT invoice (or where no invoice is required, within [***] of demand) or, if later, [***] before the date on which the obligation to account for VAT would have had to be discharged in order to avoid liability to interest or a charge or penalty. Seller shall account for all amounts in respect of VAT paid to it by Buyer to the appropriate Governmental Authorities in compliance with applicable Laws. Both parties shall use [***] efforts to avail of VAT zero-rating, reduced rating or exemption that could apply. In the event that the local competent Tax authority determines that VAT is chargeable, Buyer in the first instance shall undertake all reasonable steps to refute any such assertions by the local Tax authority. Each party shall be responsible for any Taxes due on their own account, including any penalties or interest accruing due to incorrect VAT treatment of the supplies of goods or services made by that party or any failure to correctly account for VAT on any receipt of a supply of goods or services under this Agreement, except where those penalties or interest arise as a result of the actions of the other party, in which case that party shall be liable to reimburse the value of the penalties and interest.

Section 5.10 Further Assurances.Following the Closing, each of the parties hereto shall, and shall cause their respective Affiliates to, execute and deliver such additional documents, instruments, conveyances, and assurances and take such further actions as may be reasonably required to carry out the provisions hereof and give effect to the transactions contemplated by this Agreement and the other Transaction Documents.

Section 5.11 Books and Records; Audit.

(a) For a period of [***] from the date the last Milestone Earnout Payment or Sales Earnout Payment is made to Seller, Buyer shall, and shall require its Affiliates and Licensees to, keep and maintain complete, true, accurate, and detailed books and records for the purpose of calculating any amounts due to Seller hereunder, including any Earnout Payments and Sell-On Transaction Payments. Buyer and its Affiliates shall require Licensees to report to Buyer or its Affiliates, as applicable, the information required to be made available to Seller pursuant to Section 1.06(d) and this Section 5.11.

(b) Following the Launch Date, Seller shall have the right to examine and audit Buyer's and its Affiliates' books and records referred to in Section 5.11(a) to verify the accuracy of any reports or payments prepared or delivered to Seller pursuant to this Agreement. Any such audit shall be on at least [***] prior written notice. Seller's rights to perform an audit under this

Section 5.11 shall be limited to not more than [***] and shall be limited to the pertinent books and records for any Calendar Year ending not more than [***] before the date of the request [***]. The audit shall be performed [***] by an independent certified public accounting firm of internationally recognized standing that is selected by Seller [***]. The accounting firm shall be required to enter into a reasonable and customary confidentiality and non-use agreement with Buyer to protect the confidentiality of its books and records. Buyer and its Affiliates shall make the relevant books and records [***] available during normal business hours for examination by the accounting firm. Except as may otherwise be agreed, the accounting firm shall be provided access to such books and records at Buyer's or its Affiliates' facilities where such books and records are normally kept. Upon completion of the audit, the accounting firm shall provide both parties a written report disclosing whether or not the relevant reports or payments are correct, and the specific details concerning any discrepancies. The decision of the accounting firm shall be final and binding on the parties absent manifest error. The accounting firm shall not provide Seller with [***] access to Buyer's confidential information. If the accounting firm conducting an audit pursuant to this Section 5.11 concludes as a result of such audit that any additional amounts were due and payable to Seller, Buyer shall pay such additional amounts to Seller within [***] after the date that the parties receive such accountant's written report, together with interest as per Section 1.06(d)(ii). If the total amount of any underpayments by Buyer to Seller exceeds the lesser of: (i) $[***]; or (ii) [***] of the aggregate total amount that was properly due and payable to Seller for any Calendar Year, then Buyer shall also reimburse Seller for the documented, reasonable out-of-pocket expenses incurred in conducting the audit, including all costs and expenses paid or payable to the accounting firm. If the accounting firm conducting an audit pursuant to this Section 5.11 concludes as a result of such audit that any overpayment of Earnout Payments or other amounts due under this Agreement occurred, Buyer shall receive a credit equal to the amount of such overpayment for use as a credit against future Earnout Payments, if any, otherwise payable to Seller hereunder. Notwithstanding the foregoing, if Buyer reasonably and in good faith expects that the amount of such overpayment will exceed the amount of all Earnout Payments payable by Buyer to Seller in the next [***], at the written election of Buyer, Seller shall pay the amount by which such overpayment to Buyer exceeds such estimated Earnout Payments for the next [***] in cash (with such remaining amount of the overpayment a credit against future Earnout Payments, if any, otherwise payable to Seller hereunder), provided that if such amount to be paid by Seller in cash exceeds $[***], Seller may pay such amount in [***] installments over the next [***].

Section 5.12 Termination of the Existing Agreements. Effective as of the Closing:

(a) the Development Agreement is terminated and cancelled in its entirety by the parties pursuant to Section 10.2(a) of the Development Agreement, except for Articles 2, 3, 8, 9, 12, 13, 14, and 15 and Sections 10.1 and 10.3 of the Development Agreement which shall survive termination as per the terms of the Development Agreement (but shall no longer apply to the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, or the Purchased Know-How), and conditions upon such termination the Development Agreement (other than such identified surviving Articles and Section) shall have no further force or effect and none of the parties thereto shall have any further rights or obligations with respect thereto; and

(b) the Strategic Collaboration Agreement is terminated and cancelled in its entirety by the parties pursuant to Section 12.2.1 of the Strategic Collaboration Agreement, except for Articles 2, 6, 7, 8, 11, 16, and 17 and Sections 5.7, 9.5, 10.1, 12.1, 14.1, and 15.1 of the Strategic Collaboration Agreement which shall survive termination as per the terms of the Strategic

Collaboration Agreement (but shall no longer apply to the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, and the Purchased Know-How), and upon such termination the Strategic Collaboration Agreement (other than such identified surviving Articles and Section) shall have no further force or effect and none of the parties thereto shall have any further rights or obligations with respect thereto.

If there is any conflict or inconsistency between the provisions of the surviving Articles and Sections of an Existing Agreement and the provisions of any Transaction Document, then the provisions of the Transaction Documents shall prevail. For clarity, the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, and the Purchased Know-How, and Buyer's corresponding interest in the Lipase Project Enzyme and such Purchased Patents, Resultant Patents, and Purchased Know-How under the Existing Agreements, shall cease to constitute Joint Patents or Jointly Owned Inventions under any Existing Agreement and cease to be subject to the terms of the Existing Agreements (including the provisions thereof surviving the termination thereof) and, as between the parties, the Prosecution, defense, and enforcement of the Purchased Patents, Resultant Patents, the Purchased Know-How, and Acquired Regulatory Documentation will be controlled

solely by the terms of this Agreement and not the surviving Articles and Sections of any Existing Agreement. For clarity, all right, title, and interest in the Purchased Patents, including the right to sue for past infringement, shall be Confidential Information of each belong solely to Buyer as of the Parties, Closing Date.

Section 5.13 License to Know-How.Effective as of the Closing Date and subject to the terms of this Section 5.13, Seller (on behalf of itself and its Affiliates) hereby grants to Buyer, and Buyer accepts, a non-exclusive, perpetual, irrevocable, royalty-free, worldwide, non-transferable (except as set forth below), sublicensable (solely as set forth below) license under the Licensed Know-How to Manufacture, Develop, Commercialize, and otherwise Exploit the Lipase Project Enzyme anywhere in the world, [***]. Buyer shall have no rights or license to any enhancements, improvements, or other modifications to the Licensed Know-How made by or on behalf of Seller or any of its Affiliates after the Closing Date. All use of the Licensed Know-How by or under authority of Buyer (or its successors and assigns) from and after the Closing Date shall be on an "AS IS, WHERE IS" basis, with all faults and all express and implied representations and warranties disclaimed, and at its sole risk. All rights not expressly granted by Seller and its Affiliates hereunder are reserved by Seller and its Affiliates. The license to the Licensed Know-How granted under this Section 5.13 shall be sublicensable (including through multiple tiers of sublicensees) only to (i) Affiliates (but only for so long as they remain Affiliates of Buyer), Licensees, and service providers of Buyer and (ii) any Third Party that acquires one or more of the Purchased Patents or Resultants Patents and such Third Party's Affiliates (but only for so long as they remain Affiliates of such Third Party) and service providers, in each case, for use solely within the scope of the above license, and shall be assignable and transferable only to successors in interest to all or substantially all of the assets of Buyer relating to the Products. Buyer is liable for any acts or omissions of its Licensees, Affiliates, employees, contractors, representatives, and (direct and indirect) sublicensees that would, if an act or omission of Buyer, be a breach of this Section 5.13. The rights and licenses granted in this Section 5.13 are subject to, and limited by, any and all licenses, rights, limitations, and restrictions with respect to the Licensed Know-How previously granted to or otherwise obtained by any Third Party that are in effect as of the Closing Date. Nothing contained herein will be construed as an obligation to disclose or deliver any technical information or embodiment of any Licensed Know-How or to provide any technical assistance or other services or deliverables to Buyer or its Affiliates.

Section 5.14 [***].[***].

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ARTICLE VI
CONDITIONS TO CLOSING

Section 6.01 Conditions on Obligations of Buyer.The obligations of Buyer to consummate the transactions contemplated by this Agreement shall be subject to the fulfillment or Buyer's waiver, at or prior to the Closing, of each of the following conditions:

(a) The representations and warranties of Seller contained in ARTICLE III shall be true and correct in all respects as of the Closing Date with the same effect as though made at and as of such date (except those representations and warranties that address matters only as of a specified date, which shall be true and correct in all respects as of that specified date), except where the failure of such representations and warranties to be true and correct would not have a Material Adverse Effect.

(b) Seller shall have duly performed and complied in all material respects with all agreements, covenants and conditions required by this Agreement and each of the other Transaction Documents to be performed or complied with by it prior to or on the Closing Date.

(c) Seller shall have delivered to Buyer duly executed counterparts to the Transaction Documents (other than this Agreement) and such other documents and deliverables set forth in Section 2.02(a).

Section 6.02 Conditions on Obligations of Seller.The obligations of Seller to consummate the transactions contemplated by this Agreement shall be subject to the fulfillment or Seller's waiver, at or prior to the Closing, of each of the following conditions:

(a) The representations and warranties of Buyer contained in ARTICLE IV shall be true and correct in all respects as of the Closing Date with the same effect as though made at and as of such date (except those representations and warranties that address matters only as of a specified date, which shall be true and correct in all respects as of that specified date), except where the failure of such representations and warranties to be true and correct would not have a material adverse effect on Buyer's ability consummate the transactions contemplated hereby.

(b) Buyer shall have duly performed and complied in all material respects with all agreements, covenants and conditions required by this Agreement and each of the other Transaction Documents to be performed or complied with by it prior to or on the Closing Date.

(c) Buyer shall have delivered to Seller duly executed counterparts to the Transaction Documents (other than this Agreement) and such other documents and deliverables set forth in Section 2.02(b).

ARTICLE VII
INDEMNIFICATION

Section 7.01 Survival.Subject to the limitations and other provisions of this Agreement, the representations and warranties contained herein shall survive the Closing and shall remain in full force and effect until the date that is [***] from the Closing Date. None of the covenants or other agreements contained in this

Agreement shall survive the expiration or other termination of the Term other than those which by their terms contemplate performance after termination (including Section 5.03 (Confidential Information) and Section 5.11 (Books and Records; Audits)), and each such surviving covenant and

agreement shall survive termination for the period contemplated by its terms. Notwithstanding the foregoing, any claims asserted in good faith with reasonable specificity (to the extent known at such time) and in writing by notice from the non-breaching party to the breaching party prior to the expiration date of the applicable survival period shall not thereafter be barred by the expiration of such survival period and such claims shall survive until finally resolved.

Section 7.02 Indemnification by Seller.Subject to the other terms and conditions of this ARTICLE VII, from and after the Closing, Seller shall indemnify Buyer, its Affiliates, and each of their successors and assigns (collectively, the "**Buyer Indemnified Parties**")against, and shall hold the Buyer Indemnified Parties harmless from and against, any and all losses, damages, liabilities, deficiencies, Actions, judgments, interest, awards, penalties, fines, costs, or expenses of whatever kind, including reasonable out-of-pocket expenses of investigation and reasonable attorneys' fees and expenses in connection with any action, [***] (collectively, "**Losses**"), incurred or sustained by, or imposed upon, any Buyer Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) any Excluded Liability.

Section 7.03 Indemnification by Buyer.Subject to the other terms and conditions of this ARTICLE VII, from and after the Closing, Buyer shall indemnify Seller, its Affiliates, and each of their successors and assigns (collectively, the "**Seller Indemnified Parties**")against, and shall hold the Seller Indemnified Parties harmless from and against, any and all Losses incurred or sustained by, or imposed upon, any Seller Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) [***], any Assumed Liability or Buyer's, its Affiliates', and its Licensees' conduct of the Business after the Closing.

Section 7.04 Certain Limitations.The party making a claim under this ARTICLE VII is referred to as the "**Indemnified Party**,"and the party against whom such claims are asserted under this ARTICLE VII is referred to as the "**Indemnifying Party**."The indemnification provided for in Section 7.02 and Section 7.03 shall be subject to the following limitations:

(a) The Indemnifying Party shall not be liable to the Indemnified Party for indemnification under Section 7.02(a) or Section 7.03(a), as the case may be, until the aggregate amount of all Losses in respect of indemnification under Section 7.02(a) or Section 7.03(a) exceeds $[***] (the "**Deductible**"),in which event the Indemnifying Party shall only be required to pay or be liable for Losses in excess of the Deductible.

(b) The aggregate amount of all Losses for which a Seller shall be liable pursuant to Section 7.02(a) shall not exceed [***] of the Purchase Price (the "**Cap**").

(c) In no event shall any Indemnifying Party be liable to any Indemnified Party for any punitive, incidental, consequential, special, or indirect damages, or for any damages based on

loss of future revenue or income, loss of business reputation or opportunity relating to the breach or alleged breach of this Agreement, or diminution of value or any damages based on any type of multiple, [***].

(d) [***].

(e) Seller shall not be liable under this ARTICLE VII for any Losses based upon or arising out of any inaccuracy in or breach of any of the representations or warranties of Seller contained in this Agreement if Buyer [***] knowledge of such inaccuracy or breach prior to the Closing.

For purposes of calculating the Deductible or the Cap with respect to any Losses, the Deductible or Cap, as applicable, will be calculated as of the date on which such Loss is payable by the Indemnifying Party to the Indemnified Party and the Purchase Price for purposes of such calculation will be equal to the aggregate of the Initial Purchase Price, the Milestone Earnout Payments, and Sales Earnout Payments paid or payable by Buyer to Seller during the period from the Closing Date until (and including) the date on which such Loss is payable; [***].

Section 7.05 Indemnification Procedures.Whenever any claim shall arise for indemnification hereunder, the Indemnified Party shall promptly provide written notice of such claim to the Indemnifying Party. Such notice by the Indemnified Party shall: (a) describe the claim in reasonable detail; (b) include copies of all material written evidence thereof; and (c) indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party. In connection with any claim giving rise to indemnity hereunder resulting from or arising out of any Action by a Person who is not a party to this Agreement, the Indemnifying Party, at its sole cost and expense and upon written notice to the Indemnified Party, may assume the defense of any such Action with counsel reasonably satisfactory to the Indemnified Party. The Indemnified Party shall be entitled to participate in the defense of any such Action, with its counsel and at its own cost and expense, subject to the Indemnifying Party's right to control the defense thereof. If the Indemnifying Party does not assume the defense of any such Action, the Indemnified Party may, but shall not be obligated to, defend against such Action in such manner as it may deem appropriate, including settling such Action, after giving notice of it to the Indemnifying Party, on such terms as the Indemnified Party may deem appropriate and no action taken by the Indemnified Party in accordance with such defense and settlement shall relieve the Indemnifying Party of its indemnification obligations herein provided with respect to any damages resulting therefrom. The Indemnifying Party shall not be entitled to assume or maintain control of the defense of any such Action if (i) [***], (ii) such Action seeks an injunction or equitable relief against the Indemnified Party or any of its Affiliates, or (iii) [***]. Seller and Buyer shall cooperate with each other in all reasonable respects in connection with the defense of any claim, including: (i) making available (subject to the provisions of Section 5.03) records relating to such claim; and (ii) furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party, management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such claim. The Indemnifying Party shall not settle any Action without the Indemnified Party's prior written consent (which consent shall not be unreasonably withheld, conditioned, or delayed).

Section 7.06 Tax Treatment of Indemnification Payments.All indemnification payments made under this Agreement shall be treated by the parties as an adjustment to the Purchase Price for Tax purposes, unless otherwise required by Law.

Section 7.07 Exclusive Remedies.Subject to ARTICLE VIII, the parties acknowledge and agree that from and after the Closing their sole and exclusive remedy with respect to any and all claims (other than claims arising from intentional fraud on the part of a party hereto or its representatives in connection with the transactions contemplated by this Agreement) for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement shall be pursuant to the indemnification provisions set forth in this ARTICLE VII. In furtherance of the foregoing, each party hereby waives, from and after the Closing, to the fullest extent permitted under Law, any and all rights, claims, and causes of action for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other parties hereto and their Affiliates and each of their respective Representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this ARTICLE VII. Nothing in this Section 7.07 shall limit any Person's right to seek and obtain any equitable relief to which such Person shall be entitled or to seek any remedy on account of any intentional fraud by any party hereto or its representatives.

Section 7.08 Right to Set-Off.

(a) Buyer is expressly authorized, but shall not be obligated, to set-off any Losses that the Parties have agreed in writing, or which have been finally determined in accordance with ARTICLE X, to be subject to indemnification by Seller hereunder (subject to the limitations set forth in Section 7.04) against any Milestone Earnout Payment or Sales Earnout Payment or any other payments payable to Seller pursuant to this Agreement.

(b) Neither the exercise nor the failure or delay to exercise such right to withhold or set off pursuant to this Section 7.08 will constitute an election of remedies or limit the rights and remedies of the Buyer Indemnified Parties hereunder (other than to the extent any Losses have been set off pursuant to Section 7.08(a)).

ARTICLE VIII
TERM AND TERMINATION

Section 8.01 Term.This Agreement commences upon the Effective Date and will, unless earlier terminated in accordance with Section 8.02, continue until the later of:

(a) [***] of the Effective Date; and

(b) [***] of the date the last Sales Earnout Payment is made to Seller (the period from the Effective Date until the expiration or other termination of this Agreement, the "**Term**").

Section 8.02 Termination.This Agreement may be terminated at any time prior to the Closing:

(a) by the mutual written agreement of Seller and Buyer;

(b) by Buyerby written notice to Seller if:

(i) Buyer is not then in material breach of any provision of this Agreement and there has been a material breach, inaccuracy in, or failure to perform any representation, warranty, covenant, or agreement made by Seller pursuant to this Agreement that would give rise to the failure of any of the conditions specified in

ARTICLE VI and such breach, inaccuracy, or failure cannot be cured by Seller by [***] (the "**Buyer Drop Dead Date**"); or

(ii) any of the conditions set forth in Section 6.01 shall not have been fulfilled by the Buyer Drop Dead Date, unless such failure shall be due to the failure of Buyer to perform or comply with any of the covenants, agreements, or conditions hereof to be performed or complied with by it prior to the Closing;

(c) by Seller by written notice to Buyer if:

(i) Seller is not then in material breach of any provision of this Agreement and there has been a material breach, inaccuracy in, or failure to perform any representation, warranty, covenant, or agreement made by Buyer pursuant to this Agreement that would give rise to the failure of any of the conditions specified in ARTICLE VI and such breach, inaccuracy, or failure cannot be cured by Buyer by [***] (the "**Seller Drop Dead Date**"); or

(ii) any of the conditions set forth in Section 6.02 shall not have been fulfilled by the Seller Drop Dead Date, unless such failure shall be due to the failure of Seller to perform or comply with any of the covenants, agreements, or conditions hereof to be performed or complied with by it prior to the Closing.

Section 8.03 Effect of Termination.In the event of the termination of this Agreement in accordance with Section 8.02, this Agreement shall forthwith become void and there shall be no liability on the part of any party hereto except:

(i) that the obligations set forth in this ARTICLE VIII, Section 5.03, ARTICLE X, and ARTICLE XI hereof shall survive termination; and

(ii) that nothing herein shall relieve any party hereto from liability for any intentional breach of any provision hereof prior to such termination.

ARTICLE IX
AMYLASE AND PROTEASE OPTION

Section 9.01 Option.Buyer shall have the right (the "**Option**"),but not the obligation, at any time during the Option Period, to purchase certain additional assets of Seller on the terms set forth in the A&P Acquisition Agreement and this Article 8; IX. In connection with the grant to Buyer of the Option, Seller shall deliver, concurrently with the execution of this Agreement and as a condition thereto, an executed signature page to the A&P Acquisition Agreement, which signature page shall be held in escrow by Buyer [***].

Section 9.02 Notice of Exercise.At any time prior to the expiration or other termination of the Option Period, subject to Section 9.03, Buyer may, in its sole and absolute discretion, exercise the Option by delivering to Seller a written notice of such exercise (the "**Notice of Exercise**").The date the Notice of Exercise is delivered by Buyer to Seller shall be referred to herein as the "**Option Exercise Date**."

Section 9.03 Closing.The transactions contemplated by the A&P Acquisition Agreement shall be consummated on the date that is not later than [***] after the Option Exercise Date (the "**A&P Acquisition Agreement Effective Date**"), unless otherwise mutually agreed by the parties or Buyer has

revoked its Notice of Exercise in accordance with this Section 9.03. During the period from the Option Exercise Date to the A&P Acquisition Agreement Effective Date, the parties shall prepare in good faith each of the Transaction Documents contemplated by Section 2.02(a) of the A&P Acquisition Agreement, including the A&P Expression System License Agreement, which shall be substantially in the form and substance of the Expression System License Agreement and modified to include the particulars of the Plasmid and Cell Bank Strain, Current Facility(ies), Current Services Providers, and other details relevant to the A&P Project Enzymes (as defined in the A&P Acquisition Agreement) and to provide for the transfer of the Cell Banks for the A&P Project Enzymes stored at Seller to Buyer, its Affiliate, or a Service Provider. Seller (a) may, within [***] of the Option Exercise Date, supplement, amend, or add any schedule to the disclosure schedules to the A&P Acquisition Agreement (the "**A&P Disclosure Schedules**"),by giving notice to Buyer in accordance with this Agreement, in order to add information and (b) shall,

[***] prior to the A&P Acquisition Agreement Effective Date, update the A&P Disclosure Schedules to include (i) in Section 1.01(a) thereto, all then-existing Patents owned by Seller or its Affiliates that claim or disclose inventions comprising, or that are reasonably necessary for the Manufacturing or use of [***] (as each term is defined in the A&P Acquisition Agreement) as each then-currently exists, other than any Patents covered by the A&P Expression System License Agreement, (ii) in Section 1.01(b) thereto, all Contracts to which Seller or its Affiliates are party that relate exclusively to the A&P Project Enzymes, and (iii) in Section 1.01(c) thereto, all inventory of drug substance, drug product, samples thereof, and antibodies, in each case, of [***] then in Seller's or its Affiliates' possession or under its control; provided that [***]. If [***], Buyer shall deliver to Seller on or prior to the A&P Acquisition Agreement Effective Date a copy of the A&P Acquisition Agreement executed by Buyer and with the A&P Acquisition Agreement Effective Date inserted therein, which will be effective in accordance with the terms of the A&P Acquisition Agreement as of the A&P Acquisition Agreement Effective Date [***]. For the avoidance of doubt, so long as Buyer has delivered a Notice of Exercise on or prior to the expiration or termination of the Option Period [***], then the Closing (as defined in the A&P Acquisition Agreement) shall occur in accordance with the terms of this Agreement and the A&P Acquisition Agreement, as applicable notwithstanding expiration or termination of the Option Period.

Section 9.04 Patent Prosecution and Costs.During the period prior to the expiration or termination of Option Period, Seller shall continue to Prosecute and maintain and shall not abandon any of Seller's existing Patents covering the A&P Enzymes. Without limiting the foregoing, (a) Seller shall, or shall cause the external law firm prosecuting such Patents to, consult in good faith with Buyer with respect to all material steps to be taken in connection with such Prosecution and maintenance of such Patents (provided, however, that Seller will not be required to disclose any information to Buyer if such disclosure would be reasonably likely to result in any waiver of attorney-client privilege, work product doctrine, joint defense privilege or any other privilege and the parties agree that any disclosure of information pursuant hereto shall not constitute a waiver of any such privilege), and (b) Seller shall promptly provide Buyer with copies of any notices or correspondence received from any Governmental Authority or other Third Party regarding such Patents and consult in good faith with Buyer with respect to any written response or further action in response to such notice. Should any patent applications expire or issue as patents prior to the expiration or termination of the Option Period, prior to the expiration of such patent application or the issuance of such patent, Seller shall, if requested by Buyer, file a continuing application claiming priority to such patent to the extent such filing is allowed. Buyer shall, within [***] after Seller's provision of applicable invoices, reimburse Seller for all reasonable and documented, out-of-pocket costs and expenses of Seller and its Affiliates incurred during the period prior to the expiration or termination of the Option Period for or in connection with the Patent Prosecution and maintenance activities of Seller and its Affiliates in accordance with this Section 9.04; provided that, upon Seller's written request, Buyer shall pay directly to one or more law firms engaged by Seller or its Affiliates such costs and expenses of such Prosecution.

Section 9.05 Limited Right to Continue A&P Enzyme Development Work.Notwithstanding Section 7.8 of the SCA, during the Option Period, Buyer shall have the right (co-exclusively with Seller), but not the obligation, to, solely at Buyer's sole cost and sole liability, continue the research, non-clinical Development, and Manufacture (solely for non-clinical use) of the A&P Enzymes, in each case, solely for developing the A&P Enzymes for [***] (the "**A&P Development Work**").Buyer's licenses to use any of Seller's Intellectual Property or Confidential Information to undertake the A&P Development Work is solely as set forth in, and subject to the limitations and requirements of, the Existing Agreement. No right, license, or permission is granted to Buyer or any of its Affiliates to Commercialize any A&P Enzyme or any therapy or product including or made from or using any A&P Enzyme. Other than as otherwise expressly set forth in this Agreement, Seller and its Affiliates have no obligation to provide Buyer with any support or assistance in connection with any A&P Development Work. Seller shall indemnify Buyer against, and shall hold Buyer harmless from and against, any and all Losses, incurred or sustained by, or imposed upon, Buyer based upon, arising out of, with respect to, or by reason the A&P Development Work, including Buyer's and its Affiliates" activities undertaken in connection with or in furtherance thereof.

Section 9.06 Status Quo.For the avoidance of doubt, unless and until the closing of the A&P Acquisition Agreement, the parties' rights and obligations with respect to the A&P Enzymes are governed by the Existing Agreements (including, if the Existing Agreements expire or otherwise terminate, the terms thereof that survive such expiration or other termination); and, except as set forth in Section 9.05, no new Development, Manufacturing, or Commercialization rights and obligations related to the A&P Enzymes shall be transferred to Buyer or its Affiliates prior to such time.

ARTICLES X
DISPUTE RESOLUTION

Section 10.01 Elevation of Issues for Resolution.In the event the parties or their Representatives are unable to agree upon any dispute or disagreement between the parties arising from or in connection with this Agreement, the construction hereof, or the rights, duties or liabilities of either party hereunder (each a "**Dispute**"),the parties shall endeavor to resolve such Dispute in accordance with the terms of this Section 10.01. Upon the receipt of a written notice from one party to the other party of a Dispute (the "**Notice of Dispute**"),authorized Representatives of the parties, each with authority to settle the Dispute, shall endeavor to discuss their respective positions and use their good faith efforts to resolve the Dispute. In connection with such discussion, the parties may agree to confer with one or more mutually acceptable independent Third Party experts having expertise in the relevant subject matter and both parties shall consider in good faith the views of such Third Party(ies). If for any reason a written agreement signed by both parties is not reached within [***] after the Notice of Dispute, the parties shall promptly refer the Dispute to the Senior Executives (or their respective designees) for resolution, which Senior Executives will have authority to settle the Dispute and shall be charged with resolving such Dispute. If such Dispute is not resolved by the parties' Senior Executives within [***] after the date the Dispute is referred to them, then the Dispute shall be submitted to binding arbitration in accordance with Section 10.02.

Section 10.02 Arbitration.Any Dispute that is not resolved by an executed written agreement of the parties in accordance with Section 10.01, as well as any related claims or other disputes arising out of or in connection with this Agreement including any question regarding its existence, validity, or termination, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise (collectively, the "**Related Claims**"),shall be referred to and finally resolved by arbitration under the [***]rules (the "**Rules**")in effect at the Effective Date except, as they

may be modified herein or by mutual agreement of the parties, which Rules are deemed to be incorporated by reference into this Section 10.02. The number of arbitrators shall be three, unless otherwise mutually agreed by the parties, whereby, claimant and the respondent shall each nominate an arbitrator, and the third arbitrator, who shall be the president of the arbitral tribunal, shall be appointed by the two party-appointed arbitrators in consultation with the parties, in each case, in accordance with the Rules. Each arbitrator shall be experienced in the subject matter herein and the application of [***] law. The seat or legal place of arbitration shall be [***]. The language to be used in the arbitral proceedings shall be English.

(a) Within [***] after the appointment of the arbitrators pursuant to this Section 10.02, the arbitrators and the parties shall meet, and each party shall provide to the arbitrators a written summary of: (i) all issues within the scope of the Dispute and any Related Claims; and (ii) such party's position on each such issue. The arbitrators shall set a date for a hearing, which shall be no later than [***] after the appointment of the final arbitrator pursuant to this Section 10.02, for the presentation of evidence and legal arguments concerning each of the issues identified by the parties; provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***].

(b) The arbitrators shall use each of their best efforts to rule on each disputed issue within [***] after the completion of the hearing described in Section 10.02(a); provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***]. No arbitrator (nor any arbitral tribunal) shall have the power to: (i) award any punitive damages or other damages prohibited by Section 7.04; or (ii) to decide or rule on any issue or other matter that is not clearly with the scope of the Dispute and any Related Claims. The costs of the arbitration shall be [***] during the course of such arbitration, as assessed by [***], and shall be borne as determined by the arbitrators.

(c) The arbitration proceedings, including the existence of the arbitration proceedings, the facts and circumstances surrounding the underlying dispute, all submissions, correspondence, and evidence relating to the arbitration proceedings, and any awards issued by the arbitrator shall be kept confidential by the parties, and the parties shall work with the arbitrators to take such steps as are reasonably necessary to preserve the confidentiality thereof, except to the extent otherwise required by applicable Law.

(d) Subject to Section 10.02(b), the arbitrators shall have the power to grant any remedy or relief that they deem just and equitable, including but not limited to injunctive relief, whether interim or final, and any provisional measures ordered by the arbitrator may be enforced by any court of competent jurisdiction. Notwithstanding the foregoing, nothing in this Agreement shall prevent either party from seeking any provisional/preliminary relief (including injunctions, attachments, or other such orders in aid of arbitration) from any court of competent jurisdiction, and any such application to a court for provisional/preliminary relief shall not be deemed incompatible with the terms of this Agreement to arbitrate or a waiver of the right to arbitrate.

(e) Any award rendered by the arbitrators shall be final and binding on the parties, and each party hereto waives to the fullest extent permitted by law any right it may otherwise have under the laws of any jurisdiction to any form of appeal of, or collateral attack against, such award. Judgment upon any awards rendered by the arbitrators may be entered in any court having jurisdiction thereof, including any court having jurisdiction over any of the parties or their assets.

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

(f) Notwithstanding anything in this ARTICLE X to the contrary, any dispute to determine the validity or infringement of a party's intellectual property rights by the other party (but excluding, in any event, disputes relating to earnouts or other amounts payable hereunder, whether or not involving questions of infringement or validity) shall be submitted exclusively to the courts in the jurisdiction of the relevant intellectual property right, and the parties hereby consent to the jurisdiction of such courts.

ARTICLE XI
MISCELLANEOUS

Section 11.01 Definitions.The terms in this Agreement with initial letters capitalized, whether used in the singular or the plural, shall have the respective meanings either set forth in **Exhibit A** attached hereto or in another part of this Agreement and as cross referenced in **Exhibit A**.

Section 11.02 Construction.

(a) The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

(b) Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or).

(c) The term "including," "include," or "includes" as used herein shall mean including, without limiting the generality of any description preceding such term.

(d) Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument, or other document herein will be construed as referring to such agreement, instrument, or other document as from time to time amended, supplemented, or otherwise modified (subject to any restrictions on such amendments, supplements, or modifications set forth herein or therein), (ii) any reference to any applicable Laws herein will be construed as referring to such Laws as from time to time enacted, repealed, or amended, (iii) any reference herein to any person will be construed to include the person's successors and permitted assigns, (iv) the words "herein", "hereof," and "hereunder", and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (v) any reference herein to the words "mutually agree" or "mutual written agreement" will not impose any obligation on either party to agree to any terms relating thereto except as such party may determine in such party's sole discretion, (vi) all references herein to Sections or Exhibits will be construed to refer to Sections and Exhibits to this Agreement, (vii) the word "days" means calendar days unless otherwise specified, (viii) except as otherwise expressly provided herein all references to "$" or "dollars" refer to the lawful money of the U.S., and (ix) the words "copy" and "copies" and words of similar import when used in this Agreement include, to the extent available, electronic copies, files or databases containing the information, files, items, documents, or materials to which such words apply.

(e) Each party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of this Agreement, the parties agree that no

presumption will apply against the party which drafted such terms and provisions. The language in this Agreement is to be construed in all cases according to its fair meaning.

(f) Any documents will be deemed to have been made available to, and received by, Buyer if such documents were made available to Buyer [***] prior to the execution and delivery of this Agreement by Seller.

Section 11.03 Expenses.Except as otherwise expressly provided herein (including Section 5.09 hereof), all costs and expenses incurred in connection with this Agreement and the transactions contemplated hereby shall be paid by the party incurring such costs and expenses.

Section 11.04 Severability.If and to the extent that any provision (or any part thereof) of this Agreement is held to be invalid, illegal, or unenforceable, in any respect in any jurisdiction, the provision (or the relevant part thereof) shall be considered severed from this Agreement and shall not serve to invalidate the remainder of such provision or any other provisions hereof. The parties shall make a good faith effort to replace any invalid, illegal, or unenforceable provision (or any part thereof) with a valid, legal, and enforceable provision such that the objectives contemplated by the parties when entering this Agreement may be realized.

Section 11.05 Notices.Any notice required or permitted to be given by the parties pursuant to this Agreement shall be in writing and shall be (i) delivered by hand, (ii) delivered by overnight courier with tracking capabilities, (iii) mailed postage prepaid by first class, registered, or certified mail, or (iv) transmitted by electronic mail, with confirmation copy by mail as provided in clause (iii) above, and in each case addressed to the recipient party as set forth below, unless changed by notice so given:

If to Buyer:

Société des Produits Nestlé S.A.
55 Avenue Nestlé
1800 Vevey
Switzerland
Email: [***]
[***]
Attention: [***]
[***]

with a copy to (which shall not constitute notice):

Mayer Brown LLP
1221 Avenue of the Americas

New York, NY 10020
Email: [***]
[***]
Attention: [***]
[***]

If to Codexis:

Codexis, Inc.
200 Penobscot Drive

Redwood City, CA 94063
Attention: President

with a copy to (which shall not constitute notice):

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Email: [***]
Attention: General Counsel

And

Baker Hostetler LLP
312 Walnut Street, Suite 3200
Cincinnati, OH 45202-4074
Email: [***]
[***]
Attention: [***]

(A) with respect to any notice delivered pursuant to clauses (i), (ii) or (iii), such notice shall not be effective unless it was (1) first delivered via e-mail and no response was given within [***] and (2) a subsequent notice via e-mail was sent indicating the delivery via method described in clause (i), (ii), or (iii), as applicable; (B) with respect to any notice delivered pursuant to clauses (i), such notice shall be deemed effective upon submission to such other party, (C) with respect to any notice delivered pursuant to clause (ii), such notice shall be deemed effective [***] following the date of submission to the carrier, (D) with respect to any notice delivered pursuant to clause (iii), such notice shall be deemed effective [***] after the date deposited with the applicable carrier, and with respect to any notice delivered pursuant to clause (iv), (x) upon submission to such other party if sent during normal business hours of the recipient, and (y) on [***] if sent after normal business hours of the recipient (in the case of (x) or (y), subject to confirmation of receipt by recipient by reply email). A party may add, delete, or change the person or address to whom notices should be sent at any time upon written notice delivered to the other party in accordance with this Section 11.05.

Section 11.06 Assignment.Neither this Agreement nor any of the rights or obligations hereunder ([***]) may be assigned or transferred by either party without the prior written consent of the other party, such consent not to be unreasonably withheld, delayed or conditioned; provided, however, that either party may, without the other party's consent, but with written notice to the other party, assign or transfer all of its rights and obligations hereunder to any Affiliate, or to a Third Party with whom it completes a Business Combination or to whom it sells substantially all of such party's assets relating to this Agreement. [***]. This Agreement shall inure to the benefit of and be binding on the parties' successors and assigns. Any assignment or transfer in violation of the foregoing shall be null and void and wholly invalid, the assignee or transferee in any such assignment or transfer shall acquire no rights whatsoever, and the non-assigning, non-transferring party shall not recognize, nor shall it be required to recognize, such assignment or transfer.

Section 11.07 Waivers, Modifications, and Amendments.No waiver, modification, release, or amendment of any obligation under, or provision of, this Agreement shall be valid or effective unless in writing and signed by all parties hereto. The failure of any party to insist on the performance of any

obligation hereunder shall not be deemed to be a waiver of such obligation. Waiver of any provision hereunder or of any breach of any provision hereof shall not be deemed to be a continuing waiver or a waiver of any other breach of such provision (or any other provision) on such occasion or any succeeding occasion. Any

amendment of this Agreement shall not be binding on the parties unless set out in writing, expressed to amend this Agreement and signed by authorized representatives of each of the parties.

Section 11.08 Choice of Law.This Agreement (and any claims or disputes arising out of or relating hereto or to the transaction contemplated hereby or to the inducement of any party to enter herein or therein, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise) shall be governed by, enforced, and shall be construed in accordance with the laws of [***], without regard to its conflicts of law provisions. The parties hereby disclaim the application of the United Nations Convention on the International Sale of Goods to this Agreement.

Section 11.09 Injunctive Relief.Notwithstanding anything herein to the contrary, each party shall be entitled to seek injunctive relief and specific performance (including any relief or recovery under this Agreement) in any court of competent jurisdiction in the world.

Section 11.10 Relationship of the Parties.Each party is an independent contractor under this Agreement. Nothing herein is intended or is to be construed so as to constitute Buyer and Seller as partners, agents, or joint venturers. Neither party shall have any express or implied right or authority to assume or create any obligations on behalf of or in the name of the other party or to bind the other party to any contract, agreement, or undertaking with any Third Party. There are no express or implied third party beneficiaries hereunder.

Section 11.11 Entire Agreement.The parties agree that this Agreement and the attached Exhibits and Disclosure Schedules, together with the Existing Agreements, constitute the entire agreement between the parties as to the subject matter of this Agreement, and hereby supersede all prior negotiations, representations, agreements, and understandings (whether written or oral) regarding the same. Subject to Section 9.05, the provisions in the Existing Agreements pursuant to which each party has agreed not to Develop or Commercialize the Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, remain in full force and effect except as set forth herein with respect to the Lipase Project Enzyme.

Section 11.12 Cooperation.The parties shall (i) provide assistance to each party as reasonably requested in preparing and filing Tax Returns with respect to the Purchased Assets; (ii) make available to each other as reasonably requested all information, records, and documents relating to Taxes concerning the Purchased Assets; (iii) retain any books and records that could reasonably be expected to be necessary or useful in connection with any preparation by any the other party of any Tax Return, or for any audit relating to Taxes with respect to the Purchased Assets; and (iv) cooperate fully, as and to the extent reasonably requested by the other party, in connection with any audits, assessments or administrative or judicial proceedings or other Actions with respect to Taxes relating to the Purchased Assets.

Section 11.13 Counterparts.This Agreement may be executed in counterparts (including using any electronic signature covered by the United States ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable Law, e.g., www.docusign.com), each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. To the extent applicable, the foregoing constitutes the election of the

parties to invoke any Law authorizing electronic signatures. Minor variations in the form of the signature page, including footers from earlier versions of this Agreement, shall be disregarded in determining a party's intent or the effectiveness of such signature. No party shall raise the use the delivery of signatures to this Agreement in electronic format as a defense to the formation of a contract and each such party forever waives any such defense.

Section 11.14 Non-Recourse.This Agreement may only be enforced against, and any Action based upon, arising out of or related to this Agreement, or the negotiation, execution, or performance of this Agreement, may only be brought against the entities that are expressly named as parties hereto and then only with respect to the specific obligations set forth herein with respect to such party. No past, present, or future director, officer, employee, incorporator, manager, member, partner, stockholder, Affiliate, agent, attorney, or other Representative of any party hereto or of any Affiliate of any party hereto, or any of their successors or permitted assigns, shall have any liability for any obligations or liabilities of any party hereto under this Agreement or for any Action based on, in respect of, or by reason of the transactions contemplated hereby.

* * * * * * * * *

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date written above by their respective officers thereunto duly authorized.

CODEXIS, INC.

By: /s/ Stephen Dilly

Name: Stephen Dilly

Title: Chief Executive Officer

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

By: /s/ Claudio Kuoni

Name: Claudio Kuoni

Title: Authorized Signatory

[Signature Page to Acquisition Agreement]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

EXHIBIT A

DEFINITIONS AND CROSS-REFERENCE TABLE

Certain Definitions.The following terms have the following meanings:

"**A&P Acquisition Agreement**"or "**Amylase and Protease Acquisition Agreement**"means the Amylase and Protease Acquisition Agreement in the form attached hereto and made a part hereof as **Exhibit H**.

"**A&P Enzymes**"means the amylase and protease Project Enzymes (as such term is defined in the SCA) [***].

"**A&P Expression System License Agreement**"has the meaning given to the term "Expression System License Agreement" in the A&P Acquisition Agreement.

"**A&P Product**"means (a) any A&P Enzyme [***] and (b) [***].

"**Affiliate**"of a Person means an entity that (directly or indirectly) is controlled by, controls, or is under common control with such Person where control means the direct or indirect ownership of voting securities entitled to cast at least fifty percent (50%) of the votes in the election of directors, or such other relationship as results in the power to control the management, business, assets, and affairs of an entity.

"**BLA**"means (a) in the United States, a Biologics License Application, as defined in the United States Public Health Service Act (42 U.S.C. § 262), and applicable regulations promulgated thereunder by the FDA, or any equivalent application that replaces such application, (b) in the EU, a marketing authorization application, as defined in applicable regulations of the EMA, and (c) in any other country, the relevant equivalent to the foregoing.

"**Books and Records**"means all files (including all electronic data files and hard copies), documents, correspondence, lists, drawings and specifications, creative materials, marketing plans, studies (including market research and market data), reports, and other printed or written materials (in whatever form or medium).

"**Business**"means, following the Closing Date, the Development, Manufacture, Commercialization and other Exploitation of Products by Buyer, its Affiliates, and its Licensees.

"**Business Combination**"means, with respect to a party, any of the following events: (a) any Third Party (or group of Third Parties acting in concert) acquires, directly or indirectly, shares of such party representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such party; (b) such party consolidates with or merges into another corporation or entity which is a Third Party, or any corporation or entity which is a Third Party consolidates with or merges into such party, in either event pursuant to a transaction in which at least a majority of the voting power of

the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such party immediately preceding such consolidation or merger; or (c) such party conveys or transfers title to all or substantially all of its assets to a Third Party.

"**Business Day**"means a day other than Saturday, Sunday, or any day on which commercial banks located in [***] are authorized or obligated by applicable Law to close.

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

"**Calendar Quarter**"means, with respect to any given Calendar Year, the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 or December 31, provided, however, that (a) the first Calendar Quarter of the Term shall extend from the Effective Date to the end of the first complete Calendar Quarter thereafter; and (b) the last Calendar Quarter of the Term shall end upon the expiration or termination of this Agreement.

"**Calendar Year**"means each successive period of twelve (12) consecutive months commencing on January 1 and ending on December 31, provided, however, that (a) each Party may disclose this Agreement, in confidence, (i) to legal, tax and financial advisors (including auditors and lenders) and governmental tax authorities and (ii) in connection with any proposed or actual transactions involving the disclosing Party in the form of mergers, offerings, acquisitions, collaborations, fundings and investments, provided that such disclosure to advisors and other parties would be limited to a strict "need to know" basis, would be on basis that such advisors and other parties receiving access to the terms and conditions of this Agreement would agree to hold the Confidential Information on terms of confidentiality equivalent to those in this Agreement and the disclosing Party would be responsible for any breach by any such advisor or other party to whom disclosure is made; and (b) each Party may disclose this Agreement, in its entirety or with portions redacted, as may be required by Applicable Law. The Parties recognize that either or both Parties may be required by Applicable Law (including the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, or the rules of a securities exchange or the Securities and Exchange Commission or the securities regulations of any state or other jurisdiction) to disclose (a) the existence of this Agreement, (b) the terms hereof, (c) financial information related to this Agreement (including, without limitation, sales and revenues earned hereunder) and (d) this Agreement (in its entirety or with portions redacted). Any such disclosure that is required by Applicable Law may be made by Codexis or Pfizer; provided that any such required disclosure will, to the extent consistent with Applicable Law, not contain any Confidential Information of, respectively, Pfizer or Codexis and, if disclosure of such information is required by Applicable Law or such rules or regulations, the Parties will use reasonable efforts to minimize such disclosure and obtain confidential treatment for any such information that is disclosed pursuant to Applicable Law, including the identities first Calendar Year of the Parties or the other Party, as applicable.

8.7 Survival. All obligations of non-disclosure and non-use imposed pursuant to the terms and conditions of this Article 8 Term shall survive expiration or termination of this Agreement and continue in full force and effect for a period of [***] after the effective

date of such expiration or such termination. In the case of a Technology Transfer, the obligations of non-disclosure and non-use imposed pursuant to the terms of this Article 8 shall survive expiration or termination of this Agreement and continue in full force and effect for a period of [***] after the effective date of such expiration or such termination, and with respect to any Confidential Information identified as a trade secret by a Party, for so long as the applicable Confidential Information retains its status as a trade secret under Applicable Law.

9. REPRESENTATIONS AND WARRANTIES

9.1 Representations and Warranties

(a) By Each Party. Each Party represents and warrants that as of the Effective Date: (i) it is duly organized and validly existing under the laws of the jurisdiction of its incorporation and has full corporate power and authority to enter into this Agreement; (ii) it has taken all corporate actions necessary to authorize the execution and delivery of this Agreement and the performance of its obligations under this Agreement; (iii) the performance of its obligations under this Agreement do not conflict with, or constitute a default under, its charter documents, any contractual obligation of such Party or any court order and (iv) this Agreement has been duly executed and delivered on behalf of such Party and constitutes a legal, valid and binding obligation of such Party and is enforceable against it in accordance with its terms, subject to the effects of bankruptcy, insolvency or other

similar laws of general application affecting the enforcement of creditor rights and judicial principles affecting the availability of specific performance and general principles of equity, whether enforceability is considered in a proceeding at law or equity. Pfizer Inc. is an equal opportunity employer and federal contractor. Consequently, the Parties agree that, as applicable, they will abide by the requirements of Executive Order 11246, 41 CFR 60-1.4(a); the Vietnam Era Veterans' Readjustment Assistance Act, 41 CFR 60-300.5(a); and Section 503 of the Rehabilitation Act of 1973, 41 CFR 60-741.5(a), and that these laws are incorporated herein by reference. These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity, or national origin. These regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, protected veteran status or disability. The parties also agree that, as applicable, they will abide by the requirements of Executive Order 13496 (29 CFR Part 471, Appendix A to Subpart A), relating to the notice of employee rights under federal labor laws.

(b) By Codexis. Codexis represents and warrants to Pfizer and its Affiliates that:

(i) at the time of delivery of Codexis Enzyme and during the Retest Period such Codexis Enzyme shall meet the requirements therefor set forth in the applicable Enzyme Specification;

(ii) title to Codexis Enzyme will pass to Pfizer and its Affiliates free and clear of any security interest, lien or other encumbrance;

(iii) [***]; and

(iv) such Codexis Enzyme will have been manufactured in accordance with Applicable Law, this Agreement, and any Quality Agreement between the Parties and in facilities that are in compliance with Applicable Law at the time of such manufacture.

(c)Debarment; Exclusion List. Codexis represents, warrants and covenants to Pfizer and its Affiliates that:

(i) neither Codexis nor any of its Affiliates nor any of its contractors performing Services hereunder has been debarred or is subject to debarment pursuant to Section 306 of the FD&C Act or listed on any Excluded List, and

(ii) neither Codexis nor any of its Affiliates nor any of its contractors performing Services hereunder will use in any capacity, in connection with this Agreement, any person or entity who has been debarred pursuant to Section 306 of the FD&C Act, or who is the subject of a conviction described in such Section, or listed on any Excluded List.

Codexis shall inform Pfizer in writing immediately if it, its Affiliates or any person or entity who is involved in the manufacture of the Codexis Enzyme or otherwise performing services hereunder is debarred or is the subject of a conviction described in Section 306 of the FD&C Act or listed on any Excluded List, or if any claim or action is pending or is threatened, relating to the debarment or conviction Section 306 of the FD&C Act, or listing on any Excluded List, of Codexis or any person or entity who is involved in the manufacture of the Codexis Enzyme or otherwise performing services hereunder.

(d) Government Enforcement Action. Codexis represents and warrants that as of the Effective Date of this Agreement there is no pending or likely governmental enforcement action or private claim against Codexis or its Affiliates or, to Codexis' knowledge, [***], or any environmental conditions, events or circumstances that are reasonably likely to limit, impede or otherwise jeopardize Codexis' ability to meet its obligations under this Agreement.

(e) Anti-Bribery; Anti-Corruption. Codexis represents, warrants and covenants that Codexis has not and will not directly or indirectly offer or pay, or authorize such offer or payment of, any money or anything of value to improperly or corruptly seek to influence any Government Official or any other person in order to gain an improper business advantage, and has not accepted, and will not accept in the future, such a payment. Codexis will comply with Pfizer's Anti-Bribery and Anti-Corruption Principles set forth in **Exhibit 9.1(e)**.

(f) **Environment, Health and Safety-General.** Codexis represents, warrants and covenants that:

(i) Codexis shall perform all of its obligations herein in compliance with all Environmental Laws and all necessary environmental or other licenses, registrations, notifications, certificates, approvals, authorizations or permits required under Environmental Laws and any private permissions;

(ii) Codexis shall abate any condition or practice, regardless of whether such condition or practice constitutes non-compliance with Environmental Laws, which poses a significant threat to human health, safety, or the environment, or would be

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reasonably likely to limit, impede, or otherwise jeopardize Codexis' ability to fulfill its obligations to Pfizer;

(iii) Codexis shall be solely responsible for all Environmental Losses incurred during the performance of this Agreement;

(iv) Codexis shall be solely responsible for the generation, collection, storage, handling, transportation, movement and disposal of all Hazardous Materials and Waste, as applicable, in compliance with Environmental Laws;

(v) Codexis agrees to release Pfizer and its Affiliates and Pfizer Designees from any liability and waive any claim, pursuant to statute, code, or common law, that Codexis is liable to it or to any Third Party, for any Environmental Loss arising out of the management of Codexis' Waste;

(vi) Codexis shall provide to Pfizer all information available to Codexis related to the safety, safe handling, environmental impact, and disposal of the Codexis Enzyme including, without limitation, material safety data sheets;

(vii) Throughout the term of this Agreement, Codexis shall promptly deliver to Pfizer, as it becomes available to Codexis, any updates or amendments to the information provided pursuant to this Section and any new information relating to the safety, safe handling, environmental impact, or disposal of the Codexis Enzyme;

(viii) Codexis shall provide prompt notification to Pfizer in the event of any significant condition or incident, which shall include any event, occurrence, or circumstance, including any governmental or private action, which could materially impact Codexis' ability to fulfill its obligations under this Agreement. These include, but are not limited to: (A) material revocation or modification of any licenses, registrations, notifications, certificates, approvals, authorizations or permits required by any applicable Law, (B) any action by governmental authorities that may reasonably lead to the material revocation or modification of Codexis' required permits, licenses, or authorizations, (C) above, any third party claim against the management or ownership of the facility that could reasonably impact Codexis' obligations under this Agreement, (D) any fire, explosion, significant accident, or catastrophic Release of Hazardous Substances, or significant "near miss" incident, (E) any significant non-compliance with Environmental Laws, and (F) any environmental condition or operating practice that may reasonably be believed to present a significant threat to human health, safety or the environment;

(ix) Codexis shall ensure that, to the extent applicable to the Codexis Enzyme, the Codexis Enzyme is in compliance with California Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as Proposition 65), the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (also known as REACH), and any other chemical registration laws, that may regulate, limit, or ban chemicals in the Codexis Enzyme. Codexis shall immediately disclose to Pfizer if it knows of or becomes aware of any detectible amount or possible generation of a material or chemical listed under Applicable Laws in the Codexis Enzyme including (a) upon customary use of the Codexis Enzyme, (b) that are naturally occurring, and/or (c) that are unavoidable constituents or contaminants of a raw material or ingredient of the Codexis Enzyme. For the avoidance of doubt, this disclosure is in addition to any Safety Data Sheets that may be provided to Pfizer. Codexis's failure to promptly disclose the foregoing to Pfizer shall constitute a material breach of the Agreement. Codexis agrees to consider, and implement if directed by Pfizer, Codexis Enzyme formulation alternatives.

Codexis shall monitor Applicable Laws for updates and timely advise Pfizer of new information that may impact the Codexis Enzyme.

(g) Responsible Supply Chain. Codexis represents, warrants, and covenants that it does not, as of the Effective Date, and shall not, during the Term of this Agreement:

(i) use involuntary, bonded or underage labor (defined in accordance with Laws and to the extent applicable Laws) at the Facility(ies); or

(ii) engage in human trafficking; or

(iii) maintain unsafe or unhealthy conditions in any dormitories or lodging that it provides for its employees.

In addition, Codexis agrees and covenants that during the Term of this Agreement:

(i) it shall promptly correct unsafe or unhealthy conditions in any dormitories or lodging that it provides for its employees;

(ii) disclose to Pfizer any use, whether intentional or unintentional, of involuntary, bonded or underage labor or instances of human trafficking, and shall correct unsafe or unhealthy conditions in any lodging that it provides for its employees;

(iii) use reasonable efforts to include similar prohibition and disclosure requirements in agreements with its own suppliers;

(iv) cooperate and provide such information and/or certifications as are reasonably necessary if Pfizer or its Affiliates are obligated to provide or post disclosures regarding labor practices, including, without limitation, disclosures under the California Transparency In Supply Chains Act of 2010, California Civil Code § 1714.43, and similar Applicable Laws; and

(v) perform its obligations under this Agreement in a manner consistent with the Pharmaceutical Industry Principles for Responsible Supply Chain Management, as codified as of the date of this Agreement at https:/pscinitiative.org/principles and Pfizer's Supplier Conduct Principles.

(h) Conflict Minerals. Codexis agrees and covenants to, to the extent applicable:

(i) adopt and maintain policies and procedures for the responsible sourcing and traceability of Conflict Minerals. Such policies and procedures shall include management systems and supplier outreach and due diligence processes that are at least as stringent as those contemplated by the Organization for Economic Co-operation and Development Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas;

(ii) follow any Conflict Minerals policy that may be adopted by Pfizer from time to time,

(iii) provide to Pfizer such information as Pfizer may from time to time request, including information concerning the origin of any Conflict Minerals in products,

components or raw materials supplied to Pfizer and Codexis' related compliance procedures, and

(iv) adopt such procedures relating to the responsible sourcing and traceability of Conflict Minerals as may be requested by Pfizer from time to time. If Codexis determines that Conflict Minerals contained in any of the products, components or raw materials supplied to Pfizer are

from sources that are believed to support conflict, Codexis shall immediately notify Pfizer at cmcompliance@pfizer.com, which notice shall contain reasonable supporting detail to enable Pfizer to assess such determination. Codexis shall not seek to embargo the sourcing of Conflict Minerals from any country or region without the prior approval of Pfizer.

(i) Environment, Health, Safety, and Sustainability Policies. **Environment, Health, Safety, and Sustainability Policies**. All Codexis Enzyme to be supplied hereunder will be manufactured at Qualified Enzyme Manufacturing Facilities. For the [***] Facility and any New Qualified Enzyme Manufacturing Facility, Codexis shall, at Pfizer's written request, work in good faith with the operators of Qualified Enzyme Manufacturing Facilities to implement mutually acceptable environment, health, safety and sustainability policies which address, among other things, an ongoing commitment to sustainability, including understanding and mitigating environmental impact, elimination of workplace injuries and illnesses, and the protection of local communities from potential impacts of the Qualified Enzyme Manufacturing Facility's operations. As and when they become available, Codexis shall identify and bring to Pfizer's attention Codexis Enzyme options that have a reduced environment, health and/or safety impact. In the event Codexis receives a New Order for Codexis Enzyme for which Codexis has an option with a reduced environmental footprint or a more favorable health and safety profile, Codexis shall promptly notify Pfizer of such option(s). Codexis shall discuss with Pfizer the feasibility, efficacy, regulatory and cost implications of any of the foregoing alternate Codexis Enzyme options and shall provide such options if and as directed by Pfizer.

(j) Global Trade Controls Laws. Codexis represents, warrants, and covenants that:

(i) activities under this Agreement will not take place in a Restricted Market; will not involve companies, organizations, or governmental entities from a Restricted Market; and will not involve that are individuals ordinarily resident in a Restricted Market;

(ii) Codexis is not a Restricted Party and is not owned or controlled by a Restricted Party;

(iii) with respect to activities performed under this Agreement, Codexis confirms that no Restricted Parties will be engaged or delegated any activities under this Agreement;

(iv) in the event that any of these representations change, Codexis will immediately inform Pfizer in writing and suspend all affected activities, including but not limited to making any related payments, under this Agreement, until Pfizer agrees to move forward and end the suspension of the affected activities; and

(v) Codexis will not knowingly transfer any goods, software, technology, or services to Pfizer that are (A) controlled under the U.S. International

Traffic in Arms Regulations or at a level other than EAR99 under the U.S. Export Administration Regulations; or (B) specifically identified as an E.U. Dual Use Item or on an applicable export control list of another country.

9.2 Disclaimer of Warranties. EXCEPT AS SPECIFICALLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, OR ANY OTHER SIMILAR STATUTORY WARRANTY. EACH PARTY EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES.

10. INTELLECTUAL PROPERTY

10.1 Ownership by Codexis. As between the Parties, subject only to the license set forth in Section 10.2, Codexis shall retain and own all right, title and interest in, to and under the Codexis Technology, and Codexis shall have the right, but not the obligation, to file applications for, and to control the prosecution and maintenance of, the Codexis Technology and to enforce all rights therein. Pfizer and its Affiliates hereby assign to Codexis all its right, title and interest in, to and under any and all discovery, invention, contribution, method, finding or improvement, whether or not patentable, and all related intellectual property, including without limitation patents, trade secrets, and/or know-how, that is conceived, reduced to practice, or otherwise developed by Pfizer and/or its Affiliates, either solely or jointly with Codexis and/or a Third Party, during the Term that claim the Codexis

Enzyme (collectively, the "**Codexis Inventions**"). Pfizer and its Affiliates agree to cooperate with Codexis, at Codexis' reasonable request and expense, in the preparation of any patent application claiming any subject matter within such Codexis Inventions.

10.2 License to Codexis Technology.

(a) Subject to the terms and conditions of this Agreement, Codexis hereby grants to Pfizer a non-exclusive, non-transferrable (except to a permitted assignee of this Agreement by Pfizer pursuant to Section 13.7), non-sublicensable (except to Affiliates of Pfizer and Pfizer Designees manufacturing Intermediate for Pfizer and its Affiliates for use in the manufacture and sale of Product), worldwide, royalty-free, fully-paid, perpetual, irrevocable (subject to Section 11.7(a)), license under the Codexis Technology to use and import (but not to make, have made, improve, have improved, sell, or have sold) Codexis Enzyme in order to make, have made, use, import, offer for sale, sell or have sold Intermediate solely for the manufacture and sale of Product by or for Pfizer and its Affiliates in the Territory. For clarity, no license is granted under the Codexis Technology to offer for sale, sell or have sold Intermediate to Third Parties. For clarity, no license is granted under the Codexis Technology to use or import enzymes other than Codexis Enzyme in order to make, have made, use, import, offer for sale, sell or have sold Intermediate solely for the manufacture and sale of Product by or for Pfizer and its Affiliates in the Territory.

(b) Codexis hereby represents and warrants as follows:

(i) Codexis has the right to grant the licenses granted herein;

(ii) Codexis has not granted and will not grant any rights to any Third Parties which would conflict with the rights granted to Pfizer herein;

(iii) Codexis [***] Controls the Codexis Technology, and, as of the Effective Date, the patents set forth in **Exhibit 1.36** are a complete and correct listing of all patent rights in the Codexis Technology in the Territory;

(iv) [***];

(v) to Codexis' actual knowledge, [***];

(vi) to Codexis' actual knowledge, [***]; and

(vii) to Codexis' actual knowledge, [***].

(c) Enforcement of Codexis Technology

(i) Notice. Each Party shall provide to the other Party prompt written notice of any actual or threatened infringement of any Codexis Technology for use of the Codexis Enzyme to manufacture the Intermediate in the Territory (the "**Intermediate Infringement**") as such Party becomes aware.

(d) Invalidity or Unenforceability Actions.

(i) Notice. Codexis shall promptly notify Pfizer in writing of any actual, alleged or threatened assertion of invalidity or unenforceability, including any inter partes review, post-grant review, reexamination, opposition or any other similar action before a patent office or a court, by a Third Party of any of the Codexis Technology or the Codexis Enzyme.

10.3 No Other Rights. Except for the rights expressly granted in this Agreement, no right, title or interest of any nature whatsoever is or shall be granted whether as a result of sale or transfer, by implication, estoppels, reliance or otherwise, with respect to the Codexis Technology. All rights with respect to Codexis Technology that are not specifically granted in this Agreement are reserved to Codexis.

11. TERM AND TERMINATION

11.1 Term. The term of this Agreement shall commence begin on the Effective Date and shall continue until the longer of ten (10) years end on December 31, 2024; and (b) the last expiration date Calendar Year of the licensed patents under the Codexis Technology unless earlier terminated in accordance with Sections 11.2, 11.3, 11.4, 11.5 or 11.6 (the "**Initial Term**"). If Pfizer desires to extend this Agreement for one or more three (3) year periods beyond the Initial Term (each three (3) year period being a "**Renewal Term**"), it shall so notify Codexis in writing not later than [***] prior to the end of the Initial Term (or any subsequent Renewal Term). Upon any such request, the Parties shall use their good faith, commercially reasonable efforts to reach agreement on any Renewal Term (and the terms and conditions associated with such Renewal Term) not later than [***] prior to the end of the Initial Term or any Renewal Term. The Initial Term and any agreed Renewal Term(s) are collectively, referred to as the "**Term**".

11.2 Termination for Convenience. Pfizer may terminate this Agreement at any time without cause and in its sole discretion upon not less than [***] prior written notice to Codexis.

11.3Termination for Cause. Either Party may terminate this Agreement upon [***] written notice to the other Party if the other Party materially breaches any obligation set forth herein, which breach has not been cured within [***] after receipt of written notice of such breach from the non-breaching Party, or within such additional cure period as the non-breaching Party may so authorize in writing.

11.4 Termination for Insolvency. To the extent permitted under Applicable Law, a Party may terminate this Agreement upon [***] written notice to the other Party if the other Party becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition in bankruptcy, suffers or permits the appointment of a receiver for its business or assets, becomes subject to any proceeding under any bankruptcy or any insolvency law, whether domestic or foreign, or has wound up or liquidated its business voluntarily or otherwise. All rights and licenses granted under or pursuant to this Agreement by Codexis are and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code or any analogous provisions in any other country or jurisdiction, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that Pfizer, as licensee of such rights under this Agreement, shall retain and may fully exercise all of their rights and elections under the U.S. Bankruptcy Code or any analogous provisions in any other country or jurisdiction.

11.5 Termination for Breach of Anti-bribery/Anti-Corruption Representation. Pfizer may terminate this Agreement and/or any or all New Orders effective immediately upon notice to Codexis, if: (i) Codexis breaches any of the representations and warranties set forth in Section 9.1(e), or (ii) Pfizer learns (a) that improper payments are being or have been made or offered to Government Officials or any other person by Codexis or those acting on behalf of Codexis with respect to this Agreement, or (b) that Codexis or those acting on behalf of Codexis with respect to this Agreement has accepted any payment, item, or benefit, regardless of value, as an improper inducement to award, obtain or retain business or otherwise gain or grant an improper business advantage from or to any other person or entity. Further, in the event of such termination, Codexis shall not be entitled to any further payment, regardless of any activities undertaken or agreements with additional Third Parties entered into by Codexis prior to such termination.

11.6 Termination for Change of Control of Codexis. Pfizer may in its absolute discretion terminate this Agreement immediately by notice in writing to Codexis in the event of a change in Control of Codexis. Codexis undertakes and agrees to notify Pfizer in writing as soon as it becomes aware of any proposed or actual change of Control of Codexis. For the purposes of this Section 11.6, "Control" means, with respect to any person, the power to direct or cause the direction of the management and policies of such person, whether directly or indirectly and whether through the ownership of voting securities, by contract or otherwise.

11.7 Consequences of Expiration or Termination.

(a) Licenses.

(i) Upon termination of this Agreement by Codexis pursuant to Section 11.3 or Section 11.4, the licenses granted to Pfizer under Section 10.1, and, to the extent applicable, Sections 1 and 5.4, shall immediately terminate and Pfizer and its Affiliates shall cease use of any and all Codexis Technology and the Codexis Enzyme Technology;

(ii) Upon termination of this Agreement by Pfizer pursuant to Section 11.2, or upon expiration of this Agreement pursuant to Section 11.1, the license granted under Section 10.2 shall remain in effect for a period of up to [***] after the effective date of termination or expiration for the purpose of allowing Pfizer, Pfizer Affiliates and Pfizer Designees to manufacturing Intermediate using Codexis Enzyme that was in their possession, custody or control as of the effective date of termination or expiration. Thereafter, such license shall terminate and Pfizer, the Pfizer Affiliates and the Pfizer Designees shall cease use of any and all Codexis Technology;

(iii) Upon termination of this Agreement by Pfizer pursuant to Section 11.3, 11.4 or 11.5, the license granted under Section 10.2 shall remain in effect for a period of [***] after the effective date of termination for the purpose of allowing Pfizer, Pfizer Affiliates and Pfizer Designees to manufacture Intermediate using Codexis Enzyme that was in their possession, custody or control as of the effective date of termination. Thereafter, such license shall terminate and Pfizer, the Pfizer Affiliates and the Pfizer Designees shall cease use of any and all Codexis Technology;

(b) Return of Materials. Subject to what may be required by Pfizer under Section 11.7(a), upon expiration or termination of this Agreement by either Party for any reason, each Party shall promptly return, or destroy, any and all Confidential Information of the other Party in such first Party's possession or control at the time of such expiration or termination except to the extent provided for in any Technology Transfer.

(c) Accrued Liability. Expiration or termination of this Agreement for any reason shall not release either Party hereto from any liability which at the time of such termination has already accrued to the other Party prior to such time. Such expiration or termination will not relieve a Party from accrued payment obligations or from obligations which are expressly indicated in this Agreement to survive expiration or termination of this Agreement.

"**Clinical Trial**"means a clinical trial in human subjects of a Product.

11.8 "**Survival. Combination Product** In addition "means a product consisting of one or more Earnout Products packaged, bundled, or otherwise combined for sale with one or more other products that are not Earnout Products. All references to any sections of Earnout Product in this Agreement which will be deemed to include any Combination Product.

"**Commercialization**"means any and all activities relating specifically to the preparation for sale of, offering for sale of, or sale of a product or service, including activities related to launching, marketing, promoting, distributing, detailing, importing, pricing, reimbursement, and advertising such product, and interacting with Regulatory Authorities regarding any of the foregoing. When used as a verb, "**Commercialize**"and "**Commercializing**"means to engage in Commercialization, and "**Commercialized**"has a correlative meaning.

"**Confidential Information**"means any and all technical, business, or other information or data of a party or its Affiliates provided orally, visually, in writing, graphically, electronically, or in another form by their terms survive expiration or termination on behalf of such party or its Affiliates to the other party or its Affiliates in connection with this Agreement The parties acknowledge that the following Articles and Sections terms of this Agreement shall survive its expiration be treated as Confidential Information of [***] and that the Licensed Know-How shall be treated as the Confidential Information of Seller.

"**Contracts**"means all contracts, leases, licenses, instruments, notes, commitments, undertakings, indentures, joint ventures and all other agreements, commitments and legally binding arrangements, whether written or termination: Articles 1, 3, 8 (for oral.

"**Controlled**"or "**Control**",when used in reference to any intellectual property, intellectual property right, material, know-how or information, with respect to a party, means that such party (a) owns or has a license (other than a license granted under this Agreement) to such intellectual property and (b) has the legal authority or right to: (i) grant, or procure the grant of, a license or sublicense, to the extent provided for herein, of the intellectual property, intellectual property right, material, know-how or information to the other party; or (ii) in relation to material, know-how and information only, disclose or provide access to, to the extent provided for herein, such material, know-how or information to the other Party, and in each case, without (x) breaching the terms of any then-existing agreement or other legally enforceable arrangement with a Third Party, or (y) misappropriating the material, know-how, intellectual property, intellectual property rights, or information of a Third Party.

"**Covered Component**"means any product or component contained in a Combination Product that is itself an Earnout Product or, to the extent an A&P Product is included in a Combination Product after the A&P Acquisition Agreement Effective Date, such A&P Product.

"**Development**"means non-clinical and clinical drug development activities reasonably related to the development and submission of information to a Regulatory Authority or otherwise to the testing and validation of a therapeutic agent, including toxicology, pharmacology and pre-clinical efforts, test method development, stability testing, manufacturing process, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, and clinical trials (including pre- and post-approval studies), whether for purposes of label expansion or otherwise. Development shall include post-approval Development activities. When used as a verb, "**Develop**"means to engage in Development.

"**Disclosure Schedules**"means the disclosure schedules delivered by Seller and Buyer concurrently with the execution and delivery of this Agreement.

"**Earnout Period**"means the period set forth starting on the Launch Date and ending on [***] of the Launch Date (inclusive).

"**Earnout Product**"means each and all of the following: (a) Zenpep; and (b) Products (including in Section 8.7) co-formulation with any other product or as part of a Combination Product).

"**EMA**"means the European Medicines Agency, or any successor agency thereto.

"**European Union**"or "**EU**"means, at any given time, the then-current member states of the European Union; *provided* that each of the United Kingdom and 13, and Sections 2.3, 2.13, 2.14, 4.8 (last sentence only), 6.1, 6.2, 6.4, 6.5, 8.7, 9.2, 1, 10.2(a), 10.3, 11.7, 11.8, 12.1, 12.2, 12.3 and 12.4. All obligations Switzerland will also be considered included with the European Union, regardless of each's actual membership in the EU.

"**Exploit**"means to make, have made, import, use, sell or offer for sale a product or item. "**Exploitation**"has a correlative meaning.

"**FDA**"means the U.S. Food and Drug Administration, or any successor agency thereto.

"**First Commercial Sale**"means, with respect to a particular country or jurisdiction, the first commercial sale, transfer, or other disposition by Buyer, any of its Affiliates, or any Licensee for consumption by an end user of a Product following the receipt of the first Regulatory Approval for such Product in such country or jurisdiction, excluding any sale, transfer, or disposition that would not constitute a sale for purposes of the definition of Net Sales ([***]).

[***].

"**GAAP**"means United States generally accepted accounting principles, consistently applied.

"**Governmental Authority**"means any multi-national, federal, state, local, municipal, provincial, or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court, or other tribunal).

"**Governmental Order**"means any order, writ, judgment, injunction, decree, stipulation, determination, or award entered by or with any Governmental Authority.

"**IFRS**"means the current International Financial Reporting Standards, as published by the International Accounting Standards Board.

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"**Jointly Owned Inventions**"means (a) "Jointly Owned Inventions" as defined in the Strategic Collaboration Agreement and (b) "Jointly Owned Inventions" as defined in the Development Agreement.

"**Know-How**"means all non-public data and technical information, including techniques, methods, processes, technology, recipes, formulae, designs, equipment configurations and uses, Manufacturing data, preclinical and clinical data and study designs, specifications, ingredients, Manufacturing processes, formulations, sourcing information, quality control and testing procedures, and related trade secrets, but expressly excluding all Patents.

"**Knowledge of Seller**"or "**Seller's Knowledge**"or any other similar knowledge qualification, means the actual knowledge of those individuals identified on Section A of the Disclosure Schedules, [***].

"**Launch Date**"means the date of the First Commercial Sale of any Product anywhere in the United States.

"**Laws**"means all laws, statutes, rules, regulations, ordinances, and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city, or other political subdivision.

"**Liabilities**"means liabilities, obligations, or commitments of any nature whatsoever, whether asserted or unasserted, known or unknown, absolute or contingent, accrued or unaccrued, matured or unmatured, or otherwise.

"**Licensed Know-How**"means all Know-How owned by Seller or its Affiliates as of the Closing Date that is [***] for the Manufacture of the Lipase Project Enzyme as conducted as of the Closing Date or is [***] provided to Regulatory Authorities in order to obtain Regulatory Approval for any product containing any Lipase Project Enzyme anywhere in the world; provided that in no event shall Licensed Know-How include: (a) any Purchased Assets; (b) any Know-How or other intellectual property licensed pursuant to the Expression System License Agreement; or (c) Seller's or its Affiliates' CodeEvolver® platform technology.

"**Licensee**"means a Third Party that has been granted a license or right to Develop, Manufacture, Commercialize, or otherwise Exploit any Earnout Product by or through Buyer or Buyer's Affiliate, either directly or via a sublicense (through one or more tiers). As used in this Agreement, "**Licensee**"shall not include a wholesaler, distributor, or reseller of any Earnout Product, to the extent that Buyer or its Affiliate sells to such Person such Earnout Product and receives only supply price payments and has not granted such wholesaler, distributor, or reseller any license under any Purchased Patent or Resultant Patent.

"**Manufacture**"and "**Manufacturing**"means all activities related to Codexis the production, manufacture, processing, formulation, filling, finishing, packaging, labeling, shipping, handling, and storage of a product or any intermediate thereof, including process development, process qualification and validation, scale-up, pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance, and quality control.

"**Material Adverse Effect**"means any event, occurrence, fact, condition, or change that is materially adverse to the Development and Manufacture of the Products, taken as a whole.

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"**Net Sales**"means: (a) the [***] amounts [***] by or on behalf of Buyer, its Affiliates, or any of their respective Licensees for sales of Earnout Products within the United States (other than sales between or among Buyer, its Affiliates, or Licensees for subsequent resale, in which case the first sale to a Third Party that is not a Licensee shall survive expiration be used for calculation of Net Sales) (collectively, the "**Gross Sales**");*less* (b) only the following deductions to the extent they are (1) [***], (2) [***], and (3) [***] (collectively, the "**Deductions**"):

(i) [***];

(ii) [***];

(iii) [***];

(iv) [***]; and

(v) [***].

[***].

[***].

In the event that Buyer, its Affiliates, or any of their respective Licensees makes any adjustments to such Deductions after the associated Net Sales have been reported pursuant to this Agreement, the adjustments will be reported and reconciled in the next report and payment of any Sales Earnout Payment due.

Buyer must determine all Gross Sales and all of the foregoing Deductions in accordance with [***].

Use, supply, or donation of Earnout Product by Buyer, its Affiliates, or their respective Licensees for no profit (1) [***], (2) [***], (3) [***], or (4) [***] shall not, in each case, be deemed sales of Earnout Product for purposes of this definition of "Net Sales."

"**Option Period**"means the period starting on the Closing Date and ending on the earlier of: (a) March 1, 2025; or (b) termination of this Agreement.

"**Other Component**"means any product or component contained in a Combination Product that is not itself an: (a) Earnout Product; or (b) to the extent an A&P Product is included in a Combination Product after the A&P Acquisition Agreement Effective Date, such A&P Product.

12. "**INDEMNIFICATION Patent(s)**"means (a) any and all patents and patent applications, including all national, regional and international patents and patent applications, provisional patent applications; (b) all patent applications filed either (i) from such patents, patent applications, or provisional applications mentioned in subsection (a) above, or (ii) from an application claiming priority from any of them, including divisionals, continuations, continuations-in-part, provisionals, converted provisionals and requests for continued examinations; and (c) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, reexaminations and extensions (including any supplementary protection certificates and the like) of the foregoing patents and/or patent applications in subsections (a) and (b).

"**Person**"means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust,

unincorporated association, foundation, joint venture, or other similar entity, organization, or combination thereof, including a government or political subdivision, department, or agency.

12.1 "**Indemnification by Codexis.** **Phase II Clinical Trial** Codexis shall indemnify, defend, "means a Clinical Trial, the principal purpose of which is to make a preliminary determination as to whether a therapeutic product is safe for its intended use and hold Pfizer, to obtain information about such therapeutic product's efficacy, in a manner that is generally consistent with 21 C.F.R. § 312.21(b), as amended (or its successor regulation), sufficient to permit the design of Phase III Clinical Trials.

"**Phase III Clinical Trial**"means a pivotal Clinical Trial with a defined dose or a set of defined doses of a therapeutic product designed to ascertain efficacy and safety of such therapeutic product, in a manner that is generally consistent with 21 C.F.R. § 312.21(c), as amended (or its successor regulation), for the purpose of enabling the preparation and submission of a BLA or a foreign equivalent thereof

"**Phase III Completion Date**"means the date that is [***].

"**Product(s)**"means (a) the Lipase Project Enzyme [***] and (b) [***].

"**Project Enzyme**"has the meaning set forth in the in the SCA.

"**Prosecution**"means the filing, preparation, prosecution (including any interferences, reissue proceedings, reexaminations, and oppositions), *inter partes* review, post-grant review, and maintenance of the Purchased Patents and Resultant Patents. When used as a verb, "**Prosecute**"and "**Prosecuting**"means to engage in Prosecution.

"**Regulatory Approval**"means, with respect to a therapeutic product in any country or regulatory jurisdiction, any and all approvals from the applicable Regulatory Authority sufficient for the import, distribution, marketing, use, offering for sale, and sale of sch therapeutic product in such country or jurisdiction in accordance with applicable Laws.

"**Regulatory Authority**"means any national or supranational Governmental Authority (including the FDA and EMA) which has regulatory responsibility and authority in one or more countries for review and approval of development and commercialization of therapeutic products.

"**Regulatory Documentation**"has the meaning set forth in the Development Agreement

"**Representative**"means, with respect to any Person, any and all directors, officers, employees, consultants, financial advisors, counsel, accountants, and other agents advisors, contractors, of such Person and of the Affiliates and Pfizer Designees harmless from and against all Third Party claims, demands, damages, of such Person.

"**Resultant Patent(s)**"mean any Patent [***].

"**Sell-On Transaction**"means any of the following [***]:

-30- (a) the sale or transfer of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(b) the exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Third Party;

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liabilities, losses, costs, (c) the sale, transfer, or exclusive or co-exclusive (with Buyer and expenses, including without limitation attorney's fees (collectively, "**Claims**") its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Affiliate of Buyer, in connection with or arising from followed by any of the following: (i) the direct or indirect acquisition by any Third Party (or group of Third Parties acting in concert) of shares of such Affiliate representing at least a majority of the voting power (where voting refers to being

entitled to vote for the election of directors) then outstanding of such Affiliate; or (ii) the merger or consolidation of such Affiliate with or into any Third Party, or the merger or consolidation of any Third Party with or into such Affiliate, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such Affiliate immediately preceding such consolidation or merger; or

(d) any other similar transaction which has the effect of allowing any Third Party to Develop, Manufacture, or Commercialize any Product other than doing so solely on behalf and for the benefit of Buyer or its Affiliates or Licensees,

but in no event shall a Business Combination of Buyer be considered a Sell-On Transaction.

"**Sell-On Transaction Proceeds**"means the: (a) a breach value of all proceeds received by Codexis of Buyer or any of its representations, warranties Affiliates as consideration for or obligations under this Agreement, (b) any negligence, gross negligence, fraud or willful misconduct of Codexis or its subcontractors or agents in the performance of its obligations under this Agreement; (c) the manufacture, supply, or delivery of Codexis Enzyme; (d) Codexis' supply of Codexis Enzyme which is defective or does not conform to Enzyme Specification; (e) claims made by employees or representatives of Codexis or its subcontractors based on employment contract, or any Applicable Laws prohibiting discrimination in employment, or under worker's compensation or similar Applicable Laws; (f) failure of Codexis or its employees or subcontractors to comply with any Applicable Law, including but not limited to Environmental Laws, failure to pay taxes, duties, or fees, or to comply with employee safety regulations; (g) [***]; or (h) [***]; provided, however, that Codexis' indemnification obligations under this Section 12.1 shall not apply to the extent such Claims are solely the responsibility of Pfizer under Section 12.2.

12.2 Indemnification by Pfizer. Pfizer shall indemnify, defend, and hold Codexis, its directors, officers, employees, agents, and Affiliates harmless from and against all Claims to the extent arising from (a) a material breach by Pfizer of their representations, warranties or obligations under this Agreement, or (b) any negligence, gross negligence, fraud or willful misconduct by Pfizer or is Affiliates or their subcontractors or agents in the performance of its obligations under this Agreement, (c) product liability related to the use of the Intermediate or any Product (except to the extent caused by the Codexis Enzyme or the Codexis Technology) or (d) infringement or improper appropriation or use by Pfizer, its Affiliates or their subcontractors or agents of a Third Party's intellectual property rights in the manufacture of Codexis Enzyme, Intermediate or Product, where the infringement is caused solely by acts outside the use of Codexis Enzyme, Codexis Technology or Technology transferred by Codexis hereunder as Technology Transfer; provided, however, that Pfizer's indemnification obligations under this Section 12.2 shall not apply to the extent such Claims are solely the responsibility of Codexis under Section 12.1.

12.3 Indemnification Procedures. The indemnified Party claiming an indemnity hereunder shall: (a) promptly notify the indemnifying Party of any such Claim; (b) permit the indemnifying Party to direct the defense or settlement of such Claim, except that it may not settle any such suit or claim or consent to the entry of any judgment without the indemnified Party's prior written approval where such settlement involves more than financial compensation or where there is an adverse consequence to the operation of this Agreement, such approval not to be unreasonably withheld; (c) not take any action to prejudice the indemnifying Party's defense or settlement of such Claim; and (d) upon request by the indemnifying Party, provide reasonable cooperation, information, and assistance (at the indemnifying Party's expense) otherwise in connection with the indemnifying Party's defense a Sell-On Transaction, whether in cash, securities, other property, assumption of liability, or settlement otherwise (but excluding any amount received by Buyer or any of its Affiliates as royalties, profit-sharing payments, or other similar payments (other than milestone payments) based on Net Sales by or on behalf of any Claim.

12.4 Infringement, Misappropriation, Misuseacquiror in a Sell-On Transaction); less (b) [***]. Without limiting For any such proceeds other than cash, the value of Codexis's obligations or Pfizer's rights under this Agreement, if such proceeds will be equal to the Codexis Enzyme, Codexis Technology, fair market value at the time Buyer or any part thereof, becomes or, in Codexis' reasonable opinion, is likely to become the subject of an infringement, misappropriation or misuse claim, suit or cause of action, Codexis, at its expense, promptly shall either (a) procure for Pfizer the right to continue using such Codexis Enzyme and Codexis Technology free of any liability for infringement, misappropriation or misuse; or (b) replace or modify such Codexis Enzyme or Codexis Technology with a non-infringing substitute of equivalent or

better functionality that is reasonably satisfactory to Pfizer, provided that it does not have any regulatory consequences for Pfizer's Intermediate or Product.

12.5 Insurance by Pfizer. Pfizer shall at all times maintain all necessary insurance coverage with sound and reputable independent insurers at commercially reasonable levels of coverage or shall be self-insured, having regard to the nature, type, scope and size of the business it conducts and all its respective activities and obligations under this Agreement.

12.6 Insurance by Codexis

(a) Maintenance of Coverage. During the Term of this Agreement, Codexis shall provide and maintain such insurance coverage, in minimum types and amounts as described below in this Section, as will protect it and Pfizer, to the extent Pfizer is included as an additional insured, (including Pfizer's Affiliates, its and their employees, directors, officers and agents) from all claims which may arise out of or result from Codexis's performance under this Agreement, whether such operations are conducted by Codexis itself or by its Personnel or by or by anyone directly or indirectly employed by any of them, or by anyone for whose acts or omissions they may be liable. Codexis will permit no subcontractor to commence or continue the performance of any services, obligations or other activities hereunder unless such subcontractor is and remains insured as outlined in this Section. Any and all deductibles for such insurance policies shall be assumed by, for the account of, and at Codexis's sole risk.

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(b) Waiver of Subrogation. Such commercial general liability and automobile liability insurance policies shall be primary and non-contributing with respect to any other similar insurance policies available to Pfizer or its Affiliates. Except for Workers Compensation/Employers' Liability and Errors & Omissions/Professional Liability, all such policies shall include Pfizer and its Affiliates receive such proceeds, as determined by the mutual agreement of Buyer and any other Seller or, if Buyer and Seller are not able to agree on such entities as Pfizer may reasonably request, as additional insureds. All such polices shall provide a waiver of subrogation in favor of Pfizer and its Affiliates.

(c) Insurance Certificate. Codexis shall furnish to Pfizer original certificates and additional insurance endorsements (blanket endorsements acceptable) evidencing the specified insurance coverage, upon execution of this Agreement and at contract renewal or expiration of any one coverage, whichever occurs first. Such certificates shall provide that notice of cancelation shall be given to Pfizer fair market value, determined in accordance with the cancelation provisions procedures outlined in ARTICLE X. With respect to any consideration received by Buyer or any of each required policy. The Certificate(s) its Affiliates in connection with a Sell-On Transaction in the form of Insurance deferred performance or retention-based payments, "earn-outs", or other contingent payments based upon the occurrence of future events, including amounts held in escrow following the closing of a Sell-On Transaction, shall be signed by a person authorized by included in the insurer(s) determination of Sell-On Transaction Proceeds [***]. For the avoidance of doubt, in no event shall Sell-On Transaction Proceeds include (i) [***] or (ii) [***].

"**Sell-On Transaction Profits**"means an amount equal to evidence coverage on its (their) behalf. Codexis [***].

"**Senior Executives**" shall provide, pay for, means [***].

"**Taxes**"means all federal, state, local, foreign, and maintain in effect the policies with minimum "A-" A.M. Best rated insurance carriers, other income, gross receipts, sales, use, production, ad valorem, transfer, documentary, franchise, registration, profits, license, withholding, payroll, employment, unemployment, excise, severance, stamp, occupation, premium, property (real or insurance companies otherwise satisfactory to Pfizer.

(d) Limits. The insurance required under this Section 12.6 shall be written for not less than any limits of liability specified herein personal), customs, import and export, goods and services, value added, escheat, unclaimed property, duties, or as required by applicable Law, whichever is greater. Codexis shall have the right to provide the total limits required by any combination of primary and Umbrella/Excess coverage; said insurance to include, without limitation, the following:

(i) Insurance for liability under the Workers' Compensation other taxes, fees, assessments, or occupational disease laws charges of any state kind whatsoever, together with any interest, additions, or penalties with respect thereto.

"**Tax Return**"means any return, declaration, report, claim for refund, or other jurisdiction document relating to Taxes, including any schedule or attachment thereto, and amendment thereof, required to be supplied to a Governmental Authority in which services are performed (or be a qualified self-insurer connection with any Taxes.

"**Technology**"means: (a) all of Seller's interest in those states the Purchased Patents; and jurisdictions) or otherwise applicable with respect to persons performing the services, and Employer's Liability insurance covering all claims by or in respect to the employees of Codexis, providing: (b) any Resultant Patents.

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1. "**Coverage for Third Party**"means any Person other than Seller, Buyer, and their respective Affiliates.

"**United States**"or "U.S." means the statutory limits United States of America, including its territories, possessions, and protectorates.

"**VAT**"means (a) in relation to any jurisdiction within the European Union, the Tax imposed by the EC Council Directive on the common system of value added tax (2006/112/EC) and any successor or equivalent legislation and any national legislation implementing that directive together with legislation supplemental thereto and the equivalent Tax (if any) in that jurisdiction; and (b) in any other jurisdiction, any other value added, goods and services, consumption or similar Tax chargeable on the supply or deemed supply of goods or services under applicable legislation or regulation.

"**Zenpep**"means all claims pancrelipase products (which are currently marketed by Buyer, its Affiliates, or any of their licensees, distributors, or partners under the applicable State Workers' Compensation Act trademark Zenpep or Acts. If Viokace) sold by Buyer, its Affiliates, or any of their respective licensees, whether formulated for administration as a monotherapy or combination therapy, in co-formulation with any excipient(s) or any other active pharmaceutical ingredient(s), or in a Combination Product, under any and all formulations or methods of administration. Zenpep includes the scope of work will result products currently sold under BLA022210 or BLA022542 in exposures under the U.S. Longshoreman's Act and its amendments (work dockside or on water), the Jones Act (involving seaman, masters and crew of vessels) or the Federal Employer's Liability Act (railroad exposure), coverage shall be extended to include insurance coverages mandated thereby;

2. Employer's Liability Insurance with a limit of not less than $[*

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Cross-Reference Table.The following terms have the meanings set forth in the location in this Agreement referenced below:

3. Voluntary Compensation insurance covering all employees not subject to the applicable state Workers' Compensation Act or Acts.

Term	Section
A&P Acquisition Agreement Effective Date	Section 9.03
A&P Development Work	Section 9.05
Acquired Books and Records	Section 1.01(f)
Acquired Regulatory Documentations	Section 1.01(d)
Actions	Section 3.06(a)
Agreement	Preamble
Allocation Schedule	Section 1.08
[***] Baseline	Section 1.06(a)
Annual Report	Section 1.07
Assigned Contracts	Section 1.01(b)
Assignment and Assumption Agreement	Section 2.02(a)(i)
Assumed Liabilities	Section 1.03(a)
Baseline Disputed Items	Section 1.06
Baseline Zenpep [***] Sales	Section 1.06(a)
Bill of Sale	Section 2.02(a)(i)
Buyer	Preamble
Buyer Drop Dead Date	Section 8.02(b)(i)
Buyer Indemnified Parties	Section 7.02
Cap	Section 7.04(b)
CDX-7108	Recitals
Closing	Section 2.01
Closing Date	Section 2.01
Code	Section 1.08
Codexis	Preamble
Deductible	Section 7.04(a)
Development Agreement	Recitals
Disclosing Party	Section 5.03(a)
Dispute	Section 10.01
Earnout Payments	Section 1.06(b)
Earnout Sales	Section 1.06(b)
Earnout Statement	Section 1.06(d)(iii)
Effective Date	Preamble
Encumbrances	Section 3.05
Excluded Assets	Section 1.02
Excluded Liabilities	Section 1.03(b)
Existing Agreements	Recitals
Expression System License Agreement	Section 2.02(a)(iv)
Indemnified Party	Section 7.04
Indemnifying Party	Section 7.04

(ii) Commercial General Liability insurance with the following limits and forms/endorsements:

Each Occurrence $[***]

Products and Completed Operations Aggregate $[***]

(a) Occurrence form including premises and operations coverage, products and completed operations, broad form property damage, , personal injury coverage, blanket contractual liability, and watercraft liability coverage if services are performed on or near a body of water.

(b) Products and completed operations coverage shall be maintained for a period of not less than CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***] following the date of the last delivery of Product to Pfizer hereunder.

(c) including Pfizer and its Affiliates as additional insureds with respect to any legal liability of Pfizer or its Affiliates, arising out of Codexis' performance.

(iii) Automobile Liability Insurance: $[***] combined single limit for bodily injury and property damage arising out of all owned, non-owned and hired vehicles, including coverage for all automobiles used in the performance of this Agreement and including the loading and unloading of same.

(iv) Umbrella (Excess) Liability Coverage (follow form) in an amount not less than $[***] per occurrence and in the aggregate

(v) Care, Custody and Control. If Codexis has care, custody or control of Pfizer property or inventory, Codexis shall be responsible for any loss or damage to it, and provide all risk Property Coverage at full replacement cost for same.

(vi) Acceptance of Certificate. Acceptance of any insurance certificate by Pfizer shall not constitute acceptance of the adequacy of coverage, compliance with the requirements of this Agreement, or serve as an amendment to this Agreement.

13. MISCELLANEOUS

13.1 Further Assurances. From time to time on and after the Effective Date, each Party shall at the reasonable request of the other Party: (a) deliver to the other Party such records, data, or other documents; (b) execute, and deliver or cause to be delivered, all assignments, consents, documents or further instruments of transfer or license; and (c) take or cause to be taken all other actions as such other Party may reasonably deem necessary or desirable in order for such Party to obtain the full benefits of this Agreement and the transactions contemplated hereby; each to the extent as required under the provisions of this Agreement.

13.2 Limitation of Liability. EXCEPT FOR BREACHES OF ARTICLE 8 (CONFIDENTIALITY), SECTION 2.14 HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR INDEMNIFICATION PURSUANT TO ARTICLE 12, IN NO EVENT SHALL EITHER PARTY BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, PUNITIVE, EXEMPLARY, OR SPECIAL DAMAGES OF THE OTHER PARTY ARISING OUT OF OR RELATED TO THIS AGREEMENT, HOWEVER CAUSED, UNDER ANY THEORY OF LIABILITY, WHETHER FORESEEABLE OR NOT. FURTHERMORE, EXCEPT FOR BREACHES OF ARTICLE 8, SECTION 2.14 OR INDEMNIFICATION PURSUANT TO ARTICLE 12, IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR ANY CLAIM FOR DAMAGES SUCH PARTY SUFFERS UNDER THIS AGREEMENT IN AN AMOUNT EXCEEDING THE LESSER OF TWICE THE AGGREGATE AMOUNT OF THE PAYMENTS MADE BY PFIZER TO CODEXIS RELATED TO SUCH CLAIM OR US$[***], PROVIDED THAT NO LIMITATION OF LIABILITY HEREIN SHALL BE APPLICABLE TO ACTS OF GROSS NEGLIGENCE OR WILLFUL MISCONDUCT.

13.3 Governing Law. This Agreement shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of New York, without giving effect to any choice of law rule that would cause the application of the laws of any jurisdiction other than the internal laws of New York to the rights and duties of the Parties. The Parties agree that the United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

13.4 Dispute Resolution.

(a) Any dispute, controversy, or claim arising out of, relating to, or in connection with this Agreement, including with respect to the formation, applicability, breach, termination, validity or enforceability thereof, which cannot be amicably resolved, shall be finally resolved by

arbitration.

(b) The arbitration shall be conducted by three arbitrators, in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA"). The claimant shall nominate an arbitrator in its request for arbitration. The respondent shall nominate an arbitrator within [***] of the receipt of the request for arbitration. The two arbitrators nominated by the Parties shall nominate a third arbitrator within [***] after the nomination of the later-nominated arbitrator. The third arbitrator shall act as chair of the tribunal. If any of the three arbitrators are not nominated within the time prescribed above, then the AAA shall appoint the arbitrator(s).

(c) The seat of the arbitration shall be New York, and it shall be conducted in the English language. The costs of the arbitration, including the Parties' reasonable legal fees, shall be borne by the unsuccessful Party or Parties. However, the arbitral tribunal may apportion such costs between the Parties if it determines that apportionment is reasonable, taking into account the circumstances of the case.

(d) The arbitration award shall be final and binding on the Parties, and the parties undertake to carry out any award without delay. Judgment upon the award may be entered by any court having jurisdiction of the award or having jurisdiction over the relevant party or its assets.

(e) The parties agree that the IBA Rules on the Taking of Evidence in International Arbitration shall apply to the arbitration. The Parties agree not to bring any 28 USC § 1782 application before the U.S. courts in aid of any arbitration commenced or anticipated under this provision, and undertake not to use in the arbitration proceedings any documents obtained pursuant to such an application. The Parties agree that the arbitration shall be kept confidential.

(f) The existence of the arbitration, any non-public information provided in the arbitration, and any submissions, orders or awards made in the arbitration (together, the "Confidential Information") shall not be disclosed to any non-party except the tribunal, the AAA, the Parties, their counsel, experts, witnesses, accountants and auditors, insurers and reinsurers, and any other person necessary to the conduct of the arbitration. Notwithstanding the foregoing, a Party may disclose Confidential Information to the extent that disclosure may be required to fulfil a legal duty, protect or pursue a legal right, or enforce or challenge an award in bona fide legal proceedings. This confidentiality provision survives termination of the Agreement and of any arbitration brought pursuant to the Agreement.

(g) Nothing in this Agreement shall be deemed as preventing a Party from seeking injunctive relief (or any other provisional remedy) from any court having jurisdiction over the Parties and the subject matter of the dispute as necessary to protect that Party's name, Confidential Information, trade secrets, know-how, or any other proprietary rights.

13.5 Force Majeure. Codexis shall establish a written business continuity plan and Business Continuity Management system that aims to assure supply of Codexis Enzyme to Pfizer and its Affiliates in the event of a business interruption, including any disruption resulting from a force majeure event, to the extent commercially reasonable. Except for the payment of money, neither Party shall be held responsible for any delay or failure in performance hereunder caused by strikes, embargoes, unexpected government requirements, civil or military authorities, acts of God, flood, earthquake, or by the public enemy or other causes reasonably beyond such Party's control and without such Party's fault or negligence; provided, that the affected Party notifies the unaffected Party as soon as reasonably possible and resumes performance hereunder as soon as reasonably possible following cessation of such force majeure event; provided, further, that no such delay or failure in performance shall continue for more than three (3) months. In the event that a delay or failure in performance by a Party under this Section 13.5 continues longer than three (3) months, the other Party may terminate this Agreement in accordance with the terms and conditions of Section 11.3.

13.6 **Independent Contractors.** The Parties are independent contractors. Nothing in this Agreement is intended or will be deemed to constitute a partnership, agency or employer-employee relationship between the Parties. Neither Party will incur any debts or make any commitments for the other Party.

13.7 **Assignment.** Except as expressly provided herein, neither this Agreement nor any interest hereunder will be assignable, nor any other obligation delegable, by a Party without the prior written consent of the other Party, which consent will not be unreasonably withheld or delayed. This Agreement shall be binding upon successors and permitted assigns of the Parties. Any assignment not in accordance with this Section 13.7 shall be null and void. Any permitted assignment or transfer of this Agreement shall not release the assigning or transferring Party from its obligations under this Agreement.

13.8 **Notices.** Any notice, report, communication, or consent required or permitted by this Agreement shall be in writing and shall be sent (a) by prepaid registered or certified mail, return receipt requested; (b) by overnight express delivery service by a nationally recognized courier; (c) via confirmed facsimile, followed within five (5) days by a copy delivered in accordance with this Section 13.8; or (d) via e-mail or pdf, with delivery receipt and read receipt requested, addressed to the other Party at the address shown below or at such other address as such Party gives notice hereunder. Such notice will be deemed to have been given when delivered or, if delivery is not accomplished by some fault of the addressee, when tendered.

If to Pfizer:

Pfizer Ireland Pharmaceuticals
Operations Support Group
Ringaskiddy Co Cork
Ireland
Attn: Company Secretary

and, with a copy (which shall not constitute notice) to:

Pfizer Inc.
235 East 42nd Street
New York, NY 10017
Attn: General Counsel
LegalNotice@Pfizer.com

Initial Purchase Price	Section 1.04
Inventory	Section 1.01(c)
[***]	Section 10.02
Lipase Project Enzyme	Recitals
Losses	Section 7.02
If to Codexis: Milestone	Codexis, Inc. Codexis, Inc. Section 1.05
Milestone Earnout Payment	200 Penobscot Drive Section 1.05
NHSc	Redwood City, California 94063 Preamble
Notice of Dispute	USA Section 10.01
Notice of Exercise	Attn: President Section 9.02
Option	ceo@codexis.com Section 9.01
Option Exercise Date	Section 9.02
With a copy to: Patent Assignment	Codexis, Inc. Codexis, Inc. Section 2.02(a)(iii)
[***]	200 Penobscot Drive Section 5.14
Permitted Encumbrances	Redwood City, California 94063 Section 3.05
Previously Assumed Liabilities	USA Section 1.09(d)
Previously Transferred Assets	Attn: General Counsel Section 1.09(d)
Purchased Assets	gc@codexis.com Section 1.01
Purchased Know-How	Section 1.01(d)
Purchased Patents	Section 1.01(a)
Purchase Price	Section 1.04
Quarterly Baseline	Section 1.06(a)
Quarterly Estimate	Section 1.07
Receiving Party	Section 5.03(a)
Related Claims	Section 10.02
Restricted Business	Section 5.05(a)
Restricted Period	Section 5.05(a)
Rules	Section 10.02
Sales Earnout Payments	Section 1.06(b)
Schedule Supplement	Section 5.02
Seller	Preamble
Seller Drop Dead Date	Section 8.02(c)(i)
Seller Indemnified Parties	Section 7.03
Sell-On Transaction Payment	Section 1.05
Strategic Collaboration Agreement or SCA	Recitals
Term	Section 8.01
Transaction Documents	Section 2.02(a)(iv)
Unresolved Baseline Disputed Items	Section 1.06(a)

13.9 Severability. If any provision of this Agreement is found by a court to be void, invalid, or unenforceable, such provision shall be reformed to comply with Applicable Law or stricken if not so conformable, so as not to affect the validity or enforceability of this Agreement; provided, that no such

reformation or striking shall be effective if the result materially changes the economic benefit of this Agreement to either Party. If any provision of this Agreement becomes or is declared by a court of competent jurisdiction to be void, invalid, or unenforceable, and reformation or striking of such provision would materially change the economic benefit of this Agreement to either Party, the Parties shall modify such provision in accordance with Section 13.10 to obtain a legal, valid, and enforceable provision and provide an economic benefit to the Parties that most nearly effects the Parties' intent on entering into this Agreement.

13.10 Press Release. Upon execution of this Agreement, the Parties shall issue the mutually agreed upon joint press release set forth in **Exhibit 13.10**. Any disclosure that is required by Applicable Law (including the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended) CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], or the rules of a securities exchange or the Securities and Exchange Commission or the securities regulations of any state or other jurisdiction, may be made by Codexis or Pfizer; *provided* that any such required disclosure will not contain any confidential information of, respectively, Pfizer or Codexis and, if disclosure of such information is required by Applicable Law or such rules or regulations, the Parties will comply with Section 8.4, and will use reasonable efforts to minimize such disclosure and obtain confidential treatment for any such information that is disclosed to a governmental agency, including the identities of the parties or the other party, as applicable. Codexis may publicly disclose any information that has previously been disclosed in accordance with this Section 13.10without any requirement to receive Pfizer's approval thereof or to provide Pfizer with an opportunity to review such disclosure.

13.11 Modifications; Waivers. This Agreement may not be altered, amended, supplemented, or modified in any way except by a writing signed by each Party. The

failure of a Party to enforce any rights or provisions of this Agreement shall not be construed to be a waiver of such rights or provisions, or a waiver by such Party to thereafter enforce such rights or provisions or any other rights or provisions hereunder.

13.12 No Third Party Beneficiaries. This Agreement is neither expressly nor impliedly made for the benefit of any party other than those executing it, save as expressly stated herein in regard to Pfizer Affiliates and Pfizer Designees.

13.13 Interpretation.

(a) Captions and Headings. The captions and headings of clauses contained in this Agreement preceding the text of the articles, sections, subsections, and paragraphs hereof are inserted solely for convenience and ease of reference only and shall not constitute any part of this Agreement, or have any effect on its interpretation or construction.

(b) Singular and Plural. All references in this Agreement to the singular shall include the plural where applicable, and all references to gender shall include both genders and the neuter.

(c) Articles, Sections, and Subsections. Unless otherwise specified, references in this Agreement to any article shall include all sections, subsections, and paragraphs in such article; references in this Agreement to any section shall include all subsections and paragraphs in such section; and references in this Agreement to any subsection shall include all paragraphs in such subsection.

(d) Days. All references to days in this Agreement shall mean calendar days, unless otherwise specified.

(e) Ambiguities. The Parties jointly drafted this Agreement. Ambiguities and uncertainties in this Agreement, if any, shall not be interpreted against either Party, irrespective of which Party may be deemed to have caused the ambiguity or uncertainty to exist.

13.14 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. Counterparts may be delivered, electronic mail (including pdf or any electronic signature complying with the U.S. Federal ESIGN Act of 2000, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

13.15 Entire Agreement. The Parties acknowledge that this Agreement, including, for clarity, the preamble, recitals and exhibits attached hereto, sets forth the entire agreement and understanding of the Parties as to the subject matter hereof, and supersedes all prior and contemporaneous discussions, agreements, and writings with respect hereto with respect to the subject matter hereof. No trade customs, courses of dealing or courses of performance by the Parties shall be relevant to modify, supplement, or explain any term(s) used in this Agreement. Each Party agrees and acknowledges that it has not relied on any information, data, or forecasts provided by the other Party, or discussions with the other Party, in the negotiation and execution of this Agreement.

[*Signature page follows*]

IN WITNESS WHEREOF, Pfizer and Codexis have executed this Agreement by their respective duly authorized representatives on the dates identified below but the Agreement shall become effective on the Effective Date.

PFIZER IRELAND PHARMACEUTICALS	CODEXIS, INC.
By: /s/Paul Duffy	By: /s/John Nicols
Name: Paul Duffy	Name: John Nicols
Title: Director	Title: President & CEO
Date: July 13, 2022	Date: July 13, 2022

HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

Exhibit 1.36 C

Bill of Sale

Licensed Patents

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5) [***]

Exhibit 1.43

Pfizer Designees

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)

Exhibit 2.5(a)

Existing Orders

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)

Exhibit 2.5(b)

Existing Non-Cancelable Orders

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)

Exhibit 2.5(c)

Existing Cancelable Orders

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)
-45-

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Exhibit 2.6 D

Assignment and Assumption

Agreement

[***]

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Exhibit E

Patent Assignment

Specifications [***]

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Exhibit A
Purchased Patents
[●]

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Exhibit F

Expression System License Agreement

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)

[***]

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Exhibit 3.1 G

Pricing for Codexis Enzyme

Intentionally omitted pursuant to Regulation S-K, Item 601(a)(5)

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Exhibit 9.1(e)

Pfizer International Anti-Bribery and Anti-Corruption Principles

Pfizer has a longstanding corporate policy that prohibits colleagues or anyone else acting on our behalf from providing any payment or benefit to any person or entity in order to improperly influence a government official or to gain an unfair business advantage. Pfizer is committed to performing with integrity and acting ethically and legally in accordance with all applicable laws and regulations, including, but not limited to, anti-bribery and anti-corruption laws. We expect the same commitment from the consultants, agents and representatives or other companies and individuals acting on our behalf ("Business Associates"), as well as those acting on behalf of Business Associates, in connection with work for Pfizer.

Bribery of Government Officials

Most countries have laws that forbid making, offering or promising any payment or anything of value (directly or indirectly) to a government official when the payment is intended to influence an official act or decision to award or retain business. Under Pfizer's policies, "government official" is broadly interpreted and includes: (i) any elected or appointed government official (e.g., a member of a ministry of health); (ii) any employee or person acting for or on behalf of a government official, agency, or enterprise performing a governmental function; (iii) any political party, candidate for public office, officer, employee, or person acting for or on behalf of a political party or candidate for public office; or (iv) an employee or person acting for or on behalf of a public international organization (e.g. the United Nations). "Government" is meant to include all levels and subdivisions of government (i.e. local, regional, or national and administrative, legislative, or executive). Because this definition of "government official" is so broad, it is likely that Business Associates will interact with a government official in the ordinary course of their business on behalf of Pfizer. For example, doctors employed by government-owned hospitals would be considered "government officials" under Pfizer's policies.

The U.S. Foreign Corrupt Practices Act of 1977 (the "FCPA") prohibits making, promising, or authorizing the making of a payment or providing anything of value to a non-U.S. government official to improperly or corruptly induce that official to make any governmental act or decision to assist a company in obtaining or retaining business, or to otherwise obtain an improper advantage. The FCPA also prohibits a company or person from using another company or individual to engage in any of the foregoing activities. As a U.S. company, Pfizer must comply with the FCPA and could be held liable as a result of acts committed anywhere in the world by a Business Associate.

Anti-Bribery and Anti-Corruption Principles Governing Interactions with Governments and Government Officials

Business Associates must communicate and abide by the following principles with regard to their interactions with governments and government officials:

- Business Associates, and those acting on their behalf in connection with work for Pfizer, may not directly or indirectly make, promise, or authorize the making of a corrupt payment or provide anything of value to any government official to induce that government official to make any governmental act or decision to help Pfizer obtain or retain business. Business Associates, and those acting on their behalf in connection with work for Pfizer, may never make a payment to or offer a government official any items or benefit, regardless of value, as an improper

inducement for such government official to approve, reimburse, prescribe, or purchase a Pfizer product, to influence the outcome of a clinical trial, or otherwise improperly to benefit Pfizer's business activities
.

- Business Associates, and those acting on their behalf in connection with work for Pfizer, need to understand whether local laws, regulations, or operating procedures (including requirements imposed by government entities such as government-owned hospitals or research institutions) impose any limits, restrictions, or disclosure requirements on compensation, financial support, donations, or gifts that may be provided to government officials. Business Associates and those acting on their behalf in connection with work for Pfizer, must take into account and comply with any applicable restrictions in conducting their Pfizer-related activities. If a Business Associate is uncertain as to the meaning or applicability of any identified limits, restrictions, or disclosure requirements with respect to interactions with government officials, that Business Associate should consult with his or her primary Pfizer contact before undertaking their activities.

- Business Associates and those acting on their behalf in connection with work for Pfizer are not permitted to offer facilitation payments. A "facilitation payment" is a nominal, unofficial payment to a government official for the purpose of securing or expediting the performance of a routine, non-discretionary governmental action. Examples of facilitation payments include payments to expedite the processing of licences, permits or visas for which all paperwork is in order. In the event that a Business Associate, or someone acting on their behalf in connection with work for Pfizer, receives or becomes aware of a request or demand for a facilitation payment or bribe in connection with work for Pfizer, the Business Associate shall report such request or demand promptly to his or her primary Pfizer contact before taking any further action.

Commercial Bribery

Bribery and corruption can also occur in non-government, business to business relationships. Most countries have laws which prohibit offering, promising, giving, requesting, receiving, accepting, or agreeing to accept money or anything of value in exchange for an improper business advantage. Examples of prohibited conduct could include, but are not limited to, the provision of inappropriate gifts or hospitality, kickbacks, or investment opportunities offered to improperly induce the purchase of goods or services. Pfizer colleagues are not permitted to offer, give, solicit or accept bribes, and we accept our Business Associates, and those acting on their behalf in connection with work for Pfizer, to abide by the same principles.

Anti-Bribery and Anti-Corruption Principles Governing Interactions with Private Parties and Pfizer Colleagues

Business Associates must communicate and abide by the following principles with regard to their interactions with private parties and Pfizer colleagues:

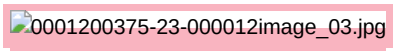
- Business Associates, and those acting on their behalf in connection with work for Pfizer, may not directly or indirectly make, promise, or authorize the making of a corrupt payment or provide anything of value to any person to induce that person to provide an unlawful business advantage for Pfizer.
- Business Associates and those acting on their behalf in connection with work for Pfizer, may not directly or indirectly, solicit, agree to accept or receive a payment or anything of value as an improper inducement in connection with their business activities performed for Pfizer.
- Pfizer colleagues are not permitted to receive gifts, services, perks, entertainment or other items of more than token or nominal value from Business Associates, and those acting on their behalf in connection with work for Pfizer. Moreover, gifts of nominal value are only permitted if they are received in an infrequent basis and only at the appropriate occasions.

Reporting Suspected or Actual Violations

Business Associates, and those acting on their behalf in connection with work for Pfizer, are expected to raise concerns related to potential violations of these International Anti-Bribery and Anti-Corruption Principles or the law. Such reports can be made to a Business Associate's primary point of contact at Pfizer, or if an Associate prefers, to Pfizer's Compliance Group by e-mail at [***] or by phone at [***].

Exhibit 13.10

Press Release



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Codexis Announces Purchase Agreement with Pfizer Nestlé Health Science for CDX-7108

Company to Supply Enzyme

for the Manufacture of PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets)retain economic interest in biotherapeutic asset while removing cash burn from development and commercialization costs

REDWOOD CITY Calif., July [XX], 2022 –, **Calif.**, **December 27**, **2023** (GLOBE NEWSWIRE) -- Codexis, Inc. (NASDAQ: CDXS), a leading enzyme engineering company, enabling the promise of synthetic biology, today announced that the Company it has entered into an a purchase agreement with Pfizer Nestlé Health Science, a globally recognized leader in the field of nutritional science, for CDX-7108, an investigational therapy for the supply potential treatment of exocrine pancreatic insufficiency (EPI). Under the terms of the agreement, Codexis will receive up to $45M in potential milestone payments, including a proprietary high-performance enzyme used $5M upfront payment, as well as single-digit net-sales-based royalties. Codexis will receive up to manufacture a critical intermediate an additional $5M if Nestlé Health Science exercises an option to purchase two additional early-stage enzymes being developed for nirmatrelvir, an active pharmaceutical ingredient (API) in PAXLOVID™, Pfizer's antiviral therapeutic, which is currently authorized for emergency use by the U.S. Food and Drug Administration ("FDA") EPI. Nestlé Health Science will be solely responsible for the treatment continued development and commercialization of mild-to-moderate COVID-19 in people at high risk of progression to severe illness and authorized or approved by other regulatory authorities across the globe. CDX-7108, including all associated costs.

"Pfizer has played This agreement solidifies the future development of CDX-7108—a critical role potential new therapy that could be added to the treatment armamentarium for patients with exocrine pancreatic insufficiency—and enables Codexis to focus resources on the advancement of our ECO Synthesis™ platform and the return to growth of our Pharmaceutical Manufacturing business," said Stephen Dilly, MBBS, PhD, Chief Executive Officer of Codexis. "Preliminary data from the CDX-7108 Phase I study announced earlier this year support continued investigation into Phase II clinical studies. We believe that CDX-7108 could represent a meaningful advance in the response to the global COVID-19 pandemic, including through their rapid development standard of PAXLOVID™, and I am incredibly proud that Codexis' engineered enzyme is enabling a sustainable manufacturing route care for their nirmatrelvir API," said John Nicols, President and CEO of Codexis. "This agreement demonstrates the agility of Codexis' commercial supply chain and manufacturing capabilities to very rapidly generate unprecedented enzyme quantities. We look forward to our continued support of Pfizer's manufacturing of PAXLOVID™ for COVID-19 patients."

"Codexis has been an extremely valuable partner throughout the scale-up of the nirmatrelvir process, patients, and we are pleased to extend our partnership through this multi-year agreement," said Pamela Siwik, Vice President, Launch Excellence, Pfizer Global Supply. "Their unique enzyme is retain an important element economic interest in the manufacture of PAXLOVID program as Nestlé continues development."

Codexis and plays Nestlé Health Science completed pre-clinical work for CDX-7108 and a role in supporting our efforts to ensure rapid availability of this COVID-19 oral treatment to people around the world."

For important information related to Phase I clinical trial under the terms of a previous agreement. With this asset purchase agreement, Nestlé Health Science may continue advancing the compound through the development process.

About CDX-7108

CDX-7108 is a lipase variant specifically engineered to overcome the limitations of traditional pancreatic enzyme supply agreement replacement therapy (PERT) deficiencies. PERT is the main treatment for exocrine pancreatic insufficiency (EPI), a debilitating condition of the gastrointestinal tract that is caused by conditions that impair pancreatic function, such as pancreatitis, pancreatic cancer, Cronh's disease, celiac disease and its impact on Codexis' outlook, see Codexis' Current Report on Form 8-K filed cystic fibrosis. CDX-7108 was engineered to be highly stable to the acidic conditions of the stomach and resistant to proteases in the upper intestines. Preliminary data from an interim analysis of the Phase I study proof-of-concept arm supported continued investigation into Phase II clinical studies.

About Nestlé Health Science

Nestlé Health Science, a leader in the science of nutrition and gastrointestinal health, is a globally managed business unit of Nestlé. The company is committed to redefining the management of health, offering an extensive portfolio of science-based nutritional products for patients and consumers. Nestlé Health Science's trusted relationship with the SEC on July [XX], 2022.

healthcare professional-community and significant commercial capabilities provide the foundation for continued growth of its marketed portfolio of pharmaceutical products including the successful launch in 2023 of a microbiome-based therapeutic.

About Codexis

Codexis is a leading enzyme engineering company leveraging its proprietary CodeEvolver® technology platform to discover, develop and develop enhance novel, high performance high-performance enzymes and novel biotherapeutics. other classes of proteins. Codexis enzymes have applications in solve for real-world challenges associated with small molecule pharmaceuticals manufacturing and nucleic acid synthesis. The Company is currently developing its proprietary ECO Synthesis™ platform to enable the sustainable manufacturing scaled manufacture of pharmaceuticals, food, and industrial products; in the creation of the next

generation of life science tools; and as gene therapy and biologic therapeutics. The Company's RNAi therapeutics through an enzymatic route. Codexis' unique performance enzymes can drive improvements such as: as higher yields, reduced

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energy usage and waste generation, improved efficiency in manufacturing and capital requirements; higher yields; higher fidelity diagnostics; greater sensitivity in genomic and more efficacious therapeutics. Codexis enzymes enable the promise of synthetic biology to improve the health of people and the planet. diagnostic applications. For more information, visitwww.codexis.com. www.codexis.com.

Codexis Forward-Looking Statements

This press release may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. In some cases, you can identify forward-looking statements by terminology such as “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “design,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “positioned,” “potential,” “predict,” “seek,” “should,” “suggest,” “target,” “on track,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. To the extent that statements contained in this press release are not descriptions of historical facts, regarding Codexis, they are forward-looking statements reflecting the current beliefs and expectations of management, made pursuant including but not limited to statements regarding the safe harbor provisions anticipated potential benefits of the Private Securities Litigation Reform Act purchase agreement, such as the anticipated development and commercial milestone payments, which are dependent, in part, on the efforts of 1995, including Codexis’ expectations regarding the supply of its proprietary high performance enzyme to Pfizer and Codexis’ ability Nestlé Health Science to continue to support the manufacture development and commercialization of Pfizer’s treatment for COVID-19 patients. CDX-7108. You should not place undue

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reliance on these forward-looking statements because they involve known and unknown risks, uncertainties and other factors that are, in some cases, beyond Codexis’ control and that could materially affect actual results. Factors that could materially affect actual results include, among others: Codexis’ dependence on its licensees and collaborators; if any of its collaborators terminate their development programs under their respective license agreements with Codexis; Codexis may need additional capital in the future in order to expand its business; if Codexis is unable to successfully develop new technology such as its ECO Synthesis™ platform; Codexis’ dependence on a limited number of products and customers, and potential adverse effects to Codexis’ business if its customers’ products are not received well in the markets; if Codexis is unable to develop and commercialize new products for its target markets; if competitors and potential competitors who have greater resources and experience than Codexis develop products and technologies that make Codexis’ products and technologies obsolete; if Codexis is unable to accurately forecast financial and operational performance; and market and economic conditions may negatively impact Codexis’ business, financial condition and share price. Additional information about factors that could materially affect actual results can be found in Codexis’ Annual Report on Form 10-K filed with the Securities and Exchange Commission (“SEC”) on February 28, 2022 February 27, 2023, and in Codexis’ Quarterly Report on Form 10-Q filed with the SEC on May 9, 2022 November 3, 2023, including under the caption “Risk Factors,” and in Codexis’ other periodic reports filed with the SEC. Codexis expressly disclaims any intent or obligation to update these forward-looking statements, except as required by law.

For More Information

Investor Relations Contact: Contact
Argot Partners
Brendan Strong/Carrie McKim
(212) 600-1902 (336) 608-9706
Codexis@argotpartners.com ir@codexis.com

Media Contact
Lauren Musto
(781) 572-1147
media@codexis.com

Execution Version

AMENDMENT NO. 1 TO ENZYME SUPPLY AGREEMENT

This Amendment No. 1 to Enzyme Supply Agreement (this "**Amendment No. 1**") is made as of December 19, 2022 (the "**Amendment No. 1 Effective Date**"), between Codexis, Inc., a Delaware corporation having its principal offices at 200 Penobscot Drive, Redwood City, California 94063 ("**Codexis**") and Pfizer Ireland Pharmaceuticals, an Irish corporation, with its principal place of business at Operations Support Group, Ringaskiddy, Cork, Ireland, and its Affiliates ("**Pfizer**"). Codexis and Pfizer may each be referred to herein individually as a "**Party**" or collectively, as the "**Parties**."

RECITALS

WHEREAS, Pfizer and Codexis are parties to that certain Enzyme Supply Agreement dated as of October 30, 2021 ("**Enzyme Supply Agreement**");

WHEREAS, Pfizer and Codexis desire to amend the Enzyme Supply Agreement in the manner specified in this Amendment No. 1.

NOW THEREFORE, in consideration of the promises and undertakings set forth herein, the Parties agree as follows:

1. All defined terms shall, unless defined or modified herein, have the meaning set forth in the Enzyme Supply Agreement.

2. As of the Amendment No. 1 Effective Date, Section 2.5(d)(ii)(b) of the Enzyme Supply Agreement shall read as follows:

   (b) 100% of any fees invoiced by Codexis to Pfizer during the period January 1, 2022 through December 31, 2023 under mutually acceptable, executed, written definitive collaborative development(s)/licensing agreement(s) (not including this Agreement) executed by Codexis and Pfizer from the Effective Date through January 31, 2023. For clarity, such agreements may include standalone purchase orders.

3. All other terms and conditions of the Agreement remain unchanged.

IN WITNESS WHEREOF, a duly authorized representative of each Party has executed this Amendment No. 1 as of the dates identified below, but this Amendment No. 1 shall become effective on the Amendment No. 1 Effective Date.

Codexis, Inc.
/Ke /Kevin Norrett/

Name: Kevin Norrett
Title: Chief Operating
Date: December 29, 2022

Pfizer Ireland Pharmaceuticals
/Paul Duffy/

Name: Paul Duffy
Title: Director
Date: January 3, 2023

This Amendment No. 2 to Enzyme Supply Agreement (this "**Amendment**") is made as of February 1, 2023 (the "**Amendment Effective Date**"), between Codexis, Inc., a Delaware corporation having its principal offices at 200 Penobscot Drive, Redwood City, California 94063 ("**Codexis**") and Pfizer Ireland Pharmaceuticals, an Ireland corporation, with its principal place of business at Operations Support Group, Ringaskiddy, Cork, Ireland, and its Affiliates ("**Pfizer**"). Codexis and Pfizer may each be referred to herein individually as a "**Party**" or collectively, as the "**Parties**."

RECITALS

WHEREAS, Pfizer and Codexis are parties to that certain Enzyme Supply Agreement dated as of October 30, 2021 (as amended, the "**Agreement**"); and

WHEREAS, Pfizer and Codexis desire to amend the Agreement in the manner specified in this Amendment;

NOW THEREFORE, in consideration of the promises and undertakings set forth herein, the Agreement is hereby amended as follows:

1. All defined terms shall, unless defined or modified herein, have the meaning set forth in the Agreement.
2. Section 2.5(d)(ii)(b) of the Agreement is deleted in its entirety and replaced with the following:

"(b) 100% of any fees invoiced by Codexis to Pfizer during the period January 1, 2022 through December 31, 2023 under mutually acceptable, executed, written definitive collaborative development/licensing agreement(s) (not including this Agreement) executed by Codexis and Pfizer from the Effective Date through March 31, 2023. For clarity, such agreements may include standalone purchase orders."

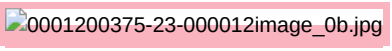
3. Section 2.5(d)(iii) of the Agreement is deleted in its entirety and replaced with the following:

"(iii)A total of 50% of any portion of the Retainer Fee which has not been credited after the issuance of credits pursuant to Section 2.5(d)(ii) is creditable against 80% of the Adjusted Enzyme Price of any New Order(s) (as defined in Section 2.5(e)) placed by Pfizer or its Affiliates and accepted by Codexis with a scheduled ship date (as reflected on the New Order) between January 1, 2024 and December 31, 2024."

4. All other terms and conditions of the Agreement remain unchanged.

IN WITNESS WHEREOF, a duly authorized representative of each Party has executed this Amendment as of the dates identified below, but this Amendment shall become effective on the Amendment Effective Date.

Codexis, Inc.	**Pfizer Ireland Pharmaceuticals**
Name:	Name:
Title:	Title:
Date:	Date:



Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Tel: +1 (650) 421-8100
Fax: +1 (650) 421-8102
www.codexis.com

October 5, 2022 Margaret Fitzgerald Dear Margaret,

On behalf of Codexis, Inc. ("Codexis" or the "Company"), I am pleased to extend to you this offer of employment as Chief Legal and Compliance Officer reporting to Stephen Dilly, President and CEO. Your position is a full-time and exempt from overtime pay under the Fair Labor Standards Act.

Your employment is subject to proof of your legal right to work in the United States, and to your completing the United States Citizenship and Immigration Service Employment Eligibility Verification Form I-9. Your employment is also subject to successful completion of your professional references, background and drug screening, as well as the execution of your Employee Confidential Information and Inventions Assignment Agreement (Attachment A) (your "Confidentiality Agreement").

Compensation

If you accept this offer and you begin employment with Codexis, you will receive an initial salary of USD$445,000 per year, payable semi-monthly, which will be subject to all applicable withholdings.

You will also be eligible to participate in the Codexis Employee Incentive Compensation Plan (the "IncentivePlan"). Your Incentive Plan target will be 40% of your Codexis base salary earnings. If Codexis meets all of its corporate goals for 2022, and you also perform well against your individual and group goals, to be established with your supervisor, you can expect to receive an Incentive Plan payout at or near this target after our Board of Directors (the "Board") approval of our 2022 year-end financial statements. Based on the Company's performance and your individual and group's goal performance, your actual bonus may be more or less than this target, and under certain circumstances there may be no payout. Any Incentive Plan payout you receive will be based on your service during 2022 as a percentage of the full year; and no bonus will be paid unless you begin employment on or before October 1, 2022. Any payout will be subject to all applicable withholdings. Please also note that the Incentive Plan does not constitute a contract of employment or alter the "at will" status of your employment. In addition, Codexis reserves the right to modify or terminate the Incentive Plan at any time and for any reason without your consent.

Sign-On Bonus

You will also receive a sign-on bonus of USD$200,000.00 which will be subject to all applicable withholdings. The sign-on bonus will be paid out in two equal installments. The first within your first 30 days of employment. The second to be paid in time with the annual Codexis 2022 bonus payout; typically, within the first Quarter of 2023. Notwithstanding the foregoing, the sign-on bonus will not be considered earned to any extent on the date of payment and instead will only be earned if you remain employed by Codexis through the first anniversary of your employment start date. If within one year of your employment start date (i) you resign your employment with Codexis or (ii) your employment is terminated by Codexis for cause, you hereby agree to repay the net amount of your sign-on bonus within 30 days of the termination of your employment.

Equity

We are pleased to inform you that we will recommend to the Board or a committee appointed by the Board that you be granted an award (the "Award") of performance stock units ("PSUs") with an approximate value of US$500,000.00 as determined in accordance with Codexis' policy, as may be amended from time to time. The actual number of PSUs that will be distributed to you upon vesting is contingent upon the satisfaction by the company of pre-determined performance criteria for the measurement period, which for this grant will be the calendar year 2022. You may not receive any PSUs if the minimum performance criteria are not met. If the minimum performance criteria are met, the PSUs will vest in two, equal installments beginning within the first calendar quarter following the measurement period and until the PSUs are 100%

vested one-year following the first installment vesting date. Your PSU grant will be subject to the terms of the Codexis, Inc. 2019 Equity Incentive Award Plan and will be conditioned on your acceptance of an appropriate PSU agreement.

Subject to approval by the Board or a committee appointed by the Board, you will be granted an option (the "Option") to purchase Common Stock having a value of US$1,000,000.00, as determined in accordance with Codexis' policy, as may be amended from time to time. The Option will have an exercise price per share equal to the closing trading price of a share of Common Stock on the date the Option is granted (or if the grant date is not a trading day, the immediately preceding trading day). Options are generally granted on or around the 5th day of the month following the month employees commence employment. The Option will vest and become exercisable as to one fourth or 25% of the shares initially subject to the Option on the first anniversary of the date of grant and thereafter will vest and become exercisable as to 1/48th of the shares initially subject to the Option per month for the following 36 months until the option is 100% vested on the four-year anniversary of the date of grant. Vesting is contingent upon your continued employment through the applicable vesting date. Your Option will be subject to the terms of the Plan and a stock option agreement to be entered into between you and the Company.

Please note that the Company can grant the Award and Option to you only if and as long as it is permitted and feasible under the laws of the United States of America or any laws of a country in which you reside or to which laws you may be subject. If local laws make the grant of Award or Option illegal or impractical, the Company will let you know as soon as possible.

Change of Control Severance Agreement

In connection with the commencement of your employment with Codexis, you will have the opportunity to enter into a Change of Control Severance Agreement. A copy of the Change of Control Severance Agreement (Attachment B) will be sent to you under separate cover for your review and signature.

Employee Benefits

As a full-time employee, you will be eligible for the Codexis employee benefit plans, which currently include medical, dental, vision, long-term disability, and life insurance, as well as a 401(k) plan and flexible time off that allows full-time employees to accrue 20 days of flexible time off each year of employment. For employees working greater than or equal to 20 hours and less than 40 hours per week flexible time off is prorated. Codexis reserves the right to modify or terminate any of these plans at any time and for any reason.

Other Terms and Conditions of Employment

Your employment with Codexis is at will. "Employment at will" means that you are free to resign from your employment at any time, for any reason or no reason at all, with or without cause and with or without notice. Similarly, Codexis may terminate your employment at any time for any legal reason, with or without cause and with or without notice. It also means that your job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as Codexis' personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of Codexis. By accepting this offer of employment, you agree that your employment is at will, and acknowledge that no one, other than the President and CEO of Codexis, has the authority to promise you, either orally or in writing, anything to the contrary. Any such agreement must be in writing and signed by both you and the President to be effective.

Employment with any other entity or for yourself in competition with Codexis, or any direct or indirect subsidiary of Codexis, is not permitted. If you want to take an outside job, please discuss the opportunity with your manager and the Human Resources Department in advance so that a determination can be made if any actual or potential conflict of interest exists.

During the course of your employment you may create, develop or have access to confidential information belonging to Codexis, including technical, research, financial, business, commercial, personnel or operational information, and/or ideas, trade secrets, know-how, procedures, strategies or plans. You agree that as a condition of your employment with Codexis, you will sign and comply with the Codexis Employee Confidential Information and Inventions Assignment Agreement, a copy of which is attached to this letter as Attachment A.

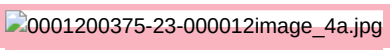
The terms described in this letter supersede and replace all prior agreements, understandings, and promises between Codexis and you concerning the terms and conditions of your employment with Codexis.

We hope that your association with Codexis will be mutually successful and rewarding, and we look forward to welcoming you aboard. Please indicate your acceptance of this offer by initialing each page and signing this letter below and **returning the letter to Karen Armijo by October 8, 2022.**

Sincerely, Codexis, Inc.

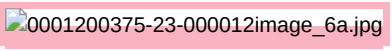
By:/s/ Stephen Dilly
Stephen Dilly, Ph.D.
President & CEO

I understand and agree to the foregoing terms and conditions of employment with Codexis.



/s/ Margaret Fitzgerald
10/5/2022 | 1:39 PM PDT

10/31/2022
Date / Start Date



ATTACHMENT A

CODEXIS 2010 EMPLOYEE CONFIDENTIAL INFORMATION AND INVENTIONS ASSIGNMENT AGREEMENT

CODEXIS, INC.

EMPLOYEE CONFIDENTIAL INFORMATION AND INVENTIONS ASSIGNMENT AGREEMENT

The following confirms an agreement (the "Agreement") between Codexis, Inc., its subsidiaries, affiliates, successors or assigns (together the "Company") and me (**Margaret Fitzgerald**). As a condition of my employment, and in consideration of my employment with the Company and my receipt of the compensation now and hereafter paid to me by Company, I agree to the following effective as of my first day of employment with the Company:

1. **At-Will Employment.** This Agreement is not an employment contract for any particular term. I have a right to resign and Company has the right to terminate my employment at will, at any time, for any or no reason, with or without cause and without notice. In addition, this Agreement does not purport to set forth all of the terms and conditions of my employment, and, as an employee of Company, I have obligations to Company which are not set forth in this Agreement. However, the terms of this Agreement govern over any inconsistent terms and can only be changed by a subsequent written agreement signed by both parties.

2. Confidential Information.

(a) **Company Information.** I agree at all times during the term of my employment and thereafter, to hold in strictest confidence, and not to use, except for the benefit of the Company, or to disclose to any person, firm or corporation (in writing, verbally, or via email or any other medium) without written advance authorization of the Board of Directors of the Company, any Confidential Information of the Company. I will not use any Confidential Information except in the performance of my authorized duties as an employee of Company. I understand that "Confidential Information" includes, without limitation, any tangible or intangible proprietary information, technical data, trade secrets or know-how, including, but not limited to, research ideas, concepts, tangible and biological materials (including, but not limited to, cell lines, plasmids, vectors and DNA) and data; product plans, products, and services; customer lists and customers (including, but not limited to, customers of the Company on whom I called or with whom I became acquainted during my term of my employment); business markets, software, development, discoveries, inventions, processes, formulas, technology, designs, drawings, engineering, hardware configuration information, marketing, business plans, corporate strategy plans, financial data; or other business information made, generated or developed by me in the course of my employment with Company, or disclosed to me by Company either directly or indirectly in any form, including, without limitation, in writing, orally, electronically, or by drawings or observation of materials, parts, equipment, or research experiments. Confidential Information also includes confidential information provided to Company by any third party, which is indicated by such third party to be confidential. I further understand that Confidential Information does not include any of the foregoing items which has become publicly known and made generally available through no wrongful act of mine.

(b) **Third Party Information.** I agree that I will not, during my employment with the Company, improperly use or disclose any proprietary information or trade secrets of any former or concurrent employer or other person or entity, and that I will not bring onto the premises of the Company any unpublished document or proprietary information belonging to any such employer, person or entity unless consented to in writing and in advance by such employer, person or entity.

(c) **Third Party Information Received by the Company.** I recognize that the Company has received and in the future will likely receive from third parties their confidential or proprietary information subject to a duty on the Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. I agree to hold all such confidential or proprietary information in the strictest confidence and not to disclose it to any person, firm or corporation or to use it except as necessary in carrying out my work for the Company consistent with the Company's agreement with such third party.

(d) **Defend Trade Secrets Act**. 18 U.S.C. § 1833(b) states:

"An individual shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that —(A) is made—(i) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal."

Accordingly, I have the right to disclose in confidence trade secrets to Federal, State, and local government officials, or to an attorney, for the sole purpose of reporting or investigating a suspected violation of law. I also have the right to disclose trade secrets in a document filed in a lawsuit or other proceeding, but only if the filing is made under seal and protectable from public disclosure. Nothing in this Certification is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b).

3. Inventions.

(a) **Inventions Retained and Licensed.** I have attached hereto, as **Exhibit A**, a list describing all inventions, original works of authorship, developments, improvements, and trade secrets (if any) which were made by me prior to my employment with the Company (collectively referred to as "Prior
Inventions"), which belong to me, which relate to the Company's proposed business, products or research and development, and which are not assigned to the Company hereunder; if no such list is attached to or contained in **Exhibit A**, I represent that there are no such Prior Inventions. If in the course of my employment with the Company, I incorporate into a Company product, process or machine a Prior Invention owned by me or in which I have an interest, the Company is hereby granted and shall have a nonexclusive, fully sublicensable, royalty-free, irrevocable, perpetual, worldwide license to make, have made, modify, use, have used, sell, have sold and import such Prior Invention as part of or in connection with such product, process or machine.

(b) **Assignment of Inventions.** I agree that I will promptly make full written disclosure to the Company, will hold in trust for the sole right and benefit of the Company. I hereby assign to the Company, or its designee, all my right, title, and interest in and to any and all inventions, original works of authorship, developments, concepts, improvements or trade secrets, whether or not patentable or registrable under copyright or similar laws, which I may solely or jointly conceive or develop or reduce to practice, or cause to be conceived or developed or reduced to practice, during the period of time I am in the employ of the Company (collectively referred to as "Inventions"), excepting only any invention (if any) which qualifies fully under the provisions of California Labor Code Section 2870 as provided in Section 3 (f) below. I further acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of and during the period of my employment with the Company and which are protectable by copyright are "works made for hire", as that term is defined in the United States Copyright Act.

(c) **Inventions Assigned to the United States.** I agree to assign to the United States government all my right, title, and interest in and to any and all Inventions hereunder, whenever such full title is required to be in the United States by a contract between the Company and the United States or any of its agencies.

(d) **Maintenance of Records.** I agree to keep and maintain adequate and current written records of any and all Inventions hereunder, including any made by me solely or jointly with others during the term of my employment with the Company. The records will be in the form of notes, sketches, drawings, and any other format that may be specified by the Company. The records will be available to and remain the sole property of the Company at all times.

(e) **Patent and Copyright Registrations.** I agree to assist the Company, or its designee, at the Company's expense, in every proper way to secure the Company's rights in the Inventions and any copyrights, patents, mask work rights or other intellectual property rights relating thereto in

any and all countries, including the disclosure to the Company of all pertinent information and data with respect thereto, the execution of all applications, specifications, oaths, assignments and all other instruments which the Company shall deem necessary in order to apply for and obtain such rights and in order to assign and convey to the Company, its successors, assigns and nominees the sole and exclusive rights, title and interest in and to such Inventions, and any copyrights, patents, mask work rights or other intellectual property rights relating thereto. I further agree that my obligation to execute or cause to be executed, when it is in my power to do so, any such instrument or papers shall continue after the termination of this Agreement. If the Company is unable because of my mental or physical incapacity or for any other reason to secure my signature to apply for or to pursue any application for any United States or foreign patents or copyright registrations covering Inventions or original works of authorship assigned to the Company as above, then I hereby irrevocably designate and appoint the Company and its duly authorized officers and agents as my agent and attorney in fact, to act for and in my behalf and stead to execute and file any such applications and to do all other lawfully permitted acts to further the prosecution and issuance of letters patent or copyright registrations thereon with the same legal force and effect as if executed by me.

(f) **Exception to Assignments.** I understand that the provisions of this Agreement requiring assignment of Inventions to the Company do not apply to any invention which qualifies fully under the provisions of California Labor Code Section 2870 (attached hereto as **Exhibit B**). I will advise the Company promptly in writing of any invention that I believe meet the criteria in California Labor Code Section 2870 and are not disclosed on **Exhibit A**.

4. **Conflicting Employment.** I agree that, during the term of my employment with the Company, I will not engage in any other employment, occupation, consulting or other business activity directly related to the business in which the Company is now involved or becomes involved during the term of my employment, nor will I engage in any other conduct or activities that conflict with my obligations to the Company or is not in the best interests of the Company.

5. **Returning Company Property.** I agree that, prior to or at the time of leaving the employ of the Company, I will deliver to the Company (and will not keep in my possession, recreate or deliver to anyone else) any and all Confidential Information in my possession, as well as all equipment, devices, records, data, notes, reports, proposals, lists, correspondence, specifications, drawings, blueprints, sketches, biological and other tangible materials (including, but not limited, to cell lines, plasmids, vectors and DNA), other documents or tangible property of the Company (or property of third parties that is lawfully in the possession or control of the Company), or reproductions of any aforementioned items including any and all of the aforementioned items

developed by me pursuant to my employment with the Company or otherwise property of the Company, its successors or assigns. In the event of the termination of my employment, I agree to sign and deliver the "Termination Certification" attached hereto as **Exhibit C**.

6. **Notification of New Employer.** In the event that I leave the employ of the Company, I hereby grant consent to notification by the Company to my new employer about my rights and obligations under this Agreement.

7. **Solicitation of Employees and Customers.** I acknowledge and agree that for a period of twenty- four (24) months or to the maximum extent permitted by law immediately following the termination of my relationship with the Company for any reason, whether voluntarily or involuntarily, I shall not either directly or indirectly without the prior written consent of the Company:

(a) solicit, induce, recruit or encourage any of the Company's employees to leave their employment, either for myself or for any other person or entity; or

(b) use Confidential Information of the Company to solicit the business of any customer of the Company, where I had contact with such customer during the period of my employment with the Company, and which business is competitive with any significant part of the business conducted by the Company or any subsidiary or affiliate thereof at the time of termination of my employment or as contemplated to be conducted by the Company at such time.

In connection with the foregoing, I acknowledge and agree that the identity, appropriate knowledge of personnel, research and/or product requirements, volume and frequency of orders, and price sensitivity of customers of the Company are not publicly available information and constitute valuable trade secrets of the Company.

8. **Photography Consent, Waiver, And Release.** Upon execution of this Agreement, I agree to sign the Photography Consent, Waiver and Release attached as **Exhibit D**hereto.

9. **Conflict of Interest Guidelines.** I agree to diligently adhere to the Conflict of Interest Guidelines attached as **Exhibit E**hereto.

10. **Representations.** I agree to execute any proper oath or verify any proper document required to carry out the terms of this Agreement. I represent that my performance of all the terms of this Agreement will not breach any agreement to keep in confidence proprietary information acquired by me in confidence or in trust prior to my employment by the Company. I have not entered into, and I agree I will not enter into, any oral or written agreement in conflict herewith.

11. **Equitable Remedies.** I agree that it would be impossible or inadequate to measure and calculate the Company's damages from any breach of the covenants set forth in this Agreement. Accordingly, I agree that if I breach any provision of this Agreement, the Company will have available, in addition to any other right or remedy available, the right to obtain an injunction from a court of competent jurisdiction restraining such breach or threatened breach and to specific performance of any such provision of this Agreement.

12. **Non-Disparagement.** I agree that, during employment with Company and thereafter, I will not make comments, whether oral or in writing, that tend to disparage or injure the Company, its officers, directors, agents, employees, technology, businesses, products or services. Nothing in this Agreement will be construed to preclude me from complying with the terms of a validly issued subpoena.

13. General Provisions.

(a) **Governing Law; Consent to Personal Jurisdiction.** This Agreement will be governed by the laws of the State of California exclusively, as such laws apply to contracts between California residents performed entirely within California. I hereby expressly consent to the personal jurisdiction of the state and federal courts located in San Mateo County, California for any lawsuit filed there against me by the Company arising from or relating to this Agreement.

(b) **Entire Agreement.** This Agreement sets forth the entire agreement and understanding between the Company and me relating to the subject matter herein and merges all prior and contemporaneous discussions between us, including any previous confidentiality agreements that I may have entered into with the Company. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, will be effective unless in writing signed by both parties. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

(c) **Severability.** If one or more of the provisions in this Agreement are deemed void by law, then the remaining provisions will continue in full force and effect.

(d) **Successors and Assigns.** This Agreement will be binding upon my heirs, executors, administrators and other legal representatives and will be for the benefit of the Company, its successors, and assigns.

(e) **Survival.** The rights and obligations of the parties to this Agreement will survive termination of my employment with Company.

(f) **Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original and all of which together shall be deemed to be one and the same instrument.

[SIGNATURE PAGE FOLLOWS}

I HAVE READ THIS AGREEMENT CAREFULLY AND I UNDERSTAND AND ACCEPT THE OBLIGATIONS WHICH IT IMPOSES UPON ME WITHOUT RESERVATION. NO PROMISES OR REPRESENTATIONS HAVE BEEN MADE TO ME TO INDUCE ME TO SIGN THIS AGREEMENT. I SIGN THIS AGREEMENT VOLUNTARILY AND FREELY, IN DUPLICATE, WITH THE UNDERSTANDING THAT ONE COUNTERPART WILL BE RETAINED BY COMPANY AND THE OTHER COUNTERPART WILL BE RETAINED BY ME.

Date: 10/5/2022 | 1:39 PM PDT

/s/ Margaret Fitzgerald
Signature

Margaret Fitzgerald
Printed

CODEXIS, INC.

By:

Title:

Date:

EXHIBIT A

LIST OF PRIOR INVENTIONS (INCLUDING ORIGINAL WORKS OF AUTHORSHIP)

TitleDateIdentifying Number Or Brief Description

EXHIBIT B

CALIFORNIA LABOR CODE SECTION 2870 EMPLOYMENT AGREEMENTS; ASSIGNMENT OF RIGHTS

"(a) Any provision in an employment agreement which provides that an employee shall assign, or offer to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either:

(1) Relate at the time of conception or reduction to practice of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer.

(2) Result from any work performed by the employee for the employer.

(b) To the extent a provision in the employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable."

EXHIBIT C

CODEXIS, INC. TERMINATION CERTIFICATION

This is to certify that I do not have in my possession, nor have I failed to return, any devices, records, data, notes, reports, proposals, lists, correspondence, specifications, drawings, blueprints, sketches, materials, equipment, other documents or property, or reproductions of any aforementioned items belonging to Codexis, Inc., its subsidiaries, affiliates, successors or assigns, except where authorized in writing.

I further certify that I have complied with all the terms of the Codexis, Inc. Employee Confidential Information and Inventions Assignment Agreement signed by me, including the reporting of any inventions and original works of authorship (as defined therein), conceived or made by me (solely or jointly with others) covered by that agreement.

I further agree that, in compliance with the Employee Confidential Information and Inventions Assignment Agreement, I will preserve as confidential all trade secrets, confidential knowledge, data or other proprietary information relating to products, processes, know-how, designs, formulas, developmental or experimental work, computer programs, data bases, other original works of authorship, customer lists, business plans, financial information or other subject matter pertaining to any business of Codexis, Inc. or any of its employees, clients, consultants, or licensees.

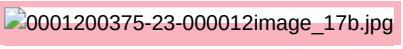
The Federal **Defend Trade Secrets Act**. 18 U.S.C. § 1833(b) states:

"An individual shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that—(A) is made—(i) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal."

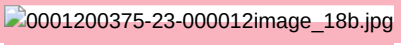
Accordingly, I have the right to disclose in confidence trade secrets to Federal, State, and local government officials, or to an attorney, for the sole purpose of reporting or investigating a suspected violation of law. I also have the right to disclose trade secrets in a document filed in a lawsuit or other proceeding, but only if the filing is made under seal and protectable from public disclosure. Nothing in this Certification is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b).

I further agree that in compliance with the Employee Confidential Information and Inventions Assignment Agreement, for twenty-four (24) months from this date: (a) I will not use confidential information to solicit, induce, recruit or encourage any of the Company's employees to leave their employment, either for myself or for any other person or entity; and (b) I will not use confidential information to solicit the business of any customer of the Company, which business is competitive with any significant part of the business conducted by the Company or any subsidiary or affiliate thereof at the time of termination of my employment or as contemplated to be conducted by the Company at such time.

Date:



(Employee's Signature)



(Type/Print Employee's Name)

[TO BE SIGNED UPON TERMINATION OF EMPLOYMENT]

EXHIBIT D

CODEXIS, INC.
PHOTOGRAPHY CONSENT, WAIVER, AND RELEASE

For good and valuable consideration, I hereby consent and give permission to Codexis, Inc. ("Codexis") or its agent, to photograph, image and/or videotape me, my property, and/or myself as included with others (such photographs, images, and/or videotapes, "Photographs"). I understand that any such Photographs, and all rights associated with them, will belong solely and exclusively to Codexis and Codexis shall have the irrevocable and absolute right to copyright, duplicate, reproduce, alter, display, distribute, and/or publish them in any manner, for any purpose, and in any form including, but not limited to, print, electronic, video, and/or Internet without notifying me.

I voluntarily waive any and all rights I may now or hereafter have with respect to any such Photographs, including any compensation, ownership, copyright, and privacy rights and any right to inspect or approve such Photographs and/or copy, print or other materials that may be used in connection with them, whether now or in the future, whether that use is known or unknown to me. I hereby waive any right to inspect or approve of any finished Photographs whether printed or electronic, that may be used now or in the future, whether that use is known or unknown to me, and I forever waive any right to royalties or other compensation arising from or related to the use of the Photographs. I hereby release and discharge, and agree to hold harmless, Codexis, its officers, agents and employees, and all persons acting under its permission or authority, from any claims, losses, damages or liability arising from or related to such Photographs and/or their use under any circumstances.

This consent, waiver, and release will be binding upon the heirs, executors, administrators and other legal representatives of myself, and will be for the benefit of Codexis, its successors and assigns.

I HAVE READ AND FULLY UNDERSTAND THE CONTENTS OF THIS CONSENT, WAIVER, AND RELEASE FORM, AND I SIGN IT FREELY AND VOLUNTARILY.

Name: Margaret Fitzgerald

/s/ Margaret Fitzgerald
Signature

Date: 10/5/2022 | 1:39 PM PDT

EXHIBIT E

CONFLICT OF INTEREST GUIDELINES

It is the policy of Codexis, Inc., to conduct its affairs in strict compliance with this letter and spirit of the law and to adhere to the highest principles of business ethics. Accordingly, all officers, employees and independent contractors must avoid activities that are in conflict, or give the appearance of being in conflict, with these principles and with the interests of the company. The following are potentially compromising situations that must be avoided. Any exceptions must be reported to the Chief Executive Officer and written approval for continuation must be obtained.

1. Revealing confidential information to outsiders or misusing confidential information. Unauthorized divulging of information is a violation of this policy whether or not for personal gain and whether or not harm to the company is intended. (The Employee Confidential Information and Inventions Assignment Agreement elaborates on this principle and is a binding agreement.)

2. Accepting or offering substantial gifts, excessive entertainment, favors or payments which may be deemed to constitute undue influence or otherwise be improper or embarrassing to Codexis, Inc.

3. Participating in civic or professional organizations that might involve divulging confidential information of the company.

4. Initiating or approving personnel actions affecting reward or punishment of employees or applicants where there is a family relationship or is or appears to be a personal or social involvement.

5. Initiating or approving any form of harassment of employees based upon their age, sex, race, ethnicity, national origin, or on any other protected basis.

6. Investing or holding outside directorship in suppliers, customers, or competing companies, including financial speculations, where such investment or directorship might influence in any manner a decision or course of action of the company.

7. Borrowing from or lending to employees, customers or suppliers.

8. Acquiring any business opportunity of interest to Codexis, Inc.

9. Improperly using or disclosing to the company any proprietary information or trade secrets of any former or concurrent employer or other person or entity with whom obligations of confidentiality exist.

10. Unlawfully discussing prices, costs, customers, sales or markets with competing companies or their employees.

11. Making any unlawful agreement with distributors with respect to prices.

12. Improperly using or authorizing the use of any inventions that are the subject of patent claims of any other person or entity.

13. Engaging in any conduct that is not in Codexis, Inc.'s best interest.

Each officer, employee and independent contractor must take every necessary action to ensure compliance with these guidelines and to bring problem areas to the attention of higher management for review. Violations of this conflict of interest policy may result in discharge without warning.

CHANGE OF CONTROL SEVERANCE AGREEMENT

This Change of Control Severance Agreement (the "Agreement") is made and entered into by and between Margaret Fitzgerald (the "Executive") and Codexis, Inc., a Delaware corporation (the "Company"), effective as of the latest date set forth by the signatures of the parties hereto below (the "Effective Date").

RECITALS

A. It is expected that the Company from time to time will consider the possibility of an acquisition by another company or other change of control. The Board of Directors of the Company (the "Board") recognizes that such consideration as well as the possibility of an involuntary termination or reduction in responsibility can be a distraction to Executive and can cause Executive to consider alternative employment opportunities. The Board has determined that it is in the best interests of the Company and its stockholders to assure that the Company will have the continued dedication and objectivity of Executive, notwithstanding the possibility, threat or occurrence of such an event.

B. The Board believes that it is in the best interests of the Company and its stockholders to provide Executive with an incentive to continue Executive's employment and to motivate Executive to maximize the value of the Company upon a Change of Control (as defined below) for the benefit of its stockholders.

C. The Board believes that it is imperative to provide Executive with severance benefits upon certain terminations of Executive's service to the Company that provide Executive with enhanced financial security and provides incentive and encouragement to Executive to remain with the Company notwithstanding the possibility of such an event.

D. Certain capitalized terms used in the Agreement are defined in Section 9 below. The parties hereto agree as follows:

1. Term of Agreement. This Agreement shall become effective as of the Effective Date and terminate upon the date that all obligations of the parties hereto with respect to this Agreement have been satisfied.

2. At-Will Employment. The Company and Executive acknowledge that Executive's employment is and shall continue to be "at-will," as defined under applicable law. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement.

3. Covered Termination Outside a Change of Control Period. Except as otherwise provided under Section 6, if Executive experiences a Covered Termination other than during a Change of Control Period, and if Executive, within sixty (60) days following the date of the Covered Termination, provides the Company with an executed Release of Claims (as defined below) which is not revoked within the applicable revocation period, if any, then in addition to any accrued but

unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Severance. Executive shall receive a lump sum cash payment in an amount equal to twelve (12) months of Executive's base salary at the rate in effect immediately prior to

Executive's termination of employment (without giving effect to any reduction in base salary that gives rise to a Voluntary Termination for Good Reason), less applicable withholdings. This severance payment shall be made to Executive in substantially equal installments in accordance with the Company's normal payroll procedures with the first such installment to be made on the first payroll date following the date the Release of Claims becomes effective and irrevocable, provided, that if the Covered Termination occurs after November 1 of any year, the first such installment shall be made on the first payroll date of the subsequent year and, provided further, that, in each case, the first installment shall include any installment payments that would have been made had such installments commenced on the first payroll date after the Covered Termination.

(b) Continued Healthcare. If Executive elects to receive continued healthcare coverage pursuant to the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), the Company shall directly pay, or reimburse Executive for, the premium for Executive, Executive's covered dependents and Executive's spouse or domestic partner from the date of Executive's Covered Termination through the earlier of (i) the twelve (12) month anniversary of the date of Executive's Covered Termination and (ii) the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), *provided*, *however*, that if (1) any plan pursuant to which such benefits are provided is not, or ceases prior to the expiration of the continuation coverage period to be, exempt from the application of Section 409A under Treasury Regulation Section 1.409A-1(a)(5), (2) the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) the Company cannot

provide the benefit without violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), then, in any such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over the remaining period the Company would otherwise directly pay or reimburse Executive. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance with the provisions of COBRA.

4. Covered Termination Within a Change of Control Period. If Executive experiences a Covered Termination during a Change of Control Period, and if Executive, within sixty (60) days following the date of the Covered Termination, provides the Company with an executed Release of Claims (as defined below) which is not revoked within the applicable revocation period, if any, then in addition to any accrued but unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Severance. Executive shall receive a lump sum cash payment in an amount equal to the sum of eighteen (18) months of Executive's base salary at the rate in effect immediately prior to Executive's termination of employment (without giving effect to any reduction in base salary subsequent to a Change of Control that gives rise to a Voluntary Termination for Good

Reason), less applicable withholdings. This severance payment shall be made to Executive within sixty (60) days following the date of the Covered Termination.

(b) Equity Awards. Each outstanding equity award, including, without limitation, stock options, restricted stock, and restricted stock units, held by Executive shall automatically become vested and, if applicable, exercisable and any restrictions thereon shall immediately lapse, in each case, with respect to one hundred percent (100%) of the then unvested shares subject to such equity award. Notwithstanding the foregoing, any outstanding performance stock units or performance stock options held by Executive shall automatically become vested with respect to: (i) in the event of a Change of Control that occurs prior to the applicable Measurement Date, such number of shares of Company common stock corresponding to the target performance level for any applicable performance goals; or (ii) in the event of a Change of Control that occurs on or after the Measurement Date, such number of shares of Company common stock corresponding to the Company's actual achievement of any applicable performance goals.

(c) Continued Healthcare. If Executive elects to receive continued healthcare coverage pursuant to the provisions of COBRA, the Company shall directly pay, or reimburse Executive for, the premium for Executive, Executive's covered dependents and Executive's spouse or domestic partner from the date of Executive's Covered Termination through the earlier of (i) the eighteen (18) month anniversary of the date of Executive's Covered Termination and (ii) the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), *provided*, *however*, that if (1) any plan pursuant to which such benefits are provided is not, or ceases prior to the expiration of the continuation coverage period to be, exempt from the application of Section 409A of the Code, under Treasury Regulation Section 1.409A-1(a)(5), (2) the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), then, in any such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over the remaining period the Company would otherwise directly pay or reimburse Executive. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance with the provisions of COBRA.

5. Death or Disability. If Executive terminates employment with the Company due to death or Disability and such termination constitutes a "separation from service" within the meaning of Section 409A of Code and the Department of Treasury regulations and other guidance promulgated thereunder (a "Separation from Service"), then in addition to any accrued but unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Pro-Rata Vesting of Equity Awards. Each outstanding equity award, including, without limitation, stock options, restricted stock and restricted stock units, held by Executive shall automatically become vested and, if applicable, exercisable and any restrictions thereon shall immediately lapse, in each case, with respect to that number of shares of Company common stock that would otherwise vest on the next vesting date for such equity award, assuming Executive's continued service through such date, pro-rated to the date of Executive's termination due to death or Disability. For purposes of determining the number of shares subject to any outstanding performance stock units or performance stock options that would otherwise vest on the

next vesting date pursuant to the foregoing sentence, the applicable performance goals shall be deemed achieved: (i) in the event of a termination due to death or Disability that occurs prior to the applicable Measurement Date, at the target performance level; or (ii) in the event of a termination due to death or Disability that occurs on or after the Measurement Date, based on the Company's actual achievement.

(b) Continued Healthcare. If Executive, or any beneficiary of Executive, elects to receive continued healthcare coverage pursuant to the provisions of COBRA, the Company shall directly pay, or reimburse Executive, or such beneficiary, for, the premium for Executive, Executive's covered dependents and Executive's spouse or domestic partner from the date of Executive's termination due to death or Disability through the earlier of (i) the twelve (12) month anniversary of the date of Executive's termination of employment and (ii) the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), *provided*, *however*, that if (1) any plan pursuant to which such benefits are provided is not, or ceases prior to the expiration of the continuation coverage period to be, exempt from the application of Section 409A of the Code, under Treasury Regulation Section 1.409A-1(a)(5), (2) the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), then, in any such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over the remaining period the Company would otherwise directly pay or reimburse Executive. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive, or any beneficiary of Executive, may, if eligible, elect to continue healthcare coverage at his or her expense in accordance with the provisions of COBRA.

6. Termination in Connection with a Change of Control. Notwithstanding anything in this Agreement to the contrary, in the event Executive experiences a Covered Termination and the Involuntary Termination without Cause underlying the Covered Termination, or the event upon which a Voluntary Termination for Good Reason underlying the Covered Termination is based, occurs at the direction of a person or entity that has entered into an agreement with the Company that contemplates a transaction that, if consummated, would constitute a Change of Control, then for all purposes hereunder, including, without limitation, Sections 4 and 7, such Covered Termination shall be deemed to have occurred during a Change of Control Period and, in lieu of the benefits provided under Section 3, Executive shall be entitled to the benefits set forth in Section 4 with such benefits to be paid, or commence being paid, upon the Covered Termination, but otherwise subject to the terms and conditions of Section 4.

7. Termination for Cause; Voluntary Resignation. If Executive's service with the Company is terminated by the Company for Cause or by Executive for any or no reason other than due to death, Disability or as a Covered Termination, then Executive shall only be entitled to any accrued but unpaid salary, bonus, vacation and expense reimbursement in accordance with applicable law.

8. Limitation on Payments. In the event that the severance and other benefits provided for in this Agreement or otherwise payable to Executive (i) constitute "parachute payments" within the meaning of Section 280G of the Code and (ii) but for this Section 8, would be subject to the excise tax imposed by Section 4999 of the Code, then Executive's severance benefits under this Agreement shall be payable either

(a) in full, or

(b) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the excise tax imposed by Section 4999 of the Code, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement, notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. The specific benefits that shall be reduced, if any, and the order of such reduction shall be determined by the Executive in his or her sole discretion. Unless the Company and Executive otherwise agree in writing, any determination required under this Section 8 shall be made in writing by the Company's independent public accountants (the "Accountants"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section 8, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 8.

9. Definition of Terms. The following terms referred to in this Agreement shall have the following meanings:

(a) Change of Control. "Change of Control" shall mean (i) a dissolution or liquidation of the Company; (ii) a sale of all or substantially all the assets of the Company; (iii) a merger or consolidation in which the Company is not the surviving corporation and in which beneficial ownership of securities of the Company representing at least fifty percent (50%) of the combined voting power entitled to vote in the election of directors has changed; (iv) a reverse merger in which the Company is the surviving corporation but the shares of the common stock of the Company outstanding immediately before the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise, and in which beneficial ownership of securities of the Company representing at least fifty percent (50%) of the combined voting

power entitled to vote in the election of directors has changed; (v) an acquisition by any person, entity or group within the meaning of Section 13(d) or 14(d) of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), or any comparable successor provisions (excluding any employee benefit plan, or related trust, sponsored or maintained by the Company or subsidiary of the Company or other entity controlled by the Company) of the beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act, or comparable successor rule) of securities of the Company representing at least fifty percent (50%) of the combined voting power entitled to vote in the election of directors; or, (vi) in the event that the individuals who are members of the Incumbent Board cease for any reason to constitute at least fifty percent (50%) of the Board. Notwithstanding the foregoing, a Change of Control shall not include any transaction effected primarily for the purpose of financing the Company with cash (as determined by the Board acting in good faith and without regard to whether such transaction is effectuated by a merger, equity financing or otherwise) or the initial public offering of the Company's common stock. Further notwithstanding the foregoing, if a Change of Control would give rise to a payment or settlement event that constitutes "nonqualified deferred compensation," the transaction or event constituting the

Change of Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event, to the extent required by Section 409A.

(b) Change of Control Period. "Change of Control Period" shall mean the period commencing ninety (90) days prior to a Change of Control and ending on the first anniversary of the Change of Control.

(c) Covered Termination. "Covered Termination" shall mean an Involuntary Termination without Cause or a Voluntary Termination for Good Reason that constitutes the Executive's Separation from Service.

(d) Disability. "Disability" shall mean that Executive has been unable to perform Executive's Company duties as the result of Executive's incapacity due to physical or mental illness, and such inability, at least one hundred eighty (180) days after its commencement, is determined to be total and permanent by a physician selected by the Company or its insurers and acceptable to Executive or Executive's legal representative (such agreement as to acceptability not to be unreasonably withheld). Termination resulting from Disability may only be effected after at least thirty (30) days' written notice by the Company of its intention to terminate Executive's employment. In the event that Executive resumes the performance of substantially all of Executive's duties hereunder before the termination of Executive's employment becomes effective, the notice of intent to terminate shall automatically be deemed to have been revoked.

(e) Incumbent Board. "Incumbent Board" shall mean the individuals who, as of the Effective Date, are members of the Board. If the election, or nomination for election by the Company's stockholders, of any new director is approved by a vote of at least fifty percent (50%) of the Incumbent Board, such new director shall be considered as a member of the Incumbent Board.

(f) Involuntary Termination without Cause. "Involuntary Termination without Cause" shall mean the termination of Executive's employment by the Company other than a termination following (i) the willful and continued failure to substantially perform the Executive's duties with the Company (other than as a result of physical or mental disability) after a written demand for substantial performance is delivered to the Executive by the Company, which demand specifically identifies the manner in which the Company believes that the Executive has not substantially performed the Executive's duties and that has not been cured within fifteen (15) days following receipt by the Executive of the written demand; (ii) commission of a felony (other than a traffic-related offense) that in the written determination of the Company is likely to cause or has caused material injury to the Company's business; (iii) dishonesty with respect to a significant matter relating to the Company's business; or (iv) material breach of any agreement by and between the Executive and the Company, which material breach has not been cured within fifteen (15) days following receipt by the Executive of written notice from the Company identifying such material breach.

(g) Release of Claims. "Release of Claims" shall mean a general release of all claims against the Company and its affiliates in a form reasonably acceptable to the Company.

(h) Voluntary Termination for Good Reason. "Voluntary Termination for Good Reason" shall mean Executive's voluntarily resignation after the occurrence of any of the following without Executive's written consent: (i) a material diminution in Executive's base compensation; (ii) a material diminution in Executive's authority, duties or responsibilities; (iii) a material change of at least thirty-five (35) miles in the geographic location at which Executive must perform Executive's services; or (iv) a material breach of this Agreement by the Company. Notwithstanding the foregoing, a resignation shall not constitute a "Voluntary Termination for Good Reason" unless the condition giving rise to such resignation continues more than thirty (30) days following Executive's written notice of the condition within ninety (90) days of the first occurrence of such condition and Executive's termination occurs within one hundred eighty (180) days following the first occurrence of such condition.

(h) Measurement Date. “Measurement Date,” with respect to an award of performance stock units or performance stock options, shall mean the date the Compensation Committee of the Board of Directors determines the achievement of the applicable performance goals for the applicable performance period.

10. Successors.

(a) Company’s Successors. Any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substan- tially all of the Company’s business and/or assets shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term “Company” shall include any successor to the Company’s business and/or assets which executes and delivers the assumption agreement described in this Section 10(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive’s Successors. The terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive’s personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

11. Notices. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or one day following mailing via Federal Express or similar overnight courier service. In the case of Executive, mailed notices shall be addressed to Executive at Executive’s home address that the Company has on file for Executive. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, and all notices shall be directed to the attention of its Secretary.

12. Confidentiality; Non-Solicitation.

(a) Confidentiality. While Executive is employed by the Company, and thereafter while Executive receives severance benefits hereunder, Executive shall not directly or indirectly disclose or make available to any person, firm, corporation, association or other entity for any reason or purpose whatsoever, any Confidential Information (as defined below). Upon termination of Executive’s employment with the Company, all Confidential Information in Executive’s possession that is in written or other tangible form (together with all copies or duplicates thereof, including computer files) shall be returned to the Company and shall not be retained by Executive or furnished to any third party, in any form except as provided herein; *provided, however*, that Executive shall not be obligated to treat as confidential, or return to the Company copies of any Confidential Information that (i) was publicly known at the time of disclosure to Executive, (ii) becomes publicly known or available thereafter other than by any means in violation of this Agreement or any other duty owed to the Company by any person or entity, or (iii) is lawfully disclosed to Executive by a third party. For purposes of this Agreement, the term “Confidential Information” shall mean information disclosed to Executive or known by Executive as a consequence of or through his or her relationship with the Company, about the customers, employees, business methods, public relations methods, organization, procedures or finances, including, without limitation, information of or relating to customer lists, of the Company and its affiliates. In addition, Executive shall continue to be subject to the Confidential Information, Secrecy, and Invention Agreement entered into between Executive and the Company (the “Confidential Information Agreement”).

(b) Non-Solicitation. In addition to each Executive’s obligations under the Confidential Information Agreement, Executive shall not for a period of one (1) year following Executive’s termination of employment for any reason, either on Executive’s own account or jointly with or as a manager, agent, officer, employee, consultant, partner, joint venturer, owner or stockholder or otherwise on behalf of any other person, firm or corporation, directly or indirectly solicit or attempt to solicit away from the Company any of its officers or employees or offer employ- ment to any person who is an officer or employee of the Company; *provided, however*, that a general advertisement to which an employee of the Company responds shall in no event be deemed to result in a breach of this Section 12(b). Executive also agrees not to harass or disparage the Company or its employees, clients, directors or agents or divert or attempt to divert any actual or potential business of the company.

(c) Survival of Provisions. The provisions of this Section 12 shall survive the termination or expiration of the applicable Executive’s employment with the Company and shall be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this Section 12 is excessive in duration or scope or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state.

13. Dispute Resolution.

(a) To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Mateo County, California, conducted by Judicial Arbitration and Mediation Services, Inc. ("JAMS") under the applicable JAMS employment rules. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. The arbitrator shall: (i) have the authority to compel adequate discovery for the resolution of the dispute and to award such

relief as would otherwise be permitted by law; and (ii) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of court fees that would be required if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute over intellectual property rights by Court action instead of arbitration.

14. Miscellaneous Provisions.

(a) Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (i) the expiration of the six-month period measured from the date of the Executive's Covered Termination or termination of employment due to Disability or (ii) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 14(a) shall be paid in a lump sum to Executive, and any remaining payments due under the Agreement shall be paid as otherwise provided herein.

(b) Waiver. No provision of this Agreement shall be modified, waived or dis- charged unless the modification, waiver or discharge is agreed to in writing and signed by Executive and by an authorized officer of the Company (other than Executive). No waiver by either party of any breach of, or of compliance with, any condition or provision of this Agreement by the other party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(c) Whole Agreement. This Agreement and the Confidential Information Agreement represent the entire understanding of the parties hereto with respect to the subject matter hereof and supersede all prior arrangements and understandings regarding same.

(d) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California.

(e) Severability. The invalidity or unenforceability of any provision or provisions of this Agreement shall not affect the validity or enforceability of any other provision hereof, which shall remain in full force and effect.

(f) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instru- ment.[Signature page follows]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN WITNESS WHEREOF, each of the parties has executed this Agreement, in the case of the Company by its duly authorized officer, as of the day and year set forth below. THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

CODEXIS, INC.

By: /s/ Stephen Dilly
Name: Stephen Dilly
Title: President and CEO
Date:

EXECUTIVE
/s/ Margaret Fitzgerald
Margaret Fitzgerald
Date: 10/10/2022 | 11:53 AM PDT

Exhibit H

A&P Acquisition Agreement

AMYLASE and PROTEASE

ACQUISITION AGREEMENT

between

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

and

CODEXIS, INC.

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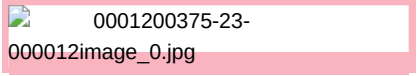
AMYLASE AND PROTEASE ACQUISITION AGREEMENT



December 27, 2022

Sri Ryali

Dear Sri,

Codexis, Inc.

This Amylase and Protease Acquisition Agreement (this "**Agreement**")dated as of _____ (the "**Effective Date**")is entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware, having an office located at 200 Penobscot Drive, Redwood City, CA 94063, Tel: +1 (650) 421-8100 Fax: +1 (650) 421-8102 www.codexis.com

USA **On behalf of Codexis, Inc. (" (**"**Seller**"or "**Codexis**" or the "),and Société des Produits Nestlé S.A., a *Company société anonyme* "), I am pleased to extend to you this offer of employment as Chief Financial Officer reporting to Stephen Dilly, President organized and Chief Executive Officer. Your position is a full-time and exempt from overtime pay existing under the Fair Labor Standards Act.

Your employment is subject to proof laws of your legal right to work in the United States, and to your completing the United States Citizenship and Immigration Service Employment Eligibility Verification Form I-9. Your employment is also subject to successful completion of your professional references, background and drug screening, as well as the execution of your Employee Confidential Information and Inventions Assignment Agreement (Attachment A) (your Switzerland, having an office located at 55 Avenue Nestlé, 1800 Vevey, Switzerland **(**"**Confidentiality Agreement Buyer**"or "**NHSc**").

RECITALS

You will WHEREAS,Buyer (as successor in interest to Nestec Ltd.), and Seller are parties to that certain Strategic Collaboration Agreement, dated as of October 12, 2017 (as amended through the date hereof, the "**Strategic Collaboration Agreement**"or "**SCA**"),pursuant to which the parties agreed to collaborate to discover enzymes as candidates for use as healthcare products and to perform initial preclinical evaluation of the efficacy of such enzymes;

WHEREAS,Buyer and Seller are parties to that certain Development Agreement, dated as of January 1, 2020 (as amended through the date hereof, the "**Development Agreement**"and, together with the Strategic Collaboration Agreement and including, if either or both such agreements expire or are otherwise terminated, all terms, conditions, and obligations in each that survive such expiration or other termination, the "**Existing Agreements**"),pursuant to which the parties agreed to conduct certain development activities with respect to certain enzymes discovered pursuant to the Strategic Collaboration Agreement;

WHEREAS,Buyer and Seller are parties to that certain Acquisition Agreement, dated as of December [x], 2023 (as amended through the date hereof, the "**Lipase Acquisition Agreement**"),pursuant to which Buyer has an option to acquire the Purchased Assets and assumed the Assumed Liabilities (as each term is defined below) on the terms and conditions set forth therein and in this Agreement;

WHEREAS,the parties desire for Buyer to have the right to further develop and commercialize those certain lipase enzymes that were discovered under the Strategic Collaboration Agreement and that were further developed pursuant to the Development Agreement, including that certain amylase enzyme currently identified as [***],that certain protease enzyme currently identified as [***] **(**[***], the "**A&P Project Enzymes**");

WHEREAS,pursuant to the terms of the Existing Agreements, each party has agreed not during your employment to Develop or Commercialize the A&P Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, unless agreed by the Company, parties in a separate written agreement;

and

WHEREAS,Seller wishes to sell and assign to Buyer certain identified Patent Rights, Contracts, and other assets related to the A&P Project Enzymes, and Buyer wishes to purchase and assume from Seller such assets and certain corresponding liabilities, and Seller otherwise wishes to authorize Buyer's Development and Commercialization of, the A&P Project Enzyme, in each case, subject to the terms and conditions set forth herein;

NOW, **THEREFORE**,in consideration of the mutual covenants and agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

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ARTICLE I
PURCHASE AND SALE

Section 1.01 Purchase and Sale of Assets.Subject to the terms and conditions set forth herein, at the Closing, Seller shall, and shall cause its Affiliates to, sell, convey, assign, transfer, and deliver to Buyer (or its designated Affiliate), and Buyer shall purchase from Seller and its Affiliates, all of Seller's (or its applicable Affiliate's) right, title, and interest in, to, and under all of the following (the "**Purchased Assets**"):

(a) the patents and patent applications set forth on Section 1.01(a) of the Disclosure Schedules (the "**Purchased Patents**"),and all of Seller's and its Affiliates interest in, to and under the Purchased Patents, including the right to sue for past infringement;

(b) all Contracts set forth on Section 1.01(b) of the Disclosure Schedules (the "**Assigned Contracts**")and the rights to assert claims and take other actions in respect of breaches or other violations of the foregoing occurring after the Closing;

(c) the inventory and other materials set forth on Section 1.01(c) of the Disclosure Schedules (the "**Inventory**");

(d) all Jointly Owned Inventions relating [***] to the A&P Project Enzymes (the "**Purchased Know-How**");

(e) all Regulatory Documentation owned [***] by Seller and its Affiliates [***] relating to the other Purchased Assets (the "**Acquired Regulatory Documentation**");and

(f) all other Books and Records owned [***] by Seller and its Affiliates relating [***] to the other Purchased Assets, [***] (collectively, the "**Acquired Books and Records**").For clarity, Acquired Books and Records shall specifically exclude all Tax Returns and related workpapers including or relating to the Purchased Assets. Books and Records that do not relate [***] to the other Purchased Assets may be employed by redacted to exclude information that does not relate to the other Purchased Assets.

Section 1.02 Excluded Assets.Other than the Purchased Assets, Buyer expressly understands and agrees that it is not purchasing or otherwise engaged in acquiring, and Seller is not selling or assigning, any other business activity requiring assets or properties of Seller or its Affiliates, and all such other assets and properties shall be excluded from the Purchased Assets and remain the sole and exclusive property of Seller and/or its Affiliates (collectively, the "**Excluded Assets**").Excluded Assets include, but are not limited to, the assets, properties and rights specifically set forth on Section 1.02 of the Disclosure Schedules.

Section 1.03 Assumed Liabilities.

(a) Subject to the terms and conditions set forth herein, including Section 1.03(b), at the Closing, Buyer shall assume and agree to pay, perform, and discharge when due any and all Liabilities of Seller arising out, of or relating to, ownership of the Purchased Assets or operation of the Business on or after the Closing (collectively, the "**Assumed Liabilities**"),including, but not limited to, the following:

(i) all Liabilities arising under the Assigned Contracts from and after the Closing Date (but, for clarity, this does not limit any Liabilities under any Assigned

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Contract (or portion thereof) that is or was a Liability of Buyer or any of your time, except that, with its Affiliates prior to the prior written approval Closing Date pursuant to any Existing Agreement or other agreement between the parties); and

(ii) all Liabilities for (A) Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) beginning on or after the Closing Date ([***]) and (B) Taxes for which Buyer is liable pursuant to Section 5.07.

(b) Buyer shall not assume and shall not be responsible to pay, perform or discharge any Liabilities of Seller or its Affiliates other than the Assumed Liabilities (collectively, the "**Excluded Liabilities**"),which Excluded Liabilities shall include, but not necessarily be limited to:

(i) any Liabilities arising out of or relating to Seller's ownership of the Company's Board Purchased Assets prior to the Closing Date or attributable to any breach of Directors any Assigned Contract on the part of Seller or its Affiliate prior to the Closing Date (but excluding all Liabilities under any Assigned Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates pursuant to any Existing Agreement or other agreement between the parties hereto);

(ii) any Liabilities [***];

(iii) any Liabilities [***];

(iv) any Liabilities arising out of or relating to the Excluded Assets; and

(v) any Liabilities (A) for Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) ending on or prior to the Closing Date; (B) [***].

Section 1.04 Purchase Price.The aggregate purchase price for the Purchased Assets shall be the sum of (a) $2,500,000 (the "**Board Initial Purchase Price**");*plus* (b) the amount of any Milestone Payment due and payable under Section 1.05 (such sum, the "**Purchase Price**").

Section 1.05 Milestone. Buyer shall pay to Seller $2,500,000 as a one-time, non-refundable, non-creditable milestone payment (the "**Milestone Payment**") or upon and subject to the Company's Chief Executive Officer, you may serve as a member occurrence of the board of directors of up earliest to one organization that is not a competitor occur of the Company, provided that following events (the occurrence of the earliest of such service does not individually or event, the "**Milestone**"):

(a) [***];

(b) [***]; and

(c) [***].

For the avoidance of doubt, the Milestone Payment set forth above will be payable only one time, upon the first occurrence of the Milestone, and no additional payment will be due in the aggregate interfere with the performance of your duties to the Company, violate the Company's standards of conduct then in effect, or raise a conflict under the Company's conflict of interest policies. In the event of any conflict between repeated occurrence of the Milestone, including in relation to more than one Product. Under no circumstances shall Buyer be obligated to pay Seller more than $2,500,000 in the aggregate pursuant to this paragraph Section 1.05.

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Buyer shall provide Seller with [***] notice of the achievement of the Milestone. Following the receipt of such notice of achievement of the Milestone, Seller shall issue an invoice to Buyer for the Milestone Payment. The Milestone Payment, when payable, shall be due by Buyer within [***] following Buyer's receipt of an invoice therefor. Buyer shall pay the Milestone Payment by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions provided by Seller in writing prior to the due date for such payment.

Section 1.06 Reports and your Confidentiality Reporting.No later than [***] after the expiration of each calendar year but only prior to the occurrence of the Milestone, Buyer shall furnish Seller with a written report (each, an "**Annual Report**")setting forth [***] its, its Affiliates' and its Licensees' progress and efforts towards the achievement of the Milestone. [***]. Upon Seller's reasonable advance notice (which in no event shall be less than [***]), Buyer shall make its relevant management personnel reasonably available to Seller's personnel to discuss in greater detail each Annual Report, the information therein, and related questions Seller may have; provided that such access shall be during normal local business hours [***].

Section 1.07 Allocation of Purchase Price.The Purchase Price and the Assumed Liabilities (and any other amounts, if any, properly included for Tax purposes) shall be allocated in accordance with Section 1060 of the Internal Revenue Code of 1986, as amended (the "**Code**")among the Purchased Assets for all

U.S. federal income tax purposes as shown on the allocation schedule set forth on Section 1.07 of the Disclosure Schedules (the "**Allocation Schedule**").Neither the parties nor any of their respective Affiliates shall take any position on any Tax Return or in any Tax contest, proceeding, audit, appeals or litigation which is inconsistent with the agreed upon allocation unless otherwise required by a final determination within the meaning of Section 1313(a) of the Code (or any similar provision of state, local or non-U.S. Tax Law).

Section 1.08 Non-Assignable Assets.

(a) Notwithstanding anything to the contrary in this Agreement, this paragraph Agreement shall control. not constitute a sale, assignment, or transfer of any Purchased Asset if such sale, assignment, or transfer: (i) violates applicable Law; or (ii) without the consent or waiver of a Person who is not a party to this Agreement or an Affiliate of a party to this Agreement would result in a breach or violation of an Assigned Contract, result in the termination, cancellation, or revocation of an Assigned Contract, or result in the creation of any lien on any Purchased Asset, and such consent or waiver has not been obtained prior to the Closing.

(b) Following the Closing, Seller and Buyer shall use [***] efforts, and shall cooperate with each other, to obtain any such required consent or waiver, or any release, substitution, or amendment required to assign all Liabilities under any and all Assigned Contracts or other Liabilities that constitute Assumed Liabilities; [***]. Once such consent, waiver, release, substitution, or amendment is obtained, Seller shall promptly sell, assign, and transfer to Buyer the relevant Purchased Asset to which such consent, waiver, release, substitution, or amendment relates [***].

(c) To the extent that any Purchased Asset or Assumed Liability cannot be transferred to Buyer pursuant to this Section 1.08, Buyer and Seller shall use [***] efforts to enter into such arrangements (such as subleasing, sublicensing, or subcontracting) to provide to the parties the economic and, to the extent permitted under applicable Law, operational equivalent of the transfer of such Purchased Asset or Assumed Liability to Buyer as of the Closing. Buyer shall, to the extent it receives the benefits of the applicable Purchased Asset, as agent or subcontractor for Seller, pay, perform, and discharge fully the liabilities and obligations related to such Purchased Asset or Assumed Liability from

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and after the Closing Date. To the extent permitted under applicable Law, Seller shall, at Buyer's expense, hold in trust for and pay to Buyer promptly upon receipt thereof, all income, proceeds, and other monies received by Seller from and after the Closing Date, to the extent related to such Purchased Asset in connection with the arrangements under this Section 1.08. [***].

Section 1.09 Withholding Taxes.[***]. [***]. The parties shall use [***] efforts to cooperate to mitigate or eliminate any such withholding. To the extent that amounts are so withheld and paid over to the appropriate Tax authority by Buyer, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the person in respect of which such deduction and withholding was made.

Section 1.10 Exploitation of Products.Seller agrees and acknowledges that [***]. Seller acknowledges and agrees that (a) [***], (b) [***], and (c) the parties solely intend the express provisions of this Agreement (and, for the avoidance of doubt, not the Existing Agreements) to govern their contractual relationship with respect to the Purchased Assets and the Products. [***].

ARTICLE II
CLOSING

Section 2.01 Closing.Subject to the terms and conditions of this Agreement, the consummation of the transactions contemplated by this Agreement (the "**Closing**")shall take place remotely by exchange of documents and signatures (or their electronic counterparts), at [8:00] a.m. PST, simultaneously with the execution of this Agreement, or at such other time or place or in such other manner as Seller and Buyer may mutually agree upon in writing. The date on which the Closing is to occur is herein referred to as the "**Closing Date**."

Section 2.02 Closing Deliverables.

(a) At the Closing, Seller shall deliver to Buyer the following:

(i) a bill of sale in the form of **Exhibit C** attached to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Bill of Sale**") duly executed by Seller, transferring the Inventory, Acquired Books and Records, and any other tangible Purchased Assets to Buyer;

(ii) an assignment and assumption agreement in the form of **Exhibit D** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Assignment and Assumption Agreement**") duly executed by Seller, effecting the assignment to and assumption by Buyer of the Purchased Assets and the Assumed Liabilities;

(iii) an assignment in the form of **Exhibit E** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Patent Assignment**")duly executed by Seller, transferring all of Seller's right, title, and interest in and to the Purchased Patents to Buyer;

(iv) a license agreement in the form of **Exhibit F** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "Expression System License Agreement" and, collectively with this Agreement, the Assignment and Assumption Agreement, and the Patent Assignment, the "**Transaction Documents**")duly executed by Seller; and

Compensation

(v) a properly completed IRS Form W-9.

(b) At the Closing, Buyer shall deliver to Seller the following:

(i) the Assignment and Assumption Agreement duly executed by Buyer;

(ii) the Patent Assignment duly executed by Buyer;

(iii) the Expression System License Agreement duly executed by Buyer; and

(iv) the Initial Purchase Price by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions provided by Seller to Buyer in writing [***] prior to Closing.

Section 2.03 Delivery of Records.Promptly and in any event within [***] after the Closing Date, Seller shall deliver to Buyer copies of the Acquired Regulatory Documentation and the Acquired Books and Records via virtual data room or other file-share platform reasonably acceptable to Buyer (or such other method as mutually agreed by the parties), provided that Seller shall have no obligation to deliver to Buyer any such Acquired Regulatory Documentation or Acquired Books and Records that are already in Buyer's or its Affiliates possession or that are publicly available.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF SELLER

Except as set forth in the Disclosure Schedules, Seller represents and warrants to Buyer that the statements contained in this ARTICLE III are true and correct as of the date hereof.

Section 3.01 Organization and Authority of Seller.Seller is a corporation duly organized, validly existing, and in good standing under the Laws of the State of Delaware. Seller has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Seller is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Seller of this Agreement and any other Transaction Document to which Seller is a party, the performance by Seller of its obligations hereunder and thereunder, and the consummation by Seller of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Seller. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Seller enforceable against Seller in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 3.02 No Conflicts or Consents. The execution, delivery, and performance by Seller of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Seller; (b) violate or breach any provision of any Law or Governmental Order applicable to Seller or the Purchased Assets; (c) except as set forth in Section 3.02 of the Disclosure Schedules, require the consent, notice, or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any Assigned Contract; or (d) except as set forth in Section 3.02 of the Disclosure Schedules, require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority; except, in the cases

If you accept this offer

of clauses (b) and you begin employment(c), where the violation, breach, conflict, default, acceleration, or failure to obtain consent or give notice would not have a Material Adverse Effect and, in the case of clause (d), where such consent, permit, Governmental Order, filing, or notice which, in

the aggregate, would not have a Material Adverse Effect.

Section 3.03 Intellectual Property. Section 3.03 of the Disclosure Schedules contains a current and complete list of all Purchased Patents, specifying as to each, as applicable: the title; the jurisdiction by or in which it has been issued, registered, or filed; the patent, registration or application serial number; and the issue, registration, or filing date. Except as set forth on Section 3.03 of the Disclosure Schedules, the Purchased Patents constitute all currently-existing Patents owned by Seller that [***] for the Manufacturing or use of [***] as it currently exists, other than any Patents covered by the Expression System License Agreement. Except for the Purchased Patents and any Patents covered by the Expression System License Agreement, Seller Controls no Patents that [***] for the Manufacturing or use of, [***] as each currently exists. Other than with respect to any ownership right, title, or interest of Buyer or any of its Affiliates, Seller owns all right, title, and interest in and to the Purchased Patents and Seller has not granted any license or other right under any of the Purchased Patents to any Third Party other than to service providers under the Assigned Contracts. All assignments and other instruments necessary to establish and record Seller's ownership interest in the Purchased Patents have been executed, delivered, and filed with the relevant Governmental Authorities and authorized registrars. All required filings and fees related to the Purchased Patents due and payable prior to the Effective Date have been submitted with and paid to the relevant Governmental Authorities and authorized registrars. To Seller's Knowledge, (a) no Person is infringing any Purchased Patents, and (b) except as set forth on Section 3.03(b) of the Disclosure Schedules, there are no actual or threatened claims that (i) the currently-listed inventorship of the Purchased Patents is incorrect, (ii) [***] (as each is existing on the date hereof) infringes any Third Party intellectual property rights, or (iii) the use of the Codexis you will receive an initial salary Expression System (as defined in the Expression System License Agreement) to manufacture any Cell Bank (as defined in the Expression System License Agreement) or [***] as each currently exists infringes any Third Party intellectual property rights.

Section 3.04 Assigned Contracts.

(a) Correct and complete copies of USD$450,000 per year, payable semi-monthly, each Assigned Contract, have been made available to Buyer and its Representatives, including all amendments and modifications and side agreements relating thereto.

(b) Except as set forth on Section 3.04 of the Disclosure Schedules: (i) each of the Assigned Contracts represents a legal, valid and binding obligation of Seller and, to Sellers' Knowledge, each other party thereto, and is enforceable against Seller and, to Seller's Knowledge, each other party thereto, in accordance with its terms, and is in full force and effect, and (ii) none of Seller or, to Seller's Knowledge, any other party thereto is in material breach of, or material default under, or has provided or received any notice of any intention to terminate, any of the Assigned Contracts, or has committed or failed to perform any act which, will be subject with or without notice, lapse of time or both would constitute a material breach of or material default under any of the Assigned Contracts.

Section 3.05 Title to Inventory.Seller has good and valid title to all applicable withholdings. Inventory included in the Purchased Assets, free and clear of any lien, charge, claim, pledge, security interest, or other similar encumbrance, except for: (a) liens for Taxes not yet due and payable or being contested in good faith by appropriate procedures; (b) mechanics', carriers', workmen's, repairmen's, warehouse, or other like liens

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arising or incurred in the ordinary course of business; and (c) liens arising under original purchase price conditional sales contracts with third parties entered into in the ordinary course of business.

You **Section 3.06 Legal Proceedings; Governmental Orders**.

(a) Except as set forth in Section 3.06(a) of the Disclosure Schedules, there are no material claims, actions, suits, investigations, or other legal proceedings (collectively, "**Actions**")pending or, to Seller's Knowledge, threatened against or by Seller or its Affiliates relating to or affecting the Purchased Assets or the Assumed Liabilities.

(b) Except as set forth in Section 3.06(b) of the Disclosure Schedules, there are no outstanding Governmental Orders against, relating to, or affecting the Purchased Assets, which would have a Material Adverse Effect.

Section 3.07 Brokers.No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Seller or any of its Affiliates.

Section 3.08 No Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE III (including the related portions of the Disclosure Schedules), neither Seller nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Seller, including any representation or warranty as to the accuracy or completeness of any information, documents, or material regarding the Products and the Purchased Assets furnished or made available to Buyer and its Representatives in any form (including any information, documents,

or material delivered or made available to Buyer on behalf of Seller for purposes of this Agreement), or as to the future revenue, profitability, or success of the Products, or any representation or warranty arising from statute or otherwise in Law.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF BUYER

Except as set forth in the Disclosure Schedules, Buyer represents and warrants to Seller that the statements contained in this ARTICLE IV are true and correct as of the date hereof.

Section 4.01 Organization and Authority of Buyer.Buyer is a *société anonyme* duly organized, validly existing and in good standing under the Laws of Switzerland. Buyer has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Buyer is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Buyer of this Agreement and any other Transaction Document to which Buyer is a party, the performance by Buyer of its obligations hereunder and thereunder, and the consummation by Buyer of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Buyer. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Buyer enforceable against Buyer in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

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Section 4.02 No Conflicts; Consents.The execution, delivery, and performance by Buyer of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will also not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Buyer; (b) violate or breach any provision of any Law or Governmental Order applicable to Buyer; (c) require the consent, notice or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any agreement to which Buyer is a party; or (d) require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority by or with respect to Buyer.

Section 4.03 Solvency; Sufficiency of Funds. Immediately after giving effect to the transactions contemplated hereby, Buyer shall be eligible solvent and shall: (a) be able to be paid pay its debts as they become due; (b) own property that has a one-time sign-on bonus in fair saleable value greater than the amounts required to pay its debts (including a reasonable estimate of the amount of USD$100,000 all Liabilities); and (c) have adequate capital to carry on its business. No transfer of property is being made and no obligation is being incurred in connection with the transactions contemplated hereby with the intent, on the part of Buyer, to hinder, delay, or defraud either present or future creditors of Buyer or Seller. In connection with the transactions contemplated hereby, Buyer has not incurred, nor plans to incur, debts beyond its ability to pay as they become absolute and matured.

Section 4.04 Legal Proceedings. There are no Actions pending or, to Buyer's knowledge, threatened against or by Buyer that challenge or seek to prevent, enjoin, or otherwise delay the transactions contemplated by this Agreement.

Section 4.05 Brokers. No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Buyer or any of its Affiliates.

Section 4.06 Independent Investigation. Buyer has conducted its own independent investigation, review, and analysis of the Products and the Purchased Assets, and acknowledges that it has been provided adequate access to the personnel, properties, assets, premises, books and records, and other documents and data of Seller for such purpose. Buyer acknowledges and agrees that: (a) in making its decision to enter into this Agreement and to consummate the transactions contemplated hereby, Buyer has relied solely upon its own investigation and the express representations and warranties of Seller set forth in ARTICLE III of this Agreement (including related portions of the Disclosure Schedules); and (b) neither Seller nor any other Person has made any representation or warranty as to Seller, the Products, the Purchased Assets, or this Agreement, except as expressly set forth in ARTICLE III of this Agreement (including the related portions of the Disclosure Schedules).

Section 4.07 Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE IV, neither Buyer nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Buyer, including any representation or warranty as to the accuracy or completeness of any information, documents, or material furnished or made available to Seller and its Representatives in any form (including any information, documents, or material delivered or made available to Seller on behalf of Buyer for purposes of this Agreement) or any representation or warranty arising from statute or otherwise in Law.

ARTICLE V
COVENANTS

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

Section 5.01 Confidentiality.

(a) Nondisclosure. Each party agrees that, during the Term and thereafter, a party (the "**Sign-On Bonus Receiving Party**")receiving Confidential Information of the other party (the "**Disclosing Party**")(or that has received any such Confidential Information from the other party prior to the Effective Date) shall (i) maintain in confidence such Confidential Information using not less than the efforts such Receiving Party uses to maintain in confidence its own proprietary industrial information of similar kind and value, which shall be no less than a reasonable degree of care, (ii) not disclose such Confidential Information to any Third Party without the prior written consent of the Disclosing Party, except for disclosures expressly permitted below, and (iii) not use such Confidential Information for any purpose except those permitted by this Agreement. Each Receiving Party will promptly notify the Disclosing Party upon gaining knowledge of any material use or disclosure of Confidential Information of the other party not permitted pursuant to this Section 5.01. [***]. For the further avoidance of doubt, all Licensed Know-How is and shall be Confidential Information of Seller. The obligations in this Section 5.01 shall not apply with respect to any portion of the Confidential Information that the Receiving Party may receive to the extent that such information:

(i) is publicly disclosed by the Disclosing Party, either before or after it is disclosed to the Receiving Party hereunder;

(ii) was known to the Receiving Party or any of its Affiliates, without any obligation to keep it confidential or any restriction on its use, prior to disclosure by the Disclosing Party, and such prior knowledge can be properly documented by the Receiving Party;

(iii) is subsequently disclosed to the Receiving Party or any of its Affiliates by a Third Party lawfully in possession thereof and without any obligation to keep it confidential or any restriction on its use;

(iv) is published by a Third Party or otherwise becomes publicly available or enters the public domain, either before or after it is disclosed to the Receiving Party without the Receiving Party's breach of the terms of this Agreement; or

(v) is independently developed by employees or contractors of the Receiving Party or any of its Affiliates without the aid, application, or use of Confidential Information of the Disclosing Party, and such independent development can be properly documented by the Receiving Party.

(b) Authorized Disclosure. The Receiving Party may disclose Confidential Information belonging to the Disclosing Party only to the extent such disclosure is reasonably necessary in the following instances:

(i) complying with applicable Laws and regulations (including the rules and regulations of the Securities and Exchange Commission or any national securities exchange) and with judicial or administrative process, if in the reasonable opinion of the Receiving Party's counsel, such disclosure is so required for such compliance and the Receiving Party discloses no more than required in its reasonable judgment, and further provided that with respect to judicially or administratively required disclosures, the Receiving Party (to the extent legally permissible) shall promptly inform the other party

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of such required disclosure and use [***] efforts to provide the other party an opportunity to challenge or limit the disclosure obligations; and

(ii) disclosure to its Affiliates, and to its bona fide actual or potential (A) permitted Licensees, (B) investment bankers, investors, lenders, or acquirers, or permitted assignees under Section 9.06, in each case, solely for diligence purposes, and (C) each of the parties' respective Representatives, in each case of (A), (B), and (C), each of whom prior to disclosure must be bound by obligations of confidentiality and non-use no less restrictive than the obligations set forth in this Section 5.01; provided, however, that the Receiving Party shall remain responsible for any failure by any Person who receives Confidential Information pursuant to this Section 5.01(b)(ii) to treat such Confidential Information as required under this Section 5.01.

If and whenever any Confidential Information is disclosed in accordance with this Section 5.01(b), such disclosure shall not cause any such information to cease to be Confidential Information, except to the extent that such disclosure results in a public disclosure of such information (other than by breach of this Agreement).

(c) Tax Filings. Notwithstanding any provision of this Agreement to the contrary, each party (and their Affiliates) shall be free to disclose this Agreement, the contents hereof, and the transactions contemplated hereby to any Governmental Authority in connection with the filing of any Tax Return and in any Tax audits, assessments, or administrative or judicial proceedings or other Actions relating to Tax Returns or Taxes.

Section 5.02 Public Announcements.Unless otherwise required by applicable Law, no party to this Agreement shall make any public announcements in respect of this Agreement or the transactions contemplated hereby without the prior written consent of the other party (which consent shall not be unreasonably withheld, conditioned, or delayed), and the parties shall cooperate as to the timing and contents of any such announcement. Notwithstanding the foregoing, Seller may, following the Effective Date, issue a press release regarding this Agreement and the transactions contemplated hereby containing the information and generally in the form as reasonably agreed upon by the Parties at least [***] prior to the Closing. The contents of any announcement or similar publicity, which will has been reviewed and approved by the reviewing party (including the press release referred to in the prior sentence), can be paid re-released by either party without a requirement for re-approval.

Section 5.03 Exclusivity.

(a) During the Restricted Period, Seller shall not, and shall not permit any of its Affiliates to, you directly or indirectly engage in, for its own benefit or for, with, or through any other Person, [***], any other company, partnership, proprietorship, enterprise, organization or business venture of any kind whatsoever engaged in [***] (the "**Restricted Business**") [***]. Notwithstanding the foregoing, Seller may own, directly or indirectly, solely as an investment, securities of any Person traded on any national securities exchange if Seller is not a controlling Person of, or a member of a group which controls, such Person and does not, directly or indirectly, own [***] or more of any class of securities of such Person. The "**Restricted Period**" shall commence on the first payroll date following your commencement Closing Date and shall continue until [***] of employment with the Company, subject Closing Date; provided [***].

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(b) Each party acknowledges that a breach or threatened breach by it of this Section 5.03 could give rise to all applicable withholdings. [Notwithstanding irreparable harm to the foregoing, your Sign-On Bonus will other party, for which monetary damages may not be earned when paid an adequate remedy, and instead, will only hereby agrees that in the event of a breach or a threatened breach by such party of any such obligations, the other party shall, in addition to any and all other rights and remedies that may be earned if you remain continuously employed with available to it in respect of such breach, be entitled to seek equitable relief, including a temporary restraining order, an injunction, specific performance, and any other relief that may be available from a court of competent jurisdiction (without any requirement to post bond, which such party hereby waives).

(c) Each party acknowledges that the Company through restrictions contained in this Section 5.03 are reasonable and necessary to protect the first anniversary legitimate interests of your commencement of employment with the Company. other party and constitute a material inducement to each party to enter into this Agreement and consummate the transactions contemplated by this Agreement. In the event your employment that any covenant contained in this Section 5.03 should ever be adjudicated to exceed the time, geographic, product, or service or other limitations permitted by applicable Law in any jurisdiction, then any court is expressly empowered to reform such covenant, and such covenant shall be deemed reformed, in such jurisdiction to the maximum time, geographic, product, or service or other limitations permitted by applicable Law. The covenants contained in this Section 5.03 and each provision hereof are severable and distinct covenants and provisions. The invalidity or unenforceability of any such covenant or provision as written shall not invalidate or render unenforceable the remaining covenants or provisions hereof, and any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such covenant or provision in any other jurisdiction.

Section 5.04 Patent Prosecution and Maintenance.

(a) Following the Closing Date, Buyer shall have the sole right to Prosecute all Purchased Patents and Resultant Patents, including any Patent Term Extensions or Supplementary Protection Certificates thereto, and shall be solely responsible for the cost and expense thereof. Buyer shall have the sole right to determine the strategy and material aspects of Prosecution of the Purchased Patents and Resultant Patents, including where and when applications for Purchased Patents and Resultant Patents will be filed, and claims to be included, excluded, or modified in Purchased Patents and Resultant Patents applications, or on the selection of internal or external patent counsel or patent agents to be used for filing, Prosecuting and maintaining the Purchased Patents and Resultant Patents.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with Prosecution under this Section 5.04, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel and inventors who may have possession of information relevant to the Prosecution. Any such cooperation by Seller and its Affiliates with respect to the Purchased Patents and Resultant Patents or any such Prosecution shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller and its Affiliates.

Section 5.05 Patent Enforcement.

(a) Buyer shall have the sole right to enforce the Purchased Patents and Resultant Patents and intellectual property rights in Purchased Know-How, including for past infringement, against Third Party infringers (and enter into settlement agreements with such Third Party infringers). Any recovery obtained in any such enforcement action (or settlement thereof) shall

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belong to Buyer. Buyer shall be responsible for all costs and expenses associated with such enforcement.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with any Action under this Section 5.05, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel who may have possession of information relevant to the Action. Any such cooperation by Seller with respect to the Purchased Patents and Resultant Patents or any such Action shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller.

Section 5.06 Bulk Sales Laws.The parties hereby waive compliance with the Company terminates prior provisions of any bulk sales, bulk transfer or similar Laws of any jurisdiction that may otherwise be applicable with respect to the sale of any or all of the Purchased Assets to Buyer.

Section 5.07 VAT. The Purchase Price is exclusive of VAT. Any party receiving a supply under this Agreement hereby covenants that it will pay any such VAT correctly charged in addition to any amounts due under this Agreement. The supplying party agrees that it will raise a Tax invoice (or equivalent document) to support the charge to VAT. Where the prevailing legislation requires a VAT reverse charge, then the receiving party covenants that it shall correctly account for VAT in respect of the services received. To the extent that any VAT is chargeable on any Purchased Assets transferred pursuant to this Agreement, Seller shall deliver to Buyer: (i) a valid VAT invoice where required by applicable Law or practice and (ii) any other documentation as may be reasonably requested by Buyer to assist it to recover the VAT chargeable or payable, in each case, in such form and within such timing as may be required by Law. An amount equal to the amount of VAT chargeable or payable by Seller on the Purchased Assets transferred shall be paid in addition to the consideration provided in this Agreement, by Buyer to Seller within [***] of receipt of a valid VAT invoice (or where no invoice is required, within [***] of demand) or, if later, [***] before the date on which the obligation to account for VAT would have had to be discharged in order to avoid liability to interest or a charge or penalty. Seller shall account for all amounts in respect of VAT paid to it by Buyer to the appropriate Governmental Authorities in compliance with applicable Laws. Both parties shall use [***] efforts to avail of VAT zero-rating, reduced rating or exemption that could apply. In the event that the local competent Tax authority determines that VAT is chargeable, Buyer in the first anniversary of your commencement of employment with instance shall undertake all reasonable steps to refute any such assertions by the Company local Tax authority. Each party shall be responsible for any reason, then you agree Taxes due on their own account, including any penalties or interest accruing due to repay incorrect VAT treatment of the supplies of goods or services made by that party or any failure to correctly account for VAT on any receipt of a supply of goods or services under this Agreement, except where those penalties or interest arise as a result of the actions of the other party, in which case that party shall be liable to reimburse the value of the penalties and interest.

Section 5.08 Further Assurances.Following the Closing, each of the parties hereto shall, and shall cause their respective Affiliates to, execute and deliver such additional documents, instruments, conveyances, and assurances and take such further actions as may be reasonably required to carry out the provisions hereof and give effect to the Company transactions contemplated by this Agreement and the full amount other Transaction Documents.

Section 5.09 Termination of application of Certain Surviving Existing Agreements to the Purchased Assets and A&P Project Enzymes. Effective as of the Sign-On Bonus.] Closing:

You will also be eligible

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(a) Articles 2, 3, 8, 9, 12, 13, 14, and 15 and Sections 10.1 and 10.3 of the Development Agreement, which have survived termination as per the terms of the Development Agreement, shall no longer apply to participate the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, or the Purchased Know-How; and

(b) Articles 2, 6, 7, 8, 11, 16, and 17 and Sections 5.7, 9.5, 10.1, 12.1, 14.1, and 15.1 of the Strategic Collaboration Agreement, which have survived termination as per the terms of the Strategic Collaboration Agreement, shall no longer apply to the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, and the Purchased Know-How.

If there is any conflict or inconsistency between the provisions of the surviving Articles and Sections of an Existing Agreement and the provisions of any Transaction Document, then the provisions of the Transaction Documents shall prevail. For clarity, the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, and the Purchased Know-How, and Buyer's corresponding interest in the Codexis Employee Incentive Compensation Plan (the "IncentivePlan"). Your Incentive Plan target will be 50% of your Codexis base salary earnings. If Codexis meets all of its corporate goals for 2023, A&P Project Enzymes and you also perform well against your individual such Purchased Patents, Resultant Patents, and group goals, Purchased Know-How under the Existing Agreements, shall cease to be established with your supervisor, you can expect constitute Joint Patents or Jointly Owned Inventions under any Existing Agreement and cease to receive an Incentive Plan payout at or near this target after our Board of Directors (the "Board") approval of our 2023 year-end financial statements. Based on the Company's performance and your individual and group's goal performance, your actual bonus may be more or less than this target, and under certain circumstances there may be no payout. Any Incentive Plan payout you receive will be based on your service during 2023 as a percentage of the full year. Any payout will be subject to all applicable withholdings. Please also note that the Incentive Plan does not constitute a contract of employment or alter the "at will" status of your employment.

In addition, Codexis reserves the right to modify or terminate the Incentive Plan at any time and for any reason without your consent.

Equity

As an inducement for you to join the Company, we are pleased to inform you that we will recommend to the Board or a committee appointed by the Board that you be granted an award (the "Award") of performance stock units ("PSUs") with an approximate value of US$666,667.00 as determined in accordance with Codexis' policy, as may be amended from time to time. The actual number of shares of Company common stock ("Common Stock") that will be issued to you upon vesting of the PSUs is contingent upon the satisfaction by the company of pre-determined performance criteria for the measurement period, which for this grant will be the calendar year 2023. You may not receive any PSUs if the minimum performance criteria are not met. If the minimum performance criteria are met, the PSUs will vest in two, equal installments beginning within the first calendar quarter following the measurement period and until the PSUs are 100% vested one-year following the first installment vesting date. Your PSU grant will be subject to the terms of the Codexis, Inc. 2022 Employment Inducement Award Plan (the "Plan") Existing Agreements (including the provisions thereof surviving the termination thereof) and, as between the parties, the Prosecution, defense, and enforcement of the Purchased Patents, Resultant Patents, the Purchased Know-How, and Acquired Regulatory Documentation will be conditioned on your acceptance of an appropriate PSU agreement.

In addition, as an additional inducement for you to join the Company, subject to approval controlled solely by the Board or a committee appointed by terms of this Agreement and not the Board, you will be granted an option (the "Option") surviving Articles and Sections of any Existing Agreement. For clarity, all right, title, and interest in the Purchased Patents, including the right to purchase Common Stock having a value of US$1,333,333.00, sue for past infringement, shall belong solely to Buyer as determined in accordance with Codexis' policy, as may be amended from time to time. The Option will have an exercise price per share equal to the closing trading price of a share of Common Stock on the date the Option is granted (or if the grant date is not a trading day, the immediately preceding trading day). Options are generally granted on or around the 5th day of the month following the month employees commence employment. The Option will vest and become exercisable Closing Date.

Section 5.10 License to Know-How.Effective as to one fourth or 25% of the shares initially subject to the Option on the first anniversary of the date of grant Closing Date and thereafter will vest and become exercisable as to 1/48th of the shares initially subject to the Option per month for the following 36 months until the option is 100% vested on the four-year anniversary of the date of grant. Vesting is contingent upon your continued employment through the applicable vesting date. Your Option will be subject to the terms of this Section 5.10, Seller (on behalf of itself and its Affiliates) hereby grants to Buyer, and Buyer accepts, a non-exclusive, perpetual, irrevocable, royalty-free, worldwide, non-transferable (except as set forth below), sublicensable (solely as set forth below) license under the Plan Licensed Know-How to Manufacture, Develop, Commercialize, and otherwise Exploit the A&P Project Enzymes anywhere in the world, [***]. Buyer shall have no rights or license to any enhancements, improvements, or other modifications to the Licensed Know-How made by or on behalf of Seller or any of its Affiliates after the Closing Date. All use of the Licensed Know-How by or under authority of Buyer (or its successors and assigns) from and after the Closing Date shall be on an "AS IS, WHERE IS" basis, with all faults and all express and implied representations and warranties disclaimed, and at its sole risk. All rights not expressly granted by Seller and its Affiliates hereunder are reserved by Seller and its Affiliates. The license to the Licensed Know-How granted under this Section 5.10 shall be sublicensable (including through multiple tiers of sublicensees) only to (i) Affiliates (but only for so long as they remain Affiliates of Buyer), Licensees, and service providers of Buyer and (ii) any Third Party that acquires one or more of the Purchased Patents or Resultants Patents and such Third Party's Affiliates (but only for so long as they remain Affiliates of such Third Party) and service providers, in each case, for use solely within the scope of the above license, and shall be assignable and transferable only to successors in interest to all or substantially all of the assets of Buyer relating to the Products. Buyer is liable for any acts or omissions of its Licensees, Affiliates, employees, contractors, representatives, and (direct and indirect) sublicensees that would, if an act or omission of Buyer, be a stock option agreement breach of this Section 5.10. The rights and licenses granted in this Section 5.10 are subject to, and limited by, any and all licenses, rights, limitations, and restrictions with respect to the Licensed Know-How previously granted to or otherwise obtained by any Third Party that are in effect as of the Closing Date. Nothing contained herein will be entered into between you and the Company. construed as an obligation to disclose or deliver any technical information or embodiment of any Licensed Know-How or to provide any technical assistance or other services or deliverables to Buyer or its Affiliates.

Please note

Section 5.11 [***]. [***].

ARTICLE VI
INDEMNIFICATION

Section 6.01 Survival Subject to the limitations and other provisions of this Agreement, the representations and warranties contained herein shall survive the Closing and shall remain in full force and effect until the date that is [***] from the Company can grant the Award and Option to you only if and as long as it is permitted and feasible under the laws Closing Date. None of the United States of America covenants or any laws of a country other agreements contained in which you reside this Agreement shall survive the expiration or to which laws you may be subject. If local laws make the grant of Award or Option illegal or impractical, the Company will let you know as soon as possible.

Change of Control Severance Agreement

In connection with the commencement of your employment with Codexis, you will have the opportunity to enter into a Change of Control Severance Agreement. A copy other termination of the Change of Control Severance Agreement (Attachment B) is included with this offer letter for your review Term other than those which by their terms contemplate performance after termination (including Section 5.01 (Confidential Information)), and signature.

Employee Benefits

As a full-time employee, you will be eligible each such surviving covenant and agreement shall survive termination for the Codexis employee benefit plans, which currently include medical, dental, vision, long-term disability, period contemplated by its terms. Notwithstanding the foregoing, any claims asserted in good faith with reasonable specificity (to the extent known at such time) and life insurance, as well as a 401(k) plan and flexible time off that allows full-time employees to accrue 20 days of flexible time off each year of employment. For employees working greater than or equal to 20 hours and less than 40 hours per week flexible time off is prorated. Codexis reserves the right to modify or terminate any of these plans at any time and for any reason.

Other Terms and Conditions of Employment

Your employment with Codexis is at will. “Employment at will” means that you are free to resign from your employment at any time, for any reason or no reason at all, with or without cause and with or without notice. Similarly, Codexis may terminate your employment at any time for any legal reason, with or without cause and with or without notice. It also means that your job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as Codexis’ personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of Codexis. By accepting this offer of employment, you agree that your employment is at will, and acknowledge that no one, other than the President and CEO of Codexis, has the authority to promise you, either orally or in writing anything by notice from the non-breaching party to the contrary. Any breaching party prior to the expiration date of the applicable survival period shall not thereafter be barred by the expiration of such agreement must be in writing survival period and signed such claims shall survive until finally resolved.

Section 6.02 Indemnification by both you and Seller.Subject to the President to be effective.

Employment with any other entity or for yourself in competition with Codexis, or any direct or indirect subsidiary of Codexis, is not permitted. If you want to take an outside job, please discuss the opportunity with your manager and the Human Resources Department in advance so that a determination can be made if any actual or potential conflict of interest exists.

During the course of your employment you may create, develop or have access to confidential information belonging to Codexis, including technical, research, financial, business, commercial, personnel or operational information, and/or ideas, trade secrets, know-how, procedures, strategies or plans. You agree that as a condition of your employment with Codexis, you will sign and comply with the Codexis Employee Confidential Information and Inventions Assignment Agreement, a copy of which is attached to this letter as Attachment A.

The terms described in this letter supersede and replace all prior agreements, understandings, and promises between Codexis and you concerning the terms and conditions of your employment this ARTICLE VI, from and after the Closing, Seller shall indemnify Buyer, its Affiliates, and each of their successors and assigns (collectively, the “**Buyer Indemnified Parties**”)against, and shall hold the Buyer Indemnified Parties harmless from and against, any and all losses, damages, liabilities, deficiencies, Actions, judgments, interest, awards, penalties, fines, costs, or expenses of whatever kind, including reasonable out-of-pocket expenses of investigation and reasonable attorneys’ fees and expenses in connection with Codexis. any action, [***] (collectively, “**Losses**”),incurred or sustained by, or imposed upon, any Buyer Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) any Excluded Liability.

We hope that your association with Codexis will be mutually successful and rewarding, and we look forward to welcoming you aboard. Please indicate your acceptance of this offer Section 6.03 Indemnification by initialing each page and signing this letter below and Buyer returning the letter to Karen Armijo by January 3, 2023.

Sincerely, Codexis, Inc.

By: /s/Stephen Dilly
Stephen Dilly, Ph.D
President & CEO

I understand and agree Subject to the foregoing other terms and conditions of employment this ARTICLE VI, from and after the Closing, Buyer shall indemnify Seller, its Affiliates, and each of their successors and assigns (collectively, the "**Seller Indemnified Parties**")against, and shall hold the Seller Indemnified Parties harmless from and against, any and all Losses incurred or sustained by, or imposed upon, any Seller Indemnified Party based upon, arising out of, with Codexis.

/s/ Sri Ryali

12/30/2022 1/17/2023 respect to, or by reason of:
Date / Start Date (a) [***];

(b) [***]; or

ATTACHMENT A

CODEXIS 2010 EMPLOYEE CONFIDENTIAL INFORMATION AND INVENTIONS ASSIGNMENT AGREEMENT

CODEXIS, INC.

EMPLOYEE CONFIDENTIAL INFORMATION AND INVENTIONS ASSIGNMENT AGREEMENT

The following confirms an agreement (the "Agreement") between Codexis, Inc. (c) [***], any Assumed Liability or Buyer's, its subsidiaries, affiliates, successors or assigns (together the "Company") Affiliates', and me (**Sri Ryali**). As a condition of my employment, and in consideration of my employment with the Company and my receipt its Licensees' conduct of the compensation now Business after the Closing.

Section 6.04 Certain Limitations.The party making a claim under this ARTICLE VI is referred to as the "**Indemnified Party**,"and hereafter paid the party against whom such claims are asserted under this ARTICLE VI is referred to me by Company, I agree as the "**Indemnifying Party**."The indemnification provided for in Section 6.02 and Section 6.03 shall be subject to the following effective as of my first day of employment with the Company: limitations:

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1. (a) The Indemnifying Party shall not be liable to the Indemnified Party for indemnification under Section 6.02(a) or Section 6.03(a), as the case may be, until the aggregate amount of all Losses in respect of indemnification under Section 6.02(a) or Section 6.03(a) exceeds $[***] (the "**At-Will Employment. Deductible** This "),in which event the Indemnifying Party shall only be required to pay or be liable for Losses in excess of the Deductible.

(b) The aggregate amount of all Losses for which a Seller shall be liable pursuant to Section 6.02(a) shall not exceed [***] of the Purchase Price (the "**Cap**").

(c) In no event shall any Indemnifying Party be liable to any Indemnified Party for any punitive, incidental, consequential, special, or indirect damages, or for any damages based on loss of future revenue or income, loss of business reputation or opportunity relating to the breach or alleged breach of this Agreement, or diminution of value or any damages based on any type of multiple, [***].

(d) [***].

(e) Seller shall not be liable under this ARTICLE VI for any Losses based upon or arising out of any inaccuracy in or breach of any of the representations or warranties of Seller contained in this Agreement if Buyer [***] knowledge of such inaccuracy or breach prior to the Closing.

For purposes of calculating the Deductible or the Cap with respect to any Losses, the Deductible or Cap, as applicable, will be calculated as of the date on which such Loss is payable by the Indemnifying Party to the Indemnified Party and the Purchase Price for purposes of such calculation will be equal to the aggregate of the Initial Purchase Price and the Milestone Payment paid or payable by Buyer to Seller during the period from the Closing Date until (and including) the date on which such Loss is payable; [***].

Section 6.05 Indemnification Procedures. Whenever any claim shall arise for indemnification hereunder, the Indemnified Party shall promptly provide written notice of such claim to the Indemnifying Party. Such notice by the Indemnified Party shall: (a) describe the claim in reasonable detail; (b) include copies of all material written evidence thereof; and (c) indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party. In connection with any claim giving rise to indemnity hereunder resulting from or arising out of any Action by a Person who is not a party to this Agreement, the Indemnifying Party, at its sole cost and expense and upon written notice to the Indemnified Party, may assume the defense of any such Action with counsel reasonably satisfactory to the Indemnified Party. The Indemnified Party shall be entitled to participate in the defense of any such Action, with its counsel and at its own cost and expense, subject to the Indemnifying Party's right to control the defense thereof. If the Indemnifying Party does not assume the defense of any such Action, the Indemnified Party may, but shall not be obligated to, defend against such Action in such manner as it may deem appropriate, including settling such Action, after giving notice of it to the Indemnifying Party, on such terms as the Indemnified Party may deem appropriate and no action taken by the Indemnified Party in accordance with such defense and settlement shall relieve the Indemnifying Party of its indemnification obligations herein provided with respect to any damages resulting therefrom. The Indemnifying Party shall not be entitled to assume or maintain control of the defense of any such Action if (i) [***], (ii) such Action seeks an employment contract injunction or equitable relief against the Indemnified Party or any of its Affiliates, or (iii) [***]. Seller and Buyer shall cooperate with each other in all reasonable respects in connection with the defense of any claim, including: (i) making available

(subject to the provisions of Section 5.01) records relating to such claim; and (ii) furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party, management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such claim. The Indemnifying Party shall not settle any Action without the Indemnified Party's prior written consent (which consent shall not be unreasonably withheld, conditioned, or delayed).

Section 6.06 Tax Treatment of Indemnification Payments.All indemnification payments made under this Agreement shall be treated by the parties as an adjustment to the Purchase Price for Tax purposes, unless otherwise required by Law.

Section 6.07 Exclusive Remedies. Subject to ARTICLE VII, the parties acknowledge and agree that from and after the Closing their sole and exclusive remedy with respect to any and all claims (other than claims arising from intentional fraud on the part of a party hereto or its representatives in connection with the transactions contemplated by this Agreement) for any particular term. I have a right breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to resign and Company has the right to terminate my employment at will, at any time, for any or no reason, with or without cause and without notice. In addition, subject matter of this Agreement does not purport shall be pursuant to set forth all of the terms and conditions of my employment, and, as an employee of Company, I have obligations to Company which are not indemnification provisions set forth in this ARTICLE VI. In furtherance of the foregoing, each party hereby waives, from and after the Closing, to the fullest extent permitted under Law, any and all rights, claims, and causes of action for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other parties hereto and their Affiliates and each of their respective Representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this ARTICLE VI. Nothing in this Section 6.07 shall limit any Person's right to seek and obtain any equitable relief to which such Person shall be entitled or to seek any remedy on account of any intentional fraud by any party hereto or its representatives.

Section 6.08 Right to Set-Off.

(a) Buyer is expressly authorized, but shall not be obligated, to set-off any Losses that the Parties have agreed in writing, or which have been finally determined in accordance with ARTICLE VIII, to be subject to indemnification by Seller hereunder (subject to the limitations set forth in Section 6.04) against the Milestone Payment or any other payments payable to Seller pursuant to this Agreement. However,

(b) Neither the exercise nor the failure or delay to exercise such right to withhold or set off pursuant to this Section 6.08 will constitute an election of remedies or limit the rights and remedies of the Buyer Indemnified Parties hereunder (other than to the extent any Losses have been set off pursuant to Section 6.08(a)).

ARTICLE VII
TERM AND TERMINATION

Section 7.01 Term.This Agreement commences upon the Effective Date and will continue until the later of:

(a) [***] of the Effective Date; and

(b) [***] of the date the Milestone Payment is made to Seller (the period from the Effective Date until the expiration or other termination of this Agreement, the "**Term**").

ARTICLE VIII
DISPUTE RESOLUTION

Section 8.01 Elevation of Issues for Resolution.In the event the parties or their Representatives are unable to agree upon any dispute or disagreement between the parties arising from or in connection with this Agreement, the construction hereof, or the rights, duties or liabilities of either party hereunder (each a "**Dispute**"),the parties shall endeavor to resolve such Dispute in accordance with the terms of this Section 8.01. Upon the receipt of a written notice from one party to the other party of a Dispute (the "**Notice of Dispute**"),authorized Representatives of the parties, each with authority to settle the Dispute, shall endeavor to discuss their respective positions and use their good faith efforts to resolve the Dispute. In connection with such discussion, the parties may agree to confer with one or more mutually acceptable independent Third Party experts having expertise in the relevant subject matter and both parties shall consider in good faith the views of such Third Party(ies). If for any reason a written agreement signed by both parties is not reached within [***] after the Notice of Dispute, the parties shall promptly refer the Dispute to the Senior Executives (or their respective designees) for resolution, which Senior Executives will have authority to settle the Dispute and shall be charged with resolving such Dispute. If such Dispute is not resolved by the parties' Senior Executives within [***] after the date the Dispute is referred to them, then the Dispute shall be submitted to binding arbitration in accordance with Section 8.02.

Section 8.02 Arbitration. Any Dispute that is not resolved by an executed written agreement of the parties in accordance with Section 8.01, as well as any related claims or other disputes arising out of or in connection with this Agreement including any question regarding its existence, validity, or termination, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise (collectively, the "**Related Claims**"), shall be referred to and finally resolved by arbitration under the [***] rules (the "**Rules**") in effect at the Effective Date except, as they may be modified herein or by mutual agreement of the parties, which Rules are deemed to be incorporated by reference into this Section 9.02. The number of arbitrators shall be three, unless otherwise mutually agreed by the parties, whereby, claimant and the respondent shall each nominate an arbitrator, and the third arbitrator, who shall be the president of the arbitral tribunal, shall be appointed by the two party-appointed arbitrators in consultation with the parties, in each case, in accordance with the Rules. Each arbitrator shall be experienced in the subject matter herein and the application of [***] law. The seat or legal place of arbitration shall be [***]. The language to be used in the arbitral proceedings shall be English.

(a) Within [***] after the appointment of the arbitrators pursuant to this Section 8.02, the arbitrators and the parties shall meet, and each party shall provide to the arbitrators a written summary of: (i) all issues within the scope of the Dispute and any Related Claims; and (ii) such party's position on each such issue. The arbitrators shall set a date for a hearing, which shall be no later than [***] after the appointment of the final arbitrator pursuant to this Section 8.02, for the presentation of evidence and legal arguments concerning each of the issues identified by the parties; provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***].

(b) The arbitrators shall use each of their best efforts to rule on each disputed issue within [***] after the completion of the hearing described in Section 8.02(a); provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***]. No arbitrator (nor any arbitral tribunal) shall have the power to: (i) award any punitive damages or other damages prohibited by Section 6.04; or (ii) to decide or rule on any issue or other matter

that is not clearly with the scope of the Dispute and any Related Claims. The costs of the arbitration shall be [***] during the course of such arbitration, as assessed by [***], and shall be borne as determined by the arbitrators.

(c) The arbitration proceedings, including the existence of the arbitration proceedings, the facts and circumstances surrounding the underlying dispute, all submissions, correspondence, and evidence relating to the arbitration proceedings, and any awards issued by the arbitrator shall be kept confidential by the parties, and the parties shall work with the arbitrators to take such steps as are reasonably necessary to preserve the confidentiality thereof, except to the extent otherwise required by applicable Law.

(d) Subject to Section 8.02(b), the arbitrators shall have the power to grant any remedy or relief that they deem just and equitable, including but not limited to injunctive relief, whether interim or final, and any provisional measures ordered by the arbitrator may be enforced by any court of competent jurisdiction. Notwithstanding the foregoing, nothing in this Agreement shall prevent either party from seeking any provisional/preliminary relief (including injunctions, attachments, or other such orders in aid of arbitration) from any court of competent jurisdiction, and any such application to a court for provisional/preliminary relief shall not be deemed incompatible with the terms of this Agreement govern over any inconsistent terms and can only be changed by to arbitrate or a subsequent written agreement signed by both parties.

2. Confidential Information.

(a) **Company Information.** I agree at all times during the term of my employment and thereafter, to hold in strictest confidence, and not to use, except for the benefit waiver of the Company, or right to disclose arbitrate.

(e) Any award rendered by the arbitrators shall be final and binding on the parties, and each party hereto waives to the fullest extent permitted by law any right it may otherwise have under the laws of any jurisdiction to any person, firm form of appeal of, or corporation (in writing, verbally, or via email or collateral attack against, such award. Judgment upon any other medium) without written advance authorization of awards rendered by the Board of Directors of the Company, any Confidential Information of the Company. I will not use any Confidential Information except in the performance of my authorized duties as an employee of Company. I understand that "Confidential Information" includes, without limitation, any tangible or intangible proprietary information, technical data, trade secrets or know-how, including, but not limited to, research ideas, concepts, tangible and biological materials (including, but not limited to, cell lines, plasmids, vectors and DNA) and data; product plans, products, and services; customer lists and customers (including, but not limited to, customers of the Company on whom I called or with whom I became acquainted during my term of my employment); business markets, software, development, discoveries, inventions, processes, formulas, technology, designs, drawings, engineering, hardware configuration information, marketing, business plans, corporate strategy plans, financial data; or other business information made, generated or developed by me in the course of my employment with Company, or disclosed to me by Company either directly or indirectly arbitrators may be entered in any form, court having jurisdiction thereof, including without limitation, in writing, orally, electronically, or by drawings or observation of materials, parts, equipment, or research experiments. Confidential Information also includes confidential information provided to Company by any third party, which is indicated by such third party to be confidential. I further understand that Confidential Information does not include court having jurisdiction over any of the foregoing items which has become publicly known and made generally available through no wrongful act parties or their assets.

(f) Notwithstanding anything in this ARTICLE VIII to the contrary, any dispute to determine the validity or infringement of mine.

(b) **Third Party Information.** I agree that I will not, during my employment with a party's intellectual property rights by the Company, improperly use or disclose other party (but excluding, in any proprietary information or trade secrets of any former or concurrent employer event, disputes relating to earnouts or other person or entity, and that I will not bring onto the premises of the Company any unpublished document or proprietary information belonging to any such employer, person or entity unless consented to in writing and in advance by such employer, person or entity.

(c) **Third Party Information Received by the Company.** I recognize that the Company has received and in the future will likely receive from third parties their confidential or proprietary information

subject to a duty on the Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. I agree to hold all such confidential or proprietary information in the strictest confidence and not to disclose it to any person, firm or corporation or to use it except as necessary in carrying out my work for the Company consistent with the Company's agreement with such third party.

(d) **Defend Trade Secrets Act**. 18 U.S.C. § 1833(b) states:

"An individual shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that—(A) is made—(i) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal."

Accordingly, I have the right to disclose in confidence trade secrets to Federal, State, and local government officials, or to an attorney, for the sole purpose of reporting or investigating a suspected violation of law. I also have the right to disclose trade secrets in a document filed in a lawsuit or other proceeding, but only if the filing is made under seal and protectable from public disclosure. Nothing in this Certification is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b).

3. Inventions.

(a) **Inventions Retained and Licensed.** I have attached hereto, as **Exhibit A**, a list describing all inventions, original works of authorship, developments, improvements, and trade secrets (if any) which were made by me prior to my employment with the Company (collectively referred to as "Prior Inventions"), which belong to me, which relate to the Company's proposed business, products or research and development, and which are not assigned to the Company hereunder; if no such list is attached to or contained in **Exhibit A**, I represent that there are no such Prior Inventions. If in the course of my employment with the Company, I incorporate into a Company product, process or machine a Prior Invention owned by me or in which I have an interest, the Company is hereby granted and shall have a nonexclusive, fully sublicensable, royalty-free, irrevocable, perpetual, worldwide license to make, have made, modify, use, have used, sell, have sold and import such Prior Invention as part of or in connection with such product, process or machine.

(b) **Assignment of Inventions.** I agree that I will promptly make full written disclosure to the Company, will hold in trust for the sole right and benefit of the Company. I hereby assign to the Company, or its designee, all my right, title, and interest in and to any and all inventions, original works of authorship, developments, concepts, improvements or trade secrets, amounts payable hereunder, whether or not patentable involving questions of infringement or registrable under copyright or similar laws, which I may solely or jointly conceive or develop or reduce validity) shall be submitted exclusively to practice, or cause to be conceived or developed or reduced to practice, during the period of time I am courts in the employ jurisdiction of the Company (collectively referred relevant intellectual property right, and the parties hereby consent to as "Inventions"), excepting only any invention (if any) which qualifies fully under the provisions jurisdiction of California Labor Code such courts.

ARTICLE IX

MISCELLANEOUS

Section 2870 as provided 9.01 Definitions.The terms in Section 3 (f) below. I further acknowledge that all original works of authorship which are made by me (solely or jointly this Agreement with others) within the scope of and during the period of my employment with the Company and which are protectable by copyright are "works made for hire", as that term is defined initial letters capitalized, whether used in the United States Copyright Act.

(c) singular or the plural, shall have the respective meanings either set forth in **Inventions Assigned to the United States. Exhibit A** I agree to assign to the United States government all my right, title, and interest attached heretoor in and to any and all Inventions hereunder, whenever such full title is

required to be in the United States by a contract between the Company and the United States or any of its agencies.

(d) **Maintenance of Records.** I agree to keep and maintain adequate and current written records of any and all Inventions hereunder, including any made by me solely or jointly with others during the term of my employment with the Company. The records will be in the form of notes, sketches, drawings, and any other format that may be specified by the Company. The records will be available to and remain the sole property of the Company at all times.

(e) **Patent and Copyright Registrations.** I agree to assist the Company, or its designee, at the Company's expense, in every proper way to secure the Company's rights in the Inventions and any copyrights, patents, mask work rights or other intellectual property rights relating thereto in any and all countries, including the disclosure to the Company of all pertinent information and data with respect thereto, the execution of all applications, specifications, oaths, assignments and all other instruments which the Company shall deem necessary in order to apply for and obtain such rights and in order to assign and convey to the Company, its successors, assigns and nominees the sole and exclusive rights, title and interest in and to such Inventions, and any copyrights, patents, mask work rights or other intellectual property rights relating thereto. I further agree that my obligation to execute or cause to be executed, when it is in my power to do so, any such instrument or papers shall continue after the termination of this Agreement. If the Company is unable because of my mental or physical incapacity or for any other reason to secure my signature to apply for or to pursue any application for any United States or foreign patents or copyright registrations covering Inventions or original works of authorship assigned to the Company as above, then I hereby irrevocably designate and appoint the Company and its duly authorized officers and agents as my agent and attorney in fact, to act for and in my behalf and stead to execute and file any such applications and to do all other lawfully permitted acts to further the prosecution and issuance of letters patent or copyright registrations thereon with the same legal force and effect as if executed by me.

(f) **Exception to Assignments.** I understand that the provisions another part of this Agreement requiring assignment of Inventions to the Company do not apply to any invention which qualifies fully under the provisions of California Labor Code Section 2870 (attached hereto and as **Exhibit B**). I will advise the Company promptly cross referenced in writing of any invention that I believe meet the criteria in California Labor Code Section 2870 and are not disclosed on **Exhibit A**.

Section 9.02 Construction.

(a) The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

(b) Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or).

4. **Conflicting Employment.** I

(c) The term "including," "include," or "includes" as used herein shall mean including, without limiting the generality of any description preceding such term.

(d) Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument, or other document herein will be construed as referring to such agreement, instrument, or other document as from time to time amended, supplemented, or otherwise modified (subject to any restrictions on such amendments, supplements, or modifications set forth herein or therein), (ii) any reference to any applicable Laws herein will be construed as referring to such Laws as from time to time enacted, repealed, or amended, (iii) any reference herein to any person will be construed to include the person's successors and permitted assigns, (iv) the words "herein", "hereof," and "hereunder", and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (v) any reference herein to the words "mutually agree" or "mutual written agreement" will not impose any obligation on either party to agree to any terms relating thereto except as such party may determine in such party's sole discretion, (vi) all references herein to Sections or Exhibits will be construed to refer to Sections and Exhibits to this Agreement, (vii) the word "days" means calendar days unless otherwise specified, (viii) except as otherwise expressly provided herein all references to "$" or "dollars" refer to the lawful money of the U.S., and (ix) the words "copy" and "copies" and words of similar import when used in this Agreement include, to the extent available, electronic copies, files or databases containing the information, files, items, documents, or materials to which such words apply.

(e) Each party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof In interpreting and applying the terms and provisions of this Agreement, the parties agree that during no presumption will apply against the term party which drafted such terms and provisions. The language in this Agreement is to be construed in all cases according to its fair meaning.

(f) Any documents will be deemed to have been made available to, and received by, Buyer if such documents were made available to Buyer [***] prior to the execution and delivery of my employment this Agreement by Seller.

Section 9.03 Expenses. Except as otherwise expressly provided herein (including Section 5.07 hereof), all costs and expenses incurred in connection with this Agreement and the Company, I will not engage transactions contemplated hereby shall be paid by the party incurring such costs and expenses.

Section 9.04 Severability. If and to the extent that any provision (or any part thereof) of this Agreement is held to be invalid, illegal, or unenforceable, in any respect in any jurisdiction, the provision (or the relevant part thereof) shall be considered severed from this Agreement and shall not serve to invalidate the remainder of such provision or any other employment, occupation, consulting provisions hereof The parties shall make a good faith effort to replace any invalid, illegal, or other business activity directly related unenforceable provision (or any part thereof) with a valid, legal, and enforceable provision such that the objectives contemplated by the parties when entering this Agreement may be realized.

Section 9.05 Notices. Any notice required or permitted to be given by the parties pursuant to this Agreement shall be in writing and shall be (i) delivered by hand, (ii) delivered by overnight courier with tracking capabilities, (iii) mailed postage prepaid by first class, registered, or certified mail, or (iv) transmitted by electronic mail, with confirmation copy by mail as provided in clause (iii) above, and in each case addressed to the business in which the Company is now involved or becomes involved during the term of my employment, nor will I engage in any other conduct or activities that conflict with my obligations to the Company or is not in the best interests of the Company. recipient party as set forth below, unless changed by notice so given:

5. **Returning Company Property.** I agree that, prior

If to or at the time of leaving the employ Buyer:

[●]
c/o Société des Produits Nestlé S.A.
55 Avenue Nestlé
1800 Vevey
Switzerland
Email: [***]
[***]
Attention: [***]
[***]

with a copy to (which shall not constitute notice):

Mayer Brown LLP
1221 Avenue of the Company, I will deliver Americas
New York, NY 10020
Email: [***]
[***]
Attention: [***]
[***]

If to Codexis:

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Attention: President

with a copy to (which shall not constitute notice):

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Email: [***]
Attention: General Counsel

And

Baker Hostetler LLP
312 Walnut Street, Suite 3200
Cincinnati, OH 45202-4074
Email: [***]
[***]
Attention: [***]
[***]

(A) with respect to any notice delivered pursuant to clauses (i), (ii) or (iii), such notice shall not be effective unless it was (1) first delivered via e-mail and no response was given within [***] and (2) a

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

subsequent notice via e-mail was sent indicating the delivery via method described in clause (i), (ii), or (iii), as applicable; (B) with respect to any notice delivered pursuant to clauses (i), such notice shall be deemed effective upon submission to such other party, (C) with respect to any notice delivered pursuant to clause (ii), such notice shall be deemed effective [***] following the date of submission to the Company (and will not keep in my possession, recreate or deliver carrier, (D) with respect to anyone else) any notice delivered pursuant to clause (iii), such notice shall be deemed effective [***] after the date deposited with the applicable carrier, and all Confidential Information in my possession, as well as all equipment, devices, records, data, notes, reports, proposals, lists, correspondence, specifications, drawings, blueprints, sketches, biological and with respect to any notice delivered pursuant to clause (iv), (x) upon submission to such other tangible materials (including, but not limited, to cell lines, plasmids, vectors and DNA), other documents or tangible property party if sent during normal business hours of the Company (or property of third parties that is lawfully in the possession or control recipient, and (y) on [***] if sent after normal business hours of the Company) recipient (in the case of (x) or (y), subject to confirmation of receipt by recipient by reply email). A party may add, delete, or reproductions of change the person or address to whom notices should be sent at any aforementioned items including time upon written notice delivered to the other party in accordance with this Section 9.05.

Section 9.06 Assignment.Neither this Agreement nor any and all of the aforementioned items developed rights or obligations hereunder may be assigned or transferred by me pursuant to my employment with the Company or otherwise property of the Company, its

successors or assigns. In the event of the termination of my employment, I agree to sign and deliver the "Termination Certification" attached hereto as **Exhibit C**.

6. **Notification of New Employer.** In the event that I leave the employ of the Company, I hereby grant consent to notification by the Company to my new employer about my rights and obligations under this Agreement.

7. **Solicitation of Employees and Customers.** I acknowledge and agree that for a period of twenty- four (24) months or to the maximum extent permitted by law immediately following the termination of my relationship with the Company for any reason, whether voluntarily or involuntarily, I shall not either directly or indirectly party without the prior written consent of the Company:

(a) solicit, induce, recruit other party, such consent not to be unreasonably withheld, delayed or encourage conditioned; provided, however, that either party may, without the other party's consent, but with written notice to the other party, assign or transfer all of its rights and obligations hereunder to any Affiliate, or to a Third Party with whom it completes a Business Combination or to whom it sells substantially all of such party's assets relating to this Agreement. [***]. This Agreement shall inure to the benefit of and be binding on the parties' successors and assigns. Any assignment or transfer in violation of the Company's employees foregoing shall be null and void and wholly invalid, the assignee or transferee in any such assignment or transfer shall acquire no rights whatsoever, and the non-assigning, non-transferring party shall not recognize, nor shall it be required to leave their employment, either for myself recognize, such assignment or for any other person transfer.

Section 9.07 Waivers, Modifications, and Amendments. No waiver, modification, release, or entity; or

(b) use Confidential Information of the Company to solicit the business amendment of any customer of the Company, where I had contact with such customer during the period of my employment with the Company, and which business is competitive with any significant part of the business conducted by the Company obligation under, or any subsidiary or affiliate thereof at the time of termination of my employment or as contemplated to be conducted by the Company at such time.

In connection with the foregoing, I acknowledge and agree that the identity, appropriate knowledge of personnel, research and/or product requirements, volume and frequency of orders, and price sensitivity of customers of the Company are not publicly available information and constitute valuable trade secrets of the Company.

8. **Photography Consent, Waiver, And Release.** Upon execution of this Agreement, I agree to sign the Photography Consent, Waiver and Release attached as **Exhibit D**hereto.

9. **Conflict of Interest Guidelines.** I agree to diligently adhere to the Conflict of Interest Guidelines attached as **Exhibit E**hereto.

10. **Representations.** I agree to execute any proper oath or verify any proper document required to carry out the terms of this Agreement. I represent that my performance of all the terms of this Agreement will not breach any agreement to keep in confidence proprietary information acquired by me in confidence or in trust prior to my employment by the Company. I have not entered into, and I agree I will not enter into, any oral or written agreement in conflict herewith.

11. **Equitable Remedies.** I agree that it would be impossible or inadequate to measure and

calculate the Company's damages from any breach of the covenants set forth in this Agreement. Accordingly, I agree that if I breach any provision of, this Agreement shall be valid or effective unless in writing and signed by all parties hereto. The failure of any party to insist on the Company will have available, in addition performance of any obligation hereunder shall not be deemed to be a waiver of such obligation. Waiver of any provision hereunder or of any breach of any provision hereof shall not be deemed to be a continuing waiver or a waiver of any other right breach of such provision (or any other provision) on such occasion or remedy available, any succeeding occasion. Any amendment of this Agreement shall not be binding on the right parties unless set out in writing, expressed to obtain an injunction from a amend this Agreement and signed by authorized representatives of each of the parties.

Section 9.08 Choice of Law.This Agreement (and any claims or disputes arising out of or relating hereto or to the transaction contemplated hereby or to the inducement of any party to enter herein or therein, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise) shall be governed by, enforced, and shall be construed in accordance with the laws of [***], without regard to its conflicts of law provisions. The parties hereby disclaim the application of the United Nations Convention on the International Sale of Goods to this Agreement.

Section 9.09 Injunctive Relief. Notwithstanding anything herein to the contrary, each party shall be entitled to seek injunctive relief and specific performance (including any relief or recovery under this Agreement) in any court of competent jurisdiction restraining such breach in the world.

Section 9.10 Relationship of the Parties. Each party is an independent contractor under this Agreement. Nothing herein is intended or threatened breach is to be construed so as to constitute Buyer and Seller as partners, agents, or joint venturers. Neither party shall have any express or implied right or authority to specific performance assume or create any obligations on behalf of any such provision of this Agreement.

12. **Non-Disparagement.** I agree that, during employment with Company and thereafter, I will not make comments, whether oral or in writing, that tend the name of the other party or to disparage or injure bind the Company, its officers, directors, agents, employees, technology, businesses, products or services. Nothing in this Agreement will be construed other party to preclude me from complying with the terms of a validly issued subpoena.

13. **General Provisions.**

any contract, agreement, or undertaking with any Third Party. There are no express or implied third party beneficiaries hereunder.

(a) Section 9.11 Entire Agreement Governing Law; Consent to Personal Jurisdiction. This. The parties agree that this Agreement will be governed by and the laws of attached Exhibits and Disclosure Schedules, together with the State of California exclusively, as such laws apply to contracts between California residents performed entirely within California. I hereby expressly consent to the personal jurisdiction of the state and federal courts located in San Mateo County, California for any lawsuit filed there against me by the Company arising from or relating to this Agreement.

(b) **Entire Agreement.** This Agreement sets forth Existing Agreements, constitute the entire agreement and understanding between the Company and me relating parties as to the subject matter herein of this Agreement, and merges hereby supersede all prior negotiations, representations, agreements, and contemporaneous discussions between us, including any previous confidentiality agreements that I may have entered into with understandings (whether written or oral) regarding the Company. No modification same. Subject to Section 5.09 and the terms of or amendment to this the Lipase Acquisition Agreement, nor any waiver of any rights under this Agreement, will be effective unless in writing signed by both parties. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

(c) **Severability.** If one or more of the provisions in this Agreement are deemed void by law, then the remaining provisions will continue Existing Agreements pursuant to which each party has agreed not to Develop or Commercialize the Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, remain in full force and effect.

(d) **Successors and Assigns.** This Agreement will be binding upon my heirs, executors, administrators and other legal representatives and will be for effect except as set forth herein with respect to the benefit of the Company, its successors, and assigns.

(e) **Survival.** The rights and obligations of A&P Project Enzymes. Further, the parties to agree that this Agreement will survive termination does not supersede or amend the Lipase Acquisition Agreement, which remains in effect and solely governs the subject matter thereof.

Section 9.12 Cooperation. The parties shall (i) provide assistance to each party as reasonably requested in preparing and filing Tax Returns with respect to the Purchased Assets; (ii) make available to each other as reasonably requested all information, records, and documents relating to Taxes concerning the Purchased Assets; (iii) retain any books and records that could reasonably be expected to be necessary or useful in connection with any preparation by any the other party of my employment any Tax Return, or for any audit relating to Taxes with Company. respect to the Purchased Assets; and (iv) cooperate fully, as and to

the extent reasonably requested by the other party, in connection with any audits, assessments or administrative or judicial proceedings or other Actions with respect to Taxes relating to the Purchased Assets.

(f) Section 9.13 Counterparts Counterparts. . This Agreement may be executed in counterparts (including using any number electronic signature covered by the United States ESIGN Act of counterparts, 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable Law, e.g., www.docusign.com), each of which shall be deemed to be an original, and but all of which together shall be deemed to be one and the same instrument. agreement. A signed copy of this Agreement delivered by email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. To the extent applicable, the foregoing constitutes the election of the parties to invoke any Law authorizing electronic signatures. Minor variations in the form of the signature page, including footers from earlier versions of this Agreement, shall be disregarded in determining a party's intent or the effectiveness of such signature. No party shall raise the use the delivery of signatures to this Agreement in electronic format as a defense to the formation of a contract and each such party forever waives any such defense.

Section 9.14 Non-Recourse.This Agreement may only be enforced against, and any Action based upon, arising out of or related to this Agreement, or the negotiation, execution, or performance of this Agreement, may only be brought against the entities that are expressly named as parties hereto and then only with respect to the specific obligations set forth herein with respect to such party. No past, present, or future director, officer, employee, incorporator, manager, member, partner, stockholder, Affiliate, agent, attorney, or other Representative of any party hereto or of any Affiliate of any party hereto, or any of their successors or permitted assigns, shall have any liability for any obligations or liabilities of any party hereto under this Agreement or for any Action based on, in respect of, or by reason of the transactions contemplated hereby.

[SIGNATURE PAGE FOLLOWS]

I HAVE READ THIS AGREEMENT CAREFULLY AND I UNDERSTAND AND ACCEPT THE OBLIGATIONS WHICH IT IMPOSES UPON ME WITHOUT RESERVATION. NO PROMISES OR REPRESENTATIONS HAVE BEEN MADE TO ME TO INDUCE ME TO SIGN THIS AGREEMENT. I SIGN THIS AGREEMENT VOLUNTARILY AND FREELY, IN DUPLICATE, WITH THE UNDERSTANDING THAT ONE COUNTERPART WILL BE RETAINED BY COMPANY AND THE OTHER COUNTERPART WILL BE RETAINED BY ME. * * * * * * * * *

Date:12/30/2022

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

/s/ Sriram Ryali
Signature

Sriram Ryali
Printed

CODEXIS, INC.

By: IN WITNESS WHEREOF

Title:

Date:

EXHIBIT A

LIST OF PRIOR INVENTIONS (INCLUDING ORIGINAL WORKS OF AUTHORSHIP)

Title	Date	Identifying Number Or Brief Description

EXHIBIT B

CALIFORNIA LABOR CODE SECTION 2870 EMPLOYMENT AGREEMENTS; ASSIGNMENT OF RIGHTS

"(a) Any provision in an employment agreement which provides that an employee shall assign, or offer , the parties hereto have caused this Agreement to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either:

(1) Relate at the time of conception or reduction to practice be executed as of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer. Effective Date written above by their respective officers thereunto duly authorized.

Codexis, Inc.

(2) Result from any work performed by the employee for the employer. By:

Name:

(b) To the extent a provision in the employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable."

EXHIBIT C

CODEXIS, INC. TERMINATION CERTIFICATION

This is to certify that I do not have in my possession, nor have I failed to return, any devices, records, data, notes, reports, proposals, lists, correspondence, specifications, drawings, blueprints, sketches, materials, equipment, other documents or property, or reproductions of any aforementioned items belonging to Codexis, Inc., its subsidiaries, affiliates, successors or assigns, except where authorized in writing.

I further certify that I have complied with all the terms of the Codexis, Inc. Employee Confidential Information and Inventions Assignment Agreement signed by me, including the reporting of any inventions and original works of authorship (as defined therein), conceived or made by me (solely or jointly with others) covered by that agreement.

I further agree that, in compliance with the Employee Confidential Information and Inventions Assignment Agreement, I will preserve as confidential all trade secrets, confidential knowledge, data or other proprietary information relating to products, processes, know-how, designs, formulas, developmental or experimental work, computer programs, data bases, other original works of authorship, customer lists, business plans, financial information or other subject matter pertaining to any business of Codexis, Inc. or any of its employees, clients, consultants, or licensees.

Its:

The Federal Defend Trade Secrets Act **Société des Produits Nestlé S**. 18 U.S.C. § 1833(b) states: **A**.

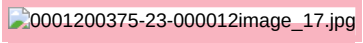
"An individual shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that—(A) is made—(i) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal."

Accordingly, I have the right to disclose in confidence trade secrets to Federal, State, and local government officials, or to an attorney, for the sole purpose of reporting or investigating a suspected violation of law. I also have the right to disclose trade secrets in a document filed in a lawsuit or other proceeding, but only if the filing is made under seal and protectable from public disclosure. Nothing in this Certification is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b).

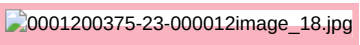
I further agree that in compliance with the Employee Confidential Information and Inventions Assignment Agreement, for twenty-four (24) months from this date: (a) I will not use confidential information to solicit, induce, recruit or encourage any of the Company's employees to leave their employment, either for myself or for any other person or entity; and (b) I will not use confidential information to solicit the business of any customer of the Company, which business is competitive with any significant part of the business conducted by the Company or any subsidiary or affiliate thereof at the time of termination of my employment or as contemplated to be conducted by the Company at such time.

By:

Date: Name:



(Employee's Signature)



(Type/Print Employee's Name) Its:

[TO BE SIGNED UPON TERMINATION OF EMPLOYMENT]

EXHIBIT D A

DEFINITIONS AND CROSS-REFERENCE TABLE

CODEXIS, INC.

PHOTOGRAPHY CONSENT, WAIVER, AND RELEASE

For good and valuable consideration, I hereby consent and give permission to Codexis, Inc. ("Codexis") or its agent, to photograph, image and/or videotape me, my property, and/or myself as included with others (such photographs, images, and/or videotapes, "Photographs")**Certain Definitions**. I understand that any such Photographs, and all rights associated with them, will belong solely and exclusively to Codexis and Codexis shallThe following terms have the irrevocable following meanings:

"**Affiliate**"of a Person means an entity that (directly or indirectly) is controlled by, controls, or is under common control with such Person where control means the direct or indirect ownership of voting securities entitled to cast at least fifty percent (50%) of the votes in the election of directors, or such other relationship as results in the power to control the management, business, assets, and absolute right to copyright, duplicate, reproduce, alter, display, distribute, and/ affairs of an entity.

"**BLA**"means (a) in the United States, a Biologics License Application, as defined in the United States Public Health Service Act (42 U.S.C. § 262), and applicable regulations promulgated thereunder by the FDA, or publish them any equivalent application that replaces such application, (b) in the EU, a marketing authorization application, as defined in applicable regulations of the EMA, and (c) in any manner, other country, the relevant equivalent to the foregoing.

"**Books and Records**"means all files (including all electronic data files and hard copies), documents, correspondence, lists, drawings and specifications, creative materials, marketing plans, studies (including market research and market data), reports, and other printed or written materials (in whatever form or medium).

"**Business**"means, following the Closing Date, the Development, Manufacture, Commercialization and other Exploitation of Products by Buyer, its Affiliates, and its Licensees.

"**Business Combination**"means, with respect to a party, any of the following events: (a) any Third Party (or group of Third Parties acting in concert) acquires, directly or indirectly, shares of such party representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such party; (b) such party consolidates with or merges into another corporation or entity which is a Third Party, or any purpose, and corporation or entity which is a Third Party consolidates with or merges into such party, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such party immediately preceding such consolidation or merger; or (c) such party conveys or transfers title to all or substantially all of its assets to a Third Party.

"**Business Day**"means a day other than Saturday, Sunday, or any form including, but not limited day on which commercial banks located in [***] are authorized or obligated by applicable Law to print, electronic, video, and/or Internet without notifying me. close.

"**Clinical Trial**"means a clinical trial in human subjects of a Product.

I voluntarily waive"**Commercialization**"means any and all activities relating specifically to the preparation for sale of, offering for sale of, or sale of a product or service, including activities related to launching, marketing, promoting, distributing, detailing, importing, pricing, reimbursement, and advertising such product, and interacting with Regulatory Authorities regarding any of the foregoing. When used as a verb, "**Commercialize**"and "**Commercializing**"means to engage in Commercialization, and "**Commercialized**"has a correlative meaning.

"**Confidential Information**"means any and all technical, business, or other information or data of a party or its Affiliates provided orally, visually, in writing, graphically, electronically, or in another form by or on behalf of such party or its Affiliates to the other party or its Affiliates in connection with this

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Agreement The parties acknowledge that the terms of this Agreement shall be treated as Confidential Information of [***] and that the Licensed Know-How shall be treated as the Confidential Information of Seller.

"**Contracts**"means all contracts, leases, licenses, instruments, notes, commitments, undertakings, indentures, joint ventures and all other agreements, commitments and legally binding arrangements, whether written or oral.

"**Controlled**"or "**Control**",when used in reference to any intellectual property, intellectual property right, material, know-how or information, with respect to a party, means that such party (a) owns or has a license (other than a license granted under this Agreement) to such intellectual property and (b) has the legal authority or right to: (i) grant, or procure the grant of, a license or sublicense, to the extent provided for herein, of the intellectual property, intellectual property right, material, know-how or information to the other party; or (ii) in relation to material, know-how and information only, disclose or provide access to, to the extent provided for herein, such material, know-how or information to the other Party, and in each case, without (x) breaching the terms of any then-existing agreement or other legally enforceable arrangement with a Third Party, or (y) misappropriating the material, know-how, intellectual property, intellectual property rights, I may now or hereafter information of a Third Party.

"**Development**"means non-clinical and clinical drug development activities reasonably related to the development and submission of information to a Regulatory Authority or otherwise to the testing and validation of a therapeutic agent, including toxicology, pharmacology and pre-clinical efforts, test method development, stability testing, manufacturing process, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, and clinical trials (including pre- and post-approval studies), whether for purposes of label expansion or otherwise. Development shall include post-approval Development activities. When used as a verb, "**Develop**"means to engage in Development.

"**Disclosure Schedules**"means the disclosure schedules in respect of this Agreement delivered by Seller to Buyer concurrently with the execution by Buyer of this Agreement and as modified in accordance with Section 9.03 of the Lipase Acquisition Agreement.

"**EMA**"means the European Medicines Agency, or any successor agency thereto.

"**European Union**"or "**EU**"means, at any given time, the then-current member states of the European Union; *provided* that each of the United Kingdom and Switzerland will also be considered included with the European Union, regardless of each's actual membership in the EU.

"**Exploit**"means to make, have made, import, use, sell or offer for sale a product or item. "**Exploitation**"has a correlative meaning.

"**FDA**"means the U.S. Food and Drug Administration, or any successor agency thereto.

"**First Commercial Sale**"means, with respect to a particular country or jurisdiction, the first commercial sale, transfer, or other disposition by Buyer, any of its Affiliates, or any Licensee for consumption by an end user of a Product following the receipt of the first Regulatory Approval for such Product in such country or jurisdiction, [***].

[***].

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"**GAAP**"means United States generally accepted accounting principles, consistently applied.

"**Governmental Authority**"means any multi-national, federal, state, local, municipal, provincial, or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court, or other tribunal).

"**Governmental Order**"means any order, writ, judgment, injunction, decree, stipulation, determination, or award entered by or with any Governmental Authority.

"**IFRS**"means the current International Financial Reporting Standards, as published by the International Accounting Standards Board.

"**Jointly Owned Inventions**"means (a) "Jointly Owned Inventions" as defined in the Strategic Collaboration Agreement and (b) "Jointly Owned Inventions" as defined in the Development Agreement.

"**Know-How**"means all non-public data and technical information, including techniques, methods, processes, technology, recipes, formulae, designs, equipment configurations and uses, Manufacturing data, preclinical and clinical data and study designs, specifications, ingredients, Manufacturing processes, formulations, sourcing information, quality control and testing procedures, and related trade secrets, but expressly excluding all Patents.

"**Knowledge of Seller**"or "**Seller's Knowledge**"or any other similar knowledge qualification, means the actual knowledge of those individuals identified on Section A of the Disclosure Schedules, [***].

"**Laws**"means all laws, statutes, rules, regulations, ordinances, and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city, or other political subdivision.

"**Liabilities**"means liabilities, obligations, or commitments of any nature whatsoever, whether asserted or unasserted, known or unknown, absolute or contingent, accrued or unaccrued, matured or unmatured, or otherwise.

"**Lipase Product**"means a "Product" as defined in the Lipase Acquisition Agreement.

"**Licensed Know-How**"means all Know-How owned by Seller or its Affiliates as of the Closing Date that is [***] for the Manufacture of the A&P Project Enzymes as conducted as of the Closing Date or is [***] provided to Regulatory Authorities in order to obtain Regulatory Approval for any product containing any A&P Project Enzymes anywhere in the world; provided that in no event shall Licensed Know-How include: (a) any Purchased Assets; (b) any Know-How or other intellectual property licensed pursuant to the Expression System License Agreement; or (c) Seller's or its Affiliates' CodeEvolver® platform technology.

"**Licensee**"means a Third Party that has been granted a license or right to Develop, Manufacture, Commercialize, or otherwise Exploit any Product by or through Buyer or Buyer's Affiliate, either directly or via a sublicense (through one or more tiers). As used in this Agreement, "**Licensee**"shall not include a wholesaler, distributor, or reseller of any Product, to the extent that Buyer or its Affiliate sells to such Person such Product and receives only supply price payments and has not granted such wholesaler, distributor, or reseller any license under any Purchased Patent or Resultant Patent.

"**Manufacture**"and "**Manufacturing**"means all activities related to the production, manufacture, processing, formulation, filling, finishing, packaging, labeling, shipping, handling, and storage of a product or any intermediate thereof, including process development, process qualification and validation, scale-up, pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance, and quality control.

"**Material Adverse Effect**"means any event, occurrence, fact, condition, or change that is materially adverse to the Development and Manufacture of the Products, taken as a whole.

"**Patent(s)**"means (a) any and all patents and patent applications, including all national, regional and international patents and patent applications, provisional patent applications; (b) all patent applications filed either (i) from such patents, patent applications, or provisional applications mentioned in subsection (a) above, or (ii) from an application claiming priority from any of them, including divisionals, continuations, continuations-in-part, provisionals, converted provisionals and requests for continued examinations; and (c) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, reexaminations and extensions (including any supplementary protection certificates and the like) of the foregoing patents and/or patent applications in subsections (a) and (b).

"**Person**"means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, foundation, joint venture, or other similar entity, organization, or combination thereof, including a government or political subdivision, department, or agency.

"**Phase III Clinical Trial**"means a pivotal Clinical Trial with a defined dose or a set of defined doses of a therapeutic product designed to ascertain efficacy and safety of such therapeutic product, in a manner that is generally consistent with 21 C.F.R. § 312.21(c), as amended (or its successor regulation), for the purpose of enabling the preparation and submission of a BLA or a foreign equivalent thereof

"**Product(s)**"means (a) the A&P Project Enzymes [***] and (b) [***].

"**Project Enzyme**"has the meaning set forth in the in the SCA.

"**Prosecution**"means the filing, preparation, prosecution (including any interferences, reissue proceedings, reexaminations, and oppositions), *inter partes* review, post-grant review, and maintenance of the Purchased Patents and Resultant Patents. When used as a verb, "**Prosecute**"and "**Prosecuting**"means to engage in Prosecution.

"**Regulatory Approval**"means, with respect to a therapeutic product in any country or regulatory jurisdiction, any and all approvals from the applicable Regulatory Authority sufficient for the import, distribution, marketing, use, offering for sale, and sale of sch therapeutic product in such country or jurisdiction in accordance with applicable Laws.

"**Regulatory Authority**"means any national or supranational Governmental Authority (including the FDA and EMA) which has regulatory responsibility and authority in one or more countries for review and approval of development and commercialization of therapeutic products.

"**Regulatory Documentation**"has the meaning set forth in the Development Agreement

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"**Representative**"means, with respect to any Person, any and all directors, officers, employees, consultants, financial advisors, counsel, accountants, and other agents of such Photographs, including Person and of the Affiliates of such Person.

"**Resultant Patent(s)**"mean any compensation, ownership, copyright, Patent [***].

"**Sell-On Transaction**"means any of the following:

(a) the sale or transfer of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(b) the exclusive or co-exclusive (with Buyer and privacy rights its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(c) the sale, transfer, or exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any right to inspect or approve such Photographs and/or copy, print or other materials that may be used Affiliate of Buyer, in connection with them, whether now or followed by any of the following: (i) the direct or indirect acquisition by any Third Party (or group of Third Parties acting in concert) of shares of such Affiliate representing at least a majority of the future, whether that use is known voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such Affiliate; or unknown to me. I hereby waive (ii) the merger or consolidation of such Affiliate with or into any right to inspect Third Party, or approve the merger or consolidation of any finished Photographs whether printed Third Party with or electronic, that may be used now or into such Affiliate, in the future, whether that use is known or unknown either event pursuant to me, and I forever waive any right to royalties or other compensation arising from or related to the use a transaction in which at least a majority of the Photographs. I hereby release voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such Affiliate immediately preceding such consolidation or merger; or

(d) any other similar transaction which has the effect of allowing any Third Party to Develop, Manufacture, or Commercialize any Product other than doing so solely on behalf and discharge, and agree to hold harmless, Codexis, its officers, agents and employees, and all persons acting under its permission or authority, from any claims, losses, damages or liability arising from or related to such Photographs and/or their use under any circumstances.

This consent, waiver, and release will be binding upon the heirs, executors, administrators and other legal representatives of myself, and will be for the benefit of Codexis, Buyer or its successors Affiliates or Licensees,
but in no event shall a Business Combination of Buyer be considered a Sell-On Transaction.

"**Senior Executives**"means [***].

"**Taxes**"means all federal, state, local, foreign, and assigns.

I HAVE READ AND FULLY UNDERSTAND THE CONTENTS OF THIS CONSENT, WAIVER, AND RELEASE FORM, AND I SIGN IT FREELY AND VOLUNTARILY.

other income, gross receipts, sales, use, production, ad valorem, transfer, documentary, franchise, registration, profits, license, withholding, payroll, employment, unemployment, excise, severance, stamp, occupation, premium, property (real or personal), customs, import and export, goods and services, value added, escheat, unclaimed property, duties, or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest, additions, or penalties with respect thereto.
Name: " **Sriram Ryali** **Tax Return**"means any return, declaration, report, claim for refund, or other document relating to Taxes, including any schedule or attachment thereto, and amendment thereof, required to be supplied to a Governmental Authority in connection with any Taxes.

"**Technology**"means: (a) all of Seller's interest in the Purchased Patents; and (b) any Resultant Patents.

"**Third Party**"means any Person other than Seller, Buyer, and their respective Affiliates.

/s/ Sriram Ryali

Signature
Date: 10/30/2022

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EXHIBIT E

CONFLICT OF INTEREST GUIDELINES

It is"**United States**"or "**U.S.**" means the policy United States of Codexis, Inc., to conduct America, including its affairs in strict compliance with this letter territories, possessions, and spirit of the law and to adhere to the highest principles of business ethics. Accordingly, all officers, employees and independent contractors must avoid activities that are in conflict, or give the appearance of being in conflict, with these principles and with the interests of the company. The following are potentially compromising situations that must be avoided. Any exceptions must be reported to the Chief Executive Officer and written approval for continuation must be obtained.

protectorates.

1. "**Revealing confidential information** **VAT**"means (a) in relation to outsiders any jurisdiction within the European Union, the Tax imposed by the EC Council Directive on the common system of value added tax (2006/112/EC) and any successor or misusing confidential information. Unauthorized divulging equivalent legislation and any national legislation implementing that directive together with legislation supplemental thereto and the equivalent Tax (if any) in that jurisdiction; and (b) in any other jurisdiction, any other value added, goods and services, consumption or similar Tax chargeable on the supply or deemed supply of information is a violation of this policy whether goods or not for personal gain and whether services under applicable legislation or not harm to the company is intended. (The Employee Confidential Information and Inventions Assignment Agreement elaborates on this principle and is a binding agreement.) regulation.

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2. Cross-Reference Table Accepting .The following terms have the meanings set forth in the location in this Agreement referenced below:

Term	Section
A&P Project Enzymes	Recitals
Acquired Books and Records	Section 1.01(f)
Acquired Regulatory Documentations	Section 1.01(d)
Actions	Section 3.06(a)
Agreement	Preamble
Allocation Schedule	Section 1.07
Annual Report	Section 1.06
Assigned Contracts	Section 1.01(b)
Assignment and Assumption Agreement	Section 2.02(a)(i)
Assumed Liabilities	Section 1.03(a)
Bill of Sale	Section 2.02(a)(i)
[***]	Recitals
Buyer	Preamble
Buyer Indemnified Parties	Section 6.02
Cap	Section 6.04(b)
[***]	Recitals
Closing	Section 2.01
Closing Date	Section 2.01
Code	Section 1.07
Codexis	Preamble
Deductible	Section 6.04(a)
Development Agreement	Recitals
Disclosing Party	Section 5.01(a)
Dispute	Section 8.01
Effective Date	Preamble
Excluded Assets	Section 1.02
Excluded Liabilities	Section 1.03(b)
Existing Agreements	Recitals
Expression System License Agreement	Section 2.02(a)(iv)
Indemnified Party	Section 6.04
Indemnifying Party	Section 6.04
Initial Purchase Price	Section 1.04
Inventory	Section 1.01(c)
[***]	Section 8.02
Losses	Section 6.02
Lipase Acquisition Agreement	Recitals
Milestone	Section 1.05
Milestone Payment	Section 1.05
NHSc	Preamble

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Notice of Dispute	Section 8.01
Patent Assignment	Section 2.02(a)(iii)
[***]	Section 5.11
Purchased Assets	Section 1.01
Purchased Know-How	Section 1.01(d)
Purchased Patents	Section 1.01(a)
Purchase Price	Section 1.04
Receiving Party	Section 5.01(a)
Related Claims	Section 8.02
Restricted Business	Section 5.03(a)
Restricted Period	Section 5.03(a)
Rules	Section 8.02
Seller	Preamble
Seller Indemnified Parties	Section 6.03
Strategic Collaboration Agreement or SCA	Recitals
Term	Section 7.01
Transaction Documents	Section 2.02(a)(iii)

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These Disclosure Schedules (these "**Schedules**") have been prepared in connection with the Amylase and Protease Acquisition Agreement (the "**Agreement**"), dated as of [●], entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware ("**Seller**"), and Société des Produits Nestlé S.A., a société anonyme organized and existing under the laws of Switzerland ("**Buyer**"). The parties hereto are referred to herein as the "**Parties**", and each a "**Party**". Capitalized terms used in these Schedules but not defined herein have the respective meanings ascribed to such terms in the Agreement.

[***].

Any appendix or offering substantial gifts, excessive entertainment, favors or payments which may schedule attached to these Schedules shall be deemed to constitute undue influence or otherwise be improper or embarrassing to Codexis, Inc.

3. Participating incorporated by reference into these Schedules. The information contained in civic or professional organizations that might involve divulging confidential information these Schedules is as of the company.

4. Initiating or approving personnel actions affecting reward or punishment of employees or applicants where there is a family relationship or is or appears to be a personal or social involvement.

5. Initiating or approving any form of harassment of employees based upon their age, sex, race, ethnicity, national origin, or on any other protected basis.

6. Investing or holding outside directorship in suppliers, customers, or competing companies, including financial speculations, where such investment or directorship might influence in any manner a decision or course of action date of the company.

7. Borrowing from or lending to employees, customers or suppliers.

8. Acquiring any business opportunity of interest to Codexis, Inc.

9. Improperly using or disclosing to the company any proprietary information or trade secrets of any former or concurrent employer or other person or entity with whom obligations of confidentiality exist.

10. Unlawfully discussing prices, costs, customers, sales or markets with competing companies or their employees.

11. Making any unlawful agreement with distributors with respect to prices.

12. Improperly using or authorizing the use of any inventions that are the subject of patent claims of any other person or entity.Agreement.

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13. These Disclosure Schedules (these "**Engaging Schedules**") have been prepared in any conduct that is connection with the Acquisition Agreement (the "**Agreement**"), dated as of December 26, 2023, entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware ("**Seller**"), and Société des Produits Nestlé S.A., a société anonyme organized and existing under the laws of Switzerland ("**Buyer**"). The parties hereto are referred to herein as the "**Parties**", and each a "**Party**". Capitalized terms used in these Schedules but not defined herein have the respective meanings ascribed to such terms in Codexis, Inc.'s best interest. the Agreement.

[***].

Each officer, employee and independent contractor must take every necessary action Any appendix or schedule attached to ensure compliance with these guidelines and Schedules shall be deemed to bring problem areas to be incorporated by reference into these Schedules. The information contained in these Schedules is as of the attention date of higher management for review. Violations of this conflict of interest policy may result in discharge without warning. the Agreement.

[***]

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LOAN AND SECURITY AGREEMENT

dated as of February 13, 2024

by and among

INNOVATUS LIFE SCIENCES LENDING FUND I, LP,
as Collateral Agent,

CODEXIS, INC.,
as Borrower

CHANGE OF CONTROL SEVERANCE AGREEMENT and

This Change THE LENDERS LISTED ON SCHEDULE 1.1 HEREOF
OR OTHERWISE A PARTY HERETO FROM TIME TO TIME

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SCHEDULES, EXHIBITS AND ANNEXES

Schedule 1.1 – Lenders and Commitments
Schedule 6.12 – Net Product Revenue Covenant
Schedule 6.13 – Liquidity Covenant

Exhibit A – Description of Control Severance Agreement (the Collateral
Exhibit B-1 – Loan Payment Request Form
Exhibit B-2 – Form of Disbursement Letter
Exhibit C – Compliance Certificate
Exhibit D – Form of Secured Promissory Note
Exhibit E – Form of Corporate Borrowing Certificate

Annex I – Collateral Agent and Lender Terms
Annex Y – Loan Interest Rate and Payment of Principal

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LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (as the same may be amended, restated, modified, or supplemented from time to time, this "**Agreement**") is made and entered into by and between Sri Ryali (the "Executive") and Codexis, Inc., a Delaware corporation (the "Company"), effective dated as of the latest date set forth by the signatures of the parties hereto below February 13, 2024 (the "**Effective Date**").

R E C , among INNOVATUS LIFE SCIENCES LENDING FUND I, T A L S

A. LP, a Delaware limited partnership, as collateral agent (in such capacity, together with its successors and assigns in such capacity, "**It is expected that Collateral Agent**"), and the Company Lenders listed on Schedule 1.1 hereof or otherwise a party hereto from time to time will consider the possibility of an acquisition by another company or other change of control. The Board of Directors of the Company (the " including INNOVATUS LIFE SCIENCES LENDING FUND I, LP in its capacity as a Lender, and CODEXIS, INC., a Delaware corporation ("**Board Borrower**") recognizes that such consideration as well as , provides the possibility of an involuntary termination or reduction in responsibility can be a distraction terms on which the Lenders shall lend to Executive Borrower and can cause Executive to consider alternative employment opportunities. Borrower shall repay the Lenders. The Board has determined that it is in the best interests of the Company and its stockholders to assure that the Company will have the continued dedication and objectivity of Executive, notwithstanding the possibility, threat or occurrence of such an event.

B. The Board believes that it is in the best interests of the Company and its stockholders to provide Executive with an incentive to continue Executive's employment and to motivate Executive to maximize the value of the Company upon a Change of Control (as defined below) for the benefit of its stockholders.

C. The Board believes that it is imperative to provide Executive with severance benefits upon certain terminations of Executive's service to the Company that provide Executive with enhanced financial security and provides incentive and encouragement to Executive to remain with the Company notwithstanding the possibility of such an event.

D. Certain capitalized terms used in the Agreement are defined in Section 9 below. The parties hereto agree as follows:

1.DEFINITIONS, ACCOUNTING AND OTHER TERMS

1.1 Certain Defined Terms. Capitalized terms used herein shall have the meanings set forth in Section 13 to the extent defined therein.

1.2 Terms Generally. The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation." The word "will" shall be construed to have the same meaning and effect as the word "shall." Unless the context requires otherwise (a) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (b) any reference herein to any Person shall be construed to include such Person's successors and assigns, (c) the words "herein," "hereof" and "hereunder," and words of similar import, shall be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (d) all references herein to Articles, Sections, Exhibits and Schedules shall be construed to refer to Articles and Sections of, and Exhibits and Schedules to, this Agreement, (e) any matter to be determined by a Lender or Collateral Agent may be determined in their sole discretion, unless another standard is expressly stated, and (f) any reference to any law or regulation herein shall, unless otherwise specified, refer to such law or regulation as amended, modified or supplemented from time to time.

2. LOANS AND TERMS OF PAYMENT

2.1. Promise to Pay. Borrower hereby unconditionally promises to pay each Lender the outstanding principal amount of the Term Loan advanced to Borrower by such Lender and accrued and unpaid interest thereon and any other amounts due to a Lender or to Collateral Agent hereunder as and when due in accordance with this Agreement.

2.2 Term Loans.

(a) Availability.

(i) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make a term loan to Borrower on the Effective Date in an aggregate principal amount of Thirty Million Dollars ($30,000,000.00) according to each Lender's Term Loan Commitment as set forth on Schedule 1.1 hereto (the "**Term A Loan**"). After repayment, the Term A Loan may not be reborrowed.

(ii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make a term loan to Borrower during the Term B Draw Period in an aggregate principal amount of Ten Million Dollars ($10,000,000.00) according to each Lender's Term Loan Commitment as set forth on Schedule 1.1 hereto (the "**Term B Loan**", and together with the Term A Loan, each individually, and collectively, "**Term Loan**"). After repayment, the Term B Loan may not be reborrowed.

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the second (2nd) Payment Date following the Funding Date of any Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date.

Borrower agrees to pay, on the Funding Date of any Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date after such Funding Date. Commencing on the Amortization Date, and continuing on the Payment Date of each month

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thereafter, Borrower shall make consecutive equal monthly payments of principal, together with interest in arrears, to each Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a principal repayment schedule equal to (i) in the case of the I/O Extension Event not occurring, twenty four (24) months, or (ii) in the case of the I/O Extension Event occurring, twelve (12) months. During the amortization period, Collateral Agent shall recalculate the payment amount to give effect to each change of the Basic Rate as it occurs. All unpaid principal and accrued and unpaid interest with respect to the Term Loan and the Final Fee are due and payable in full on the Maturity Date. The Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

(c) Mandatory Prepayments. If an event described in Section 7.2(d)(ii) occurs or the Term Loan is accelerated following the occurrence of an Event of Default, Borrower shall immediately pay to Collateral Agent and to each Lender, as applicable, and in accordance with its respective Pro Rata Shares to each Lender, an amount equal to the sum of: (i) all outstanding principal of the Term Loan plus accrued and unpaid interest thereon through the prepayment date, (ii) the Final Fee, (iii) the Prepayment Fee, plus (iv) all other Obligations that are due and payable, including, without limitation, Lenders' Expenses and interest thereon at the Default Rate with respect to any past due amounts.

(d) Permitted Prepayment of Term Loan. After the date that is the first anniversary of the Effective Date, Borrower shall have the option to prepay all, but not less than all, of the Term Loan advanced by the Lenders under this Agreement, provided Borrower (i) provides written notice to Collateral Agent of its election to prepay the Term Loan at least five (5) Business Days prior to such prepayment, and (ii) pays to the Lenders on the date of such prepayment, payable to each Lender in accordance with its respective Pro Rata Share, an amount equal to the sum of (A) all outstanding principal of the Term Loan plus accrued and unpaid interest thereon through the prepayment date, (B) the Final Fee, (C) the Prepayment Fee, plus (D) all other Obligations that are due and payable, including, without limitation, Lenders' Expenses and interest on such other Obligations at the Default Rate, if applicable.

2.3 Payment of Interest on the Term Loan.

(a) Interest Rate. Subject to Section 2.3(b), the principal amount outstanding under the Term Loan shall accrue interest at a floating per annum rate equal to the Basic Rate, as determined by Collateral Agent on the Funding Date and as the Prime Rate changes thereafter, which interest shall be payable monthly in arrears in accordance with Sections 2.2(b) and 2.3(e); provided that at the election of Borrower (which shall be considered elected on the Funding Date of the applicable Term Loan) with no less than five (5) Business Days' irrevocable written notice to Collateral Agent prior to the Effective Date, 2.00% of the Basic Rate may be payable in-kind by adding an amount equal to such 2.00% of the outstanding principal amount to the then outstanding principal balance on each Payment Date until the Payment Date next following the Amortization Date so as to increase the outstanding principal balance of the Term Loan on each Payment Date and which amount shall be payable when the principal amount of the applicable Term Loan is payable in accordance with Sections 2.2(b) and 2.3(e) and on which principal amount interest shall be owed pursuant to Section 2.3(a). This increase in the principal amount of the Term Loans shall not require any action by Borrower, the Lenders, or Collateral Agent; provided, however, that Borrower shall execute such additional documents as Collateral Agent may reasonably require to evidence the increased principal balance of the Term Loans.

Interest shall accrue on the Term Loan commencing on, and including, the Funding Date of the Term Loan, and shall accrue on the principal amount outstanding under the Term Loan through and including the day on which the Term Loan is paid in full.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall accrue interest at a floating per annum rate equal to the rate that is otherwise applicable thereto plus five percentage points (5.00%) (the "**Default Rate**"). Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any other rights or remedies of Collateral Agent.

(c) 365 Day Year. Interest shall be computed on the basis of a three hundred sixty-five (365) day year and the actual number of days elapsed, including the first day and the last day.

(d) Debit of Accounts. Collateral Agent and each Lender may debit (or ACH) any deposit accounts designated by Borrower or any of its Subsidiaries (or, if the funds in such account are insufficient, in any other account maintained by Borrower) for principal and interest payments or any other amounts Borrower owes the

Lenders under the Loan Documents when due; provided, that Collateral Agent shall use commercially reasonable efforts to promptly notify Borrower of any debit of any amounts other than principal and interest payments when due in accordance with this Agreement. Any such debits (or ACH activity) shall not constitute a set off.

(e) Payments. Except as otherwise expressly provided herein, all payments by Borrower under the Loan Documents shall be made to the respective Lender to which such payments are owed, at such Lender's office in immediately available funds on the date specified herein. Unless otherwise provided, interest is payable monthly on the Payment Date of each month. Payments of principal and/or interest received after 12:00 noon Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment is due the next Business Day and additional fees or interest, as applicable, shall continue to accrue until paid. All payments to be made by Borrower hereunder or under any other Loan Document, including payments of principal and interest, and all fees, expenses, indemnities and reimbursements, shall be made without set off, recoupment or counterclaim, in lawful money of the United States and in immediately available funds.

(f) Changes in Prime Rate. In the event the Prime Rate is changed from time to time hereafter and because of any such change the Basic Rate changes, the Basic Rate shall be increased or decreased, effective as of the day of such change in the Prime Rate.

2.4 Fees. Borrower shall pay to Collateral Agent:

(a) Facility Fee. The Facility Fee, which shall be due on the Funding Date of each Term Loan (including on the Effective Date) with respect to such Term Loan, to be shared among the Lenders in accordance with their respective Pro Rata Shares;

(b) Final Fee. The Final Fee, when due hereunder, to be shared among the Lenders in accordance with their respective Pro Rata Shares;

(c) Prepayment Fee. The Prepayment Fee, when due hereunder, to be shared among the Lenders in accordance with their respective Pro Rata Shares; and

(d) Lenders' Expenses. All Lenders' Expenses (including reasonable and documented out-of-pocket attorneys' fees and expenses for due diligence, investigation, documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due and payable.

The Final Fee and the Prepayment Fee shall be fully earned as of the Effective Date. The parties hereto acknowledge and agree that, in light of the impracticality and extreme difficulty of ascertaining actual damages, the Prepayment Fee and the Final Fee are intended to be a reasonable calculation of the actual damages that would be suffered by the holders of the Obligations as a result of any prepayment, repayment or other payment. The parties hereto further acknowledge and agree that Collateral Agent and the Lenders would not have entered into this Agreement without the Borrower's agreement to pay the Prepayment Fee and the Final Fee as and when required hereunder. The parties hereto further acknowledge and agree that the Prepayment Fee and the Final Fee are not intended to act as a penalty or to punish the Borrower for any prepayment, repayment or other payment hereunder.

2.5 Withholding. Payments received by Collateral Agent or the Lenders from Borrower hereunder will be made free and clear of and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any governmental authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Borrower to make any withholding or deduction from any such payment or other sum payable hereunder to the Lenders, Borrower hereby covenants and agrees that the amount due from Borrower with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, each Lender receives a net sum equal to the sum which it would have received had no withholding or deduction been required and Borrower shall become effective pay the full amount withheld or deducted to the relevant Governmental Authority. Borrower will, upon request, furnish the Lenders with proof reasonably satisfactory to the Lenders indicating that Borrower has made such withholding payment; provided, however, that Borrower need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Borrower. The agreements and obligations of Borrower contained in this Section 2.5 shall survive the termination of this Agreement.

2.6 Secured Promissory Notes. The Term Loan shall be evidenced by a Secured Promissory Note or Notes in the form attached as Exhibit D hereto (each a "**Secured Promissory Note**"), and shall be repayable as set forth in this Agreement. Borrower irrevocably authorizes each Lender to make or cause to be made, on or about the Funding Date of any Term Loan and at the time of receipt of any payment of principal on such Lender's Secured Promissory Note, an appropriate notation on such Lender's Secured Promissory Note Record reflecting the making of such Term Loan or (as the case may be) the receipt of such payment. The outstanding amount of each Term Loan set forth on such Lender's Secured Promissory Note Record shall be *prima facie* evidence of the principal amount thereof owing and unpaid to such Lender, but the failure to record, or any error in so recording, any such amount on such Lender's Secured Promissory Note Record shall not limit or otherwise affect the obligations of Borrower under any Secured Promissory Note or any other Loan Document to make payments of principal of or interest on any Secured Promissory Note when due. Promptly after Borrower's receipt of an affidavit of an officer of a Lender as to the loss, theft, destruction, or mutilation of its Secured Promissory Note, Borrower shall issue, in lieu thereof, and without bond, a replacement Secured Promissory Note in the same principal amount thereof and of like tenor.

3. CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Term Loan. Each Lender's obligation to make the Term Loan is subject to the condition precedent that Collateral Agent and each Lender shall consent to or shall have received, in form and substance satisfactory to Collateral Agent and each Lender, such documents, and completion of such other matters, as Collateral Agent and each Lender may reasonably deem necessary or appropriate, including, without limitation:

(a) copies of the Loan Documents, each duly executed by Borrower and each Subsidiary that is a Loan Party, as applicable;

(b) a completed Perfection Certificate for Borrower and each of its Subsidiaries;

(c) [reserved];

(d) the Operating Documents and good standing certificates of Borrower and each of its Subsidiaries that is a Loan Party certified by the Secretary of State (or equivalent agency) of Borrower's and such Subsidiaries' jurisdiction of organization or formation and each jurisdiction in which Borrower and each Subsidiary is qualified to conduct business, each as of a date no earlier than thirty (30) days prior to the Effective Date;

(e) a copy of resolutions of the governing body for Borrower and each of its Subsidiaries that is a party to any of the Loan Documents evidencing approval of the Term Loan and other transactions evidenced by the Loan Documents;

(f) duly executed original officer's certificates for Borrower and each Subsidiary that is a party to the Loan Documents certifying as to (i) the incumbency of each Responsible Officer executing each Loan Document and (ii) the documents delivered pursuant to Section 3.1(d) and 3.1(e), in a form acceptable to Collateral Agent and the Lenders;

(g) certified copies, dated as of date no earlier than thirty (30) days prior to the Effective Date, of financing statement searches, as Collateral Agent shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Term Loan, will be terminated or released;

(h) a duly executed legal opinion of counsel to Borrower dated as of the Effective Date;

(i) evidence satisfactory to Collateral Agent and the Lenders that the insurance policies required by Section 6.5 hereof are in full force and effect;

(j) a copy of any applicable Investors Rights Agreement and any amendments thereto; and

(k) [reserved]; and

(l) payment of the Facility Fee and Lenders' Expenses then due as specified in Section 2.4 hereof.

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3.2 Conditions Precedent to all Term Loans. The obligation of each Lender to extend each Term Loan, including the initial Term Loan, is subject to the following conditions precedent:

(a) receipt by Collateral Agent of (i) an executed Loan Payment Request Form in the form of Exhibit B-1 attached hereto and (ii) an executed Disbursement Letter in the form of Exhibit B-2 attached hereto;

(b) the representations and warranties in Section 5 hereof shall be true, accurate and complete in all material respects on the date of each Loan Payment Request Form and the date of each Disbursement Letter and the Funding Date of each Term Loan; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the funding of such Term Loan;

(c) as determined by such Lender in such Lender's sole discretion, there has not been any Material Adverse Change;

(d) no Default or Event of Default shall exist or would result from the making of such Term Loan;

(e) to the extent not delivered at the Effective Date, duly executed original Secured Promissory Notes and Warrants, in number, form and content acceptable to each Lender, and in favor of each Lender according to its Commitment Percentage, with respect to each Credit Extension made by such Lender after the Effective Date;

(f) if such Term Loan is the Term B Loan, the Term B Milestone must have been satisfied, as measured on the last day of the month immediately preceding the Funding Date of the Term B Loan; and

(g) payment of the fees and Lenders' Expenses then due as specified in Section 2.5 hereof.

3.3 Covenant to Deliver. Borrower agrees to deliver to Collateral Agent and the Lenders each item required to be delivered to Collateral Agent under this Agreement as a condition precedent to any Term Loan. Borrower expressly agrees that the Term Loan made prior to the receipt by Collateral Agent or any Lender of any such item shall not constitute a waiver by Collateral Agent or any Lender of Borrower's obligation to deliver such item, and any such Term Loan in the absence of a required item shall be made in each Lender's sole discretion.

3.4 Procedures for Borrowing. Subject to the prior satisfaction of all other applicable conditions to the making of the Term Loan set forth in this Agreement, to obtain the Term Loan (other than the Term Loan funded on the Effective Date), Borrower shall notify the Lenders (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 12:00 noon New York City time seven (7) Business Days (or such shorter period as agreed by the Lenders) prior to the date the Term Loan is to be made. Together with any such electronic, facsimile or telephonic notification, Borrower shall deliver to Collateral Agent by electronic mail or facsimile a completed Disbursement Letter and Loan Payment Request Form executed by a Responsible Officer or his or her designee. Collateral Agent may rely on any telephone notice given by a person whom Collateral Agent reasonably believes is a Responsible Officer or designee.

4. CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Collateral Agent, for the ratable benefit of the Lenders, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges and assigns as collateral to Collateral Agent, for the ratable benefit of the Lenders, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof. If Borrower shall acquire a commercial tort claim (as defined in the Code) with a potential value in excess of Two Hundred Fifty Thousand Dollars ($250,000), Borrower shall grant to Collateral Agent, for the ratable benefit of the Lenders, a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Collateral Agent.

Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as the Lenders' obligation to extend the Term Loan has terminated, Collateral Agent shall, at the sole cost and expense of Borrower, release its Liens in the Collateral.

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4.2 Authorization to File Financing Statements. Borrower hereby authorizes Collateral Agent (i) to file financing statements naming Borrower as debtor and indicating as collateral "all assets" or like language and/or such other more specific indications as Collateral Agent may deem appropriate and (ii) to make such other filings in the USPTO or other public offices and to take such other action appropriate to establish, perfect, or further protect Collateral Agent's security interests in the Collateral, without notice to Borrower. Such financing statements may (i) describe the Collateral as "all personal property of debtor, whether now owned or hereby acquired" or "all assets of debtor, whether now owned or hereby acquired" or words of similar effect, (ii) describe the Collateral as being of equal or lesser scope or with greater detail, or (iii) contain any information required by part 5 of Article 9 of the Code for the sufficiency or filing office acceptance of such financing statements or amendments, as the case may be. The Borrower also hereby ratifies any and all financing statements or amendments previously filed by Collateral Agent in any jurisdiction of the Borrower described in Section 3(b) of the Perfection Certificate.

4.3 Pledge of Shares Collateral. If at any time Borrower owns any Shares, Borrower acknowledges that by this Agreement it has, pledged, assigned and granted, and Borrower does hereby pledge, assign and grant, to Collateral Agent, for the ratable benefit of the Lenders, a security interest in all the Shares, together with all proceeds and substitutions thereof, all cash, stock and other moneys and property paid thereon, all rights to subscribe for securities declared or granted in connection therewith, and all other cash and noncash proceeds of the foregoing, as security for the performance of the Obligations. On the Effective Date, or, to the extent not certificated as of the Effective Date, within ten (10) days of the certification of any Shares, the certificate or certificates for the Shares will be delivered to Collateral Agent, accompanied by an instrument of assignment duly executed in blank by Borrower. To the extent required by the terms and conditions governing the Shares, Borrower shall cause the books of each entity whose Shares are part of the Collateral and any transfer agent to reflect the pledge of the Shares and require each Issuer of uncertificated Shares to enter into an agreement granting Collateral Agent Control over the pledged Shares. Borrower will execute and deliver such documents, and take or cause to be taken such actions, as Collateral Agent may reasonably request to perfect or continue the perfection of Collateral Agent's security interest in the Shares. Unless an Event of Default shall have occurred and be continuing, Borrower shall be entitled to exercise any voting rights with respect to the Shares and to give consents, waivers and ratifications in respect thereof, provided that no vote shall be cast or consent, waiver or ratification given or action taken which would be inconsistent with any of the terms of this Agreement or which would constitute or create any violation of any of such terms. All such rights to vote and give consents, waivers and ratifications shall terminate upon the date occurrence and continuance of an Event of Default.

5. REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants to Collateral Agent and the Lenders as follows:

5.1 Due Organization, Authorization: Power and Authority. Borrower and each of its Subsidiaries is duly existing and in good standing as a Registered Organization in its jurisdictions of organization or formation and Borrower and each of its Subsidiaries is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its businesses or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to result in a Material Adverse Effect. In connection with this Agreement, Borrower and each of its Subsidiaries has delivered to Collateral Agent a completed perfection certificate and any updates or supplements thereto on or before the Effective Date (each a "**Perfection Certificate**" and collectively, the "**Perfection Certificates**"). Borrower represents and warrants that all the information set forth on the Perfection Certificates pertaining to Borrower and each of its Subsidiaries is accurate and complete in all material respects as of the date delivered or supplemented (to the extent permitted hereunder).

The execution, delivery and performance by Borrower and each of its Subsidiaries of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's or such Subsidiaries' organizational documents, including its respective Operating Documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law applicable thereto, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or such Subsidiary, or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect) or are being obtained pursuant to Section 6.1(b), or (v) constitute an event of default under or cause any Lien to arise under or otherwise cause a change under any material agreement by which Borrower or any of such Subsidiaries, or their respective properties, is bound. Neither Borrower nor any of its Subsidiaries is in default under any agreement to which it is a party or by which it or any of its assets is bound in which such default could reasonably be expected to result in a Material Adverse Effect.

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5.2 Collateral.

(a) Borrower and each other Loan Party has good title to, have rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien under the Loan Documents, free and clear of any and all Liens except Permitted Liens, and neither Borrower nor any other Loan Party has any Deposit Accounts, Securities Accounts, Commodity Accounts or other investment accounts other than the Collateral Accounts or the other investment accounts, if any, described in the Perfection Certificates delivered to Collateral Agent in connection herewith or otherwise with respect of which Borrower or such Subsidiary has given Collateral Agent timely notice pursuant to Section

6.6(a) and to the extent required under this Agreement, taken such actions as are necessary to give Collateral Agent a perfected security interest therein. The Accounts are bona fide, existing obligations of the parties hereto with respect to this Agreement have been satisfied. Account Debtors.

2. (b) At-Will Employment. The Company and Executive acknowledge that Executive's employment security interest granted herein is and shall at all times continue to be "at-will," a first priority perfected security interest in the Collateral, subject only to Permitted Liens that are permitted by the terms of this Agreement or Requirement of Law to have priority to Collateral Agent's Lien.

(c) On the Effective Date, except as defined under applicable law. If Executive's employment terminates for disclosed on the Perfection Certificate (i) the Collateral is not in the possession of any reason, Executive shall not be entitled third party bailee, and (ii) no third party bailee possesses components of the Collateral in excess of Five Hundred Thousand Dollars ($500,000.00).

(d) All Inventory and Equipment of Borrower and its Subsidiaries is in all material respects of good and marketable quality, free from material defects, ordinary wear and tear excepted.

(e) Borrower and each of its Subsidiaries is the sole owner of the Intellectual Property each respectively purports to any payments, benefits, damages, awards or compensation own, free and clear of all Liens other than Permitted Liens. Except as provided noted on the Perfection Certificates or disclosed in the next Compliance Certificate delivered after entry of such Material Agreement, neither Borrower nor any of its Subsidiaries is a party to, or is bound by, any Material Agreement, provided, that the representation made in this Agreement. sentence on the Effective Date shall be limited to Material Agreements for which Borrower or any of its Subsidiaries receives revenue or other payments.

3. 5.3 Covered Termination Outside a Change of Control Period Litigation. Except as disclosed on the Perfection Certificate or otherwise pursuant to Section 6.2(b)(v), there are no actions, suits, arbitrations, investigations, or other proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than Two Hundred Fifty Thousand Dollars ($250,000.00) or a claim for infringement of any intellectual property or seeking equitable or extraordinary relief. Except as disclosed on the Perfection Certificate or otherwise pursuant to Section 6.2(b)(v), there are no actions, suits, arbitrations, investigations or proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any Subsidiaries involving challenges to the validity of the Intellectual Property except as would not reasonably be expected to have a Material Adverse Effect.

5.4 No Material Adverse Change; Financial Statements. All consolidated financial statements for Borrower and its Subsidiaries, delivered to Collateral Agent fairly present, in conformity with GAAP, in all material respects the consolidated financial condition of Borrower and its Subsidiaries, and the consolidated results of operations of Borrower and its Subsidiaries. Since the date of the most recent financial statements submitted as required by this Agreement, there has not been a Material Adverse Change.

5.5 Solvency. Borrower and each of its Subsidiaries, when taken as a whole, are Solvent.

5.6 Regulatory Compliance. Neither Borrower nor any of its Subsidiaries is required to be registered as an "investment company" under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower nor any of its Subsidiaries has violated any laws, ordinances or rules, the violation of which could reasonably be expected to result in a Material Adverse Effect. Neither Borrower's nor any of its Subsidiaries' properties or assets has been used by Borrower or such Subsidiary or, to Borrower's Knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarations or

filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or to such Person's knowledge, any of Borrower's or its Subsidiaries' Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the Knowledge

of Borrower and any of their Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law.

5.7 **Investments**. Neither Borrower nor any of its Subsidiaries owns any stock, shares, partnership interests or other equity securities except for Permitted Investments.

5.8 **Tax Returns and Payments; Pension Contributions**. Borrower and each of its Subsidiaries has timely filed all required tax returns and reports, and Borrower and each of its Subsidiaries, has timely paid all foreign, federal, state, and material local taxes, assessments, deposits and contributions owed by Borrower and such Subsidiaries in an amount greater than Fifty Thousand Dollars ($50,000.00), in all jurisdictions in which Borrower or any such Subsidiary is subject to taxes, including the United States, unless such taxes are being contested in accordance with the next sentence. Borrower and each of its Subsidiaries, may defer payment of any contested taxes, provided that Borrower or such Subsidiary in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted and Borrower maintains adequate reserve therefor on Borrower's Books. Neither Borrower nor any of its Subsidiaries is aware of any claims or adjustments proposed for any of Borrower's or such Subsidiaries' prior tax years which could result in additional taxes becoming due and payable by Borrower or its Subsidiaries. Borrower and each of its Subsidiaries have paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and neither Borrower nor any of its Subsidiaries have, withdrawn from participation in, and have not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower or its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

5.9 **Use of Proceeds**. Borrower shall use the proceeds of the Term Loan solely as working capital and to fund its general business requirements in accordance with the provisions of this Agreement, and not for personal, family, household or agricultural purposes or for payment of dividends or other distributions to equity holders of Borrower or any holders of Subordinated Debt.

5.10 **Full Disclosure**. No written representation, warranty or other statement of Borrower or any of its Subsidiaries in any certificate or written statement given to Collateral Agent or any Lender, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Collateral Agent or any Lender, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted result; provided, however, on the Effective Date and on the date each Compliance Certificate or Disbursement Letter is delivered to any Lender, Borrower represents and warrants to the Lenders that Borrower: (i) has delivered to Collateral Agent Borrower's most recent projections or forecasts in accordance with the requirements set forth in Section 6.2(a)(iii), (ii) reaffirms the accuracy of the projections or forecasts delivered pursuant to sub-clause (i), and (iii) to the best of its Knowledge, no fact or facts exist which, taken together, are reasonably likely to cause Borrower's actual financial results to, within six (6) months, deviate materially and adversely from the projections or forecasts delivered pursuant to sub-clause (i)). Furthermore, on the Effective Date and on the date each Compliance Certificate or Disbursement Letter is delivered to any Lender, Borrower represents and warrants to the Lenders that Borrower, to the best of its Knowledge, is not aware of any fact or facts which, taken together, will cause Borrower to receive an opinion from its independent certified public accounting firm with a going concern qualification on Borrower's next annual financial statements (as required under Section 6.2(a)(ii)) without factoring in proceeds of any pending Term Loans.

5.11 **Definition of "Knowledge**." For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar

qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

5.12 **Shares**. If at any time Borrower owns any Shares, Borrower has full power and authority to create a first lien on the Shares and no disability or contractual obligation exists that would prohibit Borrower from pledging the Shares pursuant to this Agreement. To Borrower's Knowledge, there are no subscriptions, warrants, rights of first refusal or other restrictions on transfer relative to, or options exercisable with respect to the Shares. The Shares have been and will be duly authorized and validly issued, and are fully paid and non-assessable. To Borrower's Knowledge, the Shares are not the subject of any present or threatened suit, action, arbitration, administrative or other proceeding, and Borrower knows of no reasonable grounds for the institution of any such proceedings.

5.13 **Subsidiaries**. No Subsidiary of Borrower existing as of the Effective Date (i) owns any assets with a value in excess of $1,000, individually or in the aggregate, (ii) owns any Intellectual Property other than, with respect to Codexis Mayflower Holdings, LLC, non-active Intellectual Property, foreign-registered or filed Intellectual Property and United States Copyrights to be transferred to Borrower in accordance with Section 6.14(g), or (iii) conducts any operations or transactions other than those required for liquidation or dissolution of such Subsidiary.

6. AFFIRMATIVE COVENANTS

Borrower shall, and shall cause each of its Subsidiaries to, do all of the following:

6.1 **Government Compliance**.

(a) Maintain its and, subject to Section 7.2, all its Subsidiaries' legal existence and good standing in their respective jurisdictions of organization and maintain qualification in each jurisdiction in which the failure to so qualify could reasonably be expected to result in a Material Adverse Effect. Comply with all laws, ordinances and regulations to which Borrower or any of its Subsidiaries is subject, the noncompliance with which could reasonably be expected to result in a Material Adverse Effect.

(b) Obtain and keep in full force and effect, all of the material Governmental Approvals necessary for the performance by Borrower and its Subsidiaries of their respective businesses and obligations under the Loan Documents and the grant of a security interest to Collateral Agent for the ratable benefit of the Lenders, in all of the Collateral.

6.2 **Financial Statements, Reports, Certificates; Notices**.

(a) Deliver to Collateral Agent:

(i) as soon as available, but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, a company prepared consolidated and consolidating balance sheet, income statement and cash flow statement covering the consolidated operations of Borrower and its Subsidiaries for such month certified by a Responsible Officer and in a form reasonably acceptable to Collateral Agent;

(ii) as soon as available, but no later than the earlier of one hundred twenty (120) days after the last day of Borrower's fiscal year and within five (5) days of filing with the Securities and Exchange Commission, audited consolidated financial statements prepared under GAAP, consistently applied, together with a report on the financial statements (which report and accompanying financial statements shall (i) not be qualified as to going concern or contain an emphasis of matter paragraph or like statement as to "going concern" (an "**Unqualified Audit Opinion**"), and (ii) be unqualified as to scope of audit) without factoring in proceeds of any pending Term Loans from an independent certified public accounting firm acceptable to Collateral Agent in its reasonable discretion;

(iii) as soon as available after approval thereof by Borrower's board of directors, but no later than the earlier of ten (10) Business Days after such approval and sixty (60) days after the last day of Borrower's fiscal year, Borrower's annual (A) financial projections for the entire current fiscal year as approved by Borrower's board of directors, which such annual financial projections shall be set forth in a month-by-month format and include separately revenues and costs and include income statement, balance sheet and statement of cash flow (such annual financial projections as originally delivered to Collateral Agent and reasonably acceptable to

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Collateral Agent are referred to herein as the "**Annual Projections**"; provided that, any revisions of the Annual Projections approved by Borrower's board of directors shall be delivered to Collateral Agent no later than seven (7) Business Days after such approval) and (B) budget for the entire current fiscal year (which shall be set forth in a month-by-month format and include separately all major categories of expenses and include income statement, balance sheet and statement of cash flow) as approved by Borrower's board of directors; provided that, any revisions to such budget approved by Borrower's board of directors shall be delivered to Collateral Agent no later than seven (7) Business Days after such approval;

(iv) within five (5) Business Days, copies of all non-ministerial materials provided to Borrower's board of directors in connection with each regularly scheduled quarterly meetings of the board of directors; provided, that Borrower shall not be required to deliver any information (i) that would jeopardize the attorney-client privilege between Borrower and its legal counsel, or (ii) that is highly confidential proprietary information of the Borrower;

(v) in the event that Borrower becomes subject to the reporting requirements under the Securities Exchange Act of 1934, as amended, within five (5) days of filing, all reports on Form 10-K, 10-Q and 8-K filed with the Securities and Exchange Commission;

(vi) notice concurrent with the Compliance Certificate required to be delivered pursuant to Section 6.1(b) of any material amendments of or other changes to the capitalization table of Borrower and any amendments to the Operating Documents of Borrower or any of its Subsidiaries, together with any copies reflecting such amendments with respect thereto;

(vii) as soon as available, but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, copies of the month end account statements for each Collateral Account maintained by Borrower or its Subsidiaries, which statements may be provided to Collateral Agent by Borrower or directly from the applicable institution(s); provided, however, screenshots of each Collateral Account maintained by Borrower shall be delivered to Collateral Agent promptly upon Collateral Agent or any Lender's written request during the continuation of any Event of Default;

(viii) prompt delivery of (and in any event within five (5) Business Days after the same are sent or received) copies of all material correspondence, reports, documents and other filings with any Governmental Authority that could reasonably be expected to have a material adverse effect on any of the Governmental Approvals material to Borrower's business or otherwise could reasonably be expected to result in a Material Adverse Effect;

(ix) prompt notice of any event that (A) could reasonably be expected to materially and adversely affect the Borrower's Intellectual Property or (B) has had or could reasonably be expected to have a Material Adverse Effect;

(x) written notice within twenty (20) Business Days of Borrower's creation of a New Subsidiary in accordance with the terms of Section 6.10;

(xi) written notice (x) at least ten (10) Business Days prior to Borrower's (A) adding any new offices or business locations, including warehouses (unless such new offices or business locations contain less than Five Hundred Thousand Dollars ($500,000.00) in assets or property of Borrower or any of its Subsidiaries), (B) changing its jurisdiction of organization, (C) changing its organizational structure or type, (D) changing its legal name, (E) changing any organizational number (if any) assigned by its jurisdiction of organization, or (F) registering or filing any Intellectual Property with the United States Copyright Office, and (y) concurrently with the delivery of the Compliance Certificates required to be delivered pursuant to Section 6.1(b)(i), of new applications or registrations of any Intellectual Property with the United States Patent and Trademark Officer;

(xii) upon Borrower becoming aware of the existence of any Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default, prompt (and in any event within three (3) Business Days) written notice of such occurrence, which such notice shall include a reasonably detailed description of such Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default;

(xiii) prompt (and in any event within one (1) day), notice if Borrower or such Subsidiary has Knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or

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(a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering;

(xiv) notice of any commercial tort claim with an expected value in excess of Two Hundred Fifty Thousand Dollars ($250,000) and of the general details thereof;

(xv) if Borrower or any of its Subsidiaries is not now a Registered Organization but later becomes one, written notice of such occurrence and information regarding such Person's organizational identification number within seven (7) Business Days of receiving such organizational identification number;

(xvi) no later than within seven (7) Business Days after the resignation, termination or change of Borrower's external independent certified public accounting firm, written notice thereof along with a brief explanation for such resignation, termination or change, as applicable;

(xvii) no later than seven (7) Business Days after the receipt thereof by Borrower, any reports Borrower receives from its contract manufacturer and/ or contract research organization in connection with any material breaches by the Borrower or any material amendments to its existing agreements with such Person to the extent that such amendments would materially impair the perfection or priority of Collateral Agent's Lien on the Collateral;

(xviii) promptly upon discovery, written notice of any action or inaction by or on behalf of a Lender (in any capacity) or Collateral Agent (in any capacity) that Borrower believes may be actionable against any Lender or Collateral Agent or a defense to payment of any or all Obligations for any reason; and

(xix) other information as reasonably requested by Collateral Agent or any Lender (which information must be provided promptly but in any event no later than ten (10) Business Days after being requested, or such later time as Collateral Agent or such Lender may agree).

Notwithstanding the foregoing, documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the Securities and Exchange Commission) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the internet at Borrower's website address and Borrower notifies Collateral Agent via email of such posting.

(a) Concurrently with the delivery of the financial statements specified in Section 6.2(a)(i) above but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, deliver to Collateral Agent:

(i) a duly completed Compliance Certificate signed by a Responsible Officer;

(ii) an updated Perfection Certificate to reflect any amendments, modifications and updates to certain information in the Perfection Certificate after the Effective Date to the extent such amendments, modifications and updates are permitted by one or more specific provisions in this Agreement; in each case, subject to the review and approval of Collateral Agent;

(iii) copies of any material Governmental Approvals obtained by Borrower or any of its Subsidiaries;

(iv) written notice of the commencement of, and any material development in, the proceedings contemplated by Section 5.8 hereof;

(v) written notice of (i) any litigation or governmental proceedings pending or threatened (in writing) against Borrower or any of its Subsidiaries, which could reasonably be expected to result in damages or costs to Borrower or any of its Subsidiaries of more than Two Hundred Fifty Thousand Dollars ($250,000.00); and (ii) any actions, suits, arbitrations, investigations or proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any Subsidiaries involving challenges to the validity of any Intellectual Property necessary for, or used in, the generation of revenues exceeding 5% of Net Product Revenues for the most recently completed twelve month period;

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(vi) written notice within ten (10) Business Days of the termination of any Material Agreement; and

(vii) written notice of all returns, recoveries, disputes and claims (including, without limitation, warranty claims) regarding Inventory that involve more than One Hundred Fifty Thousand Dollars ($150,000.00) individually or in the aggregate in any calendar year.

(b) Keep proper, complete and true books of record and account in accordance with GAAP in all material respects. Borrower shall, and shall cause each of its Subsidiaries to, allow, at the sole cost of Borrower (which shall include the reasonable fees and expenses of Collateral Agent's auditor), Collateral Agent or any Lender, during regular business hours upon reasonable prior notice (provided that no notice shall be required when an Event of Default has occurred and is continuing), to visit and inspect any of its properties, to examine and make abstracts or copies from any of Borrower's Books, and to conduct a collateral audit and analysis of its operations and the Collateral. Such audits shall be conducted no more often than twice every year unless (and more frequently if) an Event of Default has occurred and is continuing. Notwithstanding the foregoing, upon request of any Lender, Borrower agrees to permit such Lender to communicate with Borrower's accounting firm with respect to the consolidated financial statements delivered pursuant to this Section 6.2.

6.3 Inventory; Returns. Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower, or any of its Subsidiaries, and their respective Account Debtors shall follow Borrower's, or such Subsidiary's, customary practices as they exist at the Effective Date.

6.4 Taxes; Pensions. Timely file and require each of its Subsidiaries to timely file, all required tax returns and reports and timely pay, and require each of its Subsidiaries to timely pay, all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower or its Subsidiaries, except as otherwise permitted pursuant to the terms of Section 5.8 hereof, and shall deliver to Collateral Agent and each Lender, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with the terms of such plans.

6.5 Insurance. Keep Borrower's and its Subsidiaries' business and the Collateral insured for risks and in amounts standard for companies in Borrower's and its Subsidiaries' industry and location and as Collateral Agent may reasonably request, including, but not limited to, D&O insurance reasonably satisfactory to Collateral Agent.

Insurance policies shall be in a form, with companies, and in amounts that are reasonably satisfactory to Collateral Agent and Lenders (provided, that Collateral Agent and Lenders acknowledge and agree that the policies of insurance maintained by Borrower and its Subsidiaries as of the Effective Date is acceptable)[4]. All property policies shall have a lender's loss payable endorsement showing Collateral Agent as lender loss payee and waive subrogation against Collateral Agent, and all liability policies shall show, or have endorsements showing, Collateral Agent, as additional insured. Collateral Agent shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral, and each provider of any such insurance shall agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to Collateral Agent, that it will give Collateral Agent thirty (30) days' prior written notice before any such policy or policies shall be materially altered or canceled (other than cancellation for non-payment of premiums, for which ten (10) days' prior written notice shall be required). At Collateral Agent's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Collateral Agent's option, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy within 90 days of receipt thereof up to Three Hundred Fifty Thousand Dollars ($350,000.00) with respect to any loss, and not exceeding Three Hundred Fifty Thousand Dollars ($350,000.00), in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Collateral Agent has been granted a first priority security interest, and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Collateral Agent, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. If Borrower or any of its Subsidiaries fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons, Collateral Agent and/or any Lender may make (but has no obligation to do so), at Borrower's expense, all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Collateral Agent or such Lender deems prudent.

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6.6 Operating Accounts.

(a) Borrower shall provide Collateral Agent five (5) days' prior written notice before Borrower or any of its Subsidiaries that is a Loan Party establishes any Collateral Account. In addition, for each Collateral Account that Borrower or any of its Subsidiaries that is a Loan Party at any time maintains, Borrower or such Subsidiary shall cause the applicable bank or financial institution at or with which such Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Collateral Agent's Lien in such Collateral Account in accordance with the terms hereunder prior to the establishment of such Collateral Account, which Control Agreement may not be terminated without prior written consent of Collateral Agent. The provisions of the previous sentence shall not apply to Excluded Accounts.

(b) Neither Borrower nor any of its Subsidiaries shall maintain any Collateral Accounts except Collateral Accounts maintained in accordance with Section 6.6. Furthermore, neither Borrower nor any of its Subsidiaries shall maintain Collateral Accounts at banks or financial institutions that are not reasonably acceptable to Collateral Agent.; provided, that Collateral Agent acknowledges and agrees that the financial institutions with which Borrower and its Subsidiaries maintain Collateral Accounts as of the Effective Date are reasonably acceptable to Collateral Agent.

6.7 Protection of Intellectual Property Rights. Borrower and each of its Subsidiaries shall: (a) protect, defend and maintain the validity and enforceability of its Intellectual Property that, in the reasonable business judgment of Borrower, is material to its business; (b) promptly advise Collateral Agent in writing of a challenge to the validity, or material infringement by a third party of its Intellectual Property; and (c) not allow any Intellectual Property material to its business to be abandoned, forfeited or dedicated to the public without Collateral Agent's prior written consent; provided, for the avoidance of doubt, Borrower or its Subsidiaries, as applicable, may abandon, forfeit or dedicate to the public any Intellectual Property of such Person in the ordinary course of business that is not material to the Loan Parties' business. If Borrower or any of its Subsidiaries (i) obtains any patent, registered trademark or servicemark, registered copyright, registered mask work, or any pending application for any of the foregoing, whether as owner, licensee or otherwise, or (ii) applies for any patent or the registration of any trademark or servicemark, then Borrower or such Subsidiary shall provide written notice thereof to Collateral Agent concurrently with the Compliance Certificates required to be delivered pursuant to Section 6.1(b)(i), and shall execute such intellectual property security agreements and other documents and take such other actions as Collateral Agent shall reasonably request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Collateral Agent, for the ratable benefit of the Lenders, in such property. If Borrower or any of its Subsidiaries decides to register any copyrights or mask works in the United States Copyright Office, Borrower or such Subsidiary shall: (x) provide Collateral Agent and each Lender with at least ten (10) days prior written notice of Borrower's or such Subsidiary's intent to register such copyrights or mask works together with a copy of the application it intends to file with the United States Copyright Office (excluding exhibits thereto); (y) execute an intellectual property security agreement and such other documents and take such other actions as Collateral Agent may reasonably request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Collateral Agent, for the ratable benefit of the Lenders, in the copyrights or mask works intended to be registered with the United States Copyright Office; and (z) record such intellectual property security agreement with the United States Copyright Office

contemporaneously with filing the copyright or mask work application(s) with the United States Copyright Office. Borrower or such Subsidiary shall promptly provide to Collateral Agent and each Lender with evidence of the recording of the intellectual property security agreement necessary for Collateral Agent to perfect and maintain a first priority perfected security interest in such property.

6.8 Litigation Cooperation. Commencing on the Effective Date and continuing through the termination of this Agreement, make available to Collateral Agent and the Lenders, without expense to Collateral Agent or the Lenders, Borrower and each of Borrower's officers, employees and agents and Borrower's Books, to the extent that Collateral Agent or any Lender may reasonably deem them necessary to prosecute or defend any third party suit or proceeding instituted by or against Collateral Agent or any Lender with respect to any Collateral or relating to Borrower.

6.9 Landlord Waivers; Bailee Waivers. In the event that Borrower or any of its Subsidiaries, after the Effective Date, intends to add any new offices or business locations where Collateral in excess of Five Hundred Thousand ($500,000.00) will be maintained, including warehouses, or otherwise store any portion of the Collateral with a value in excess of Five Hundred Thousand ($500,000.00) with, or deliver any portion of such Collateral to, a bailee, in each case pursuant to Section 7.2, then Borrower or such Subsidiary will first be required to receive the written consent of Collateral Agent (which consent Collateral Agent may grant or deny in its reasonable discretion) and, at Collateral Agent's election, Borrower or such Subsidiary shall use commercially reasonable efforts to cause

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such bailee or landlord, as applicable, to execute and deliver a bailee waiver or landlord waiver, as applicable, in form and substance reasonably satisfactory to Collateral Agent prior to the addition of any new offices or business locations, or any such storage with or delivery to any such bailee, as the case may be.

6.10 Creation/Acquisition of Subsidiaries. In the event any Borrower or any Subsidiary of any Borrower creates or acquires any Subsidiary after the Effective Date, Borrower or such Subsidiary shall promptly notify Collateral Agent of such creation or acquisition with twenty (20) Business Days thereof, and Borrower or such Subsidiary shall take all actions reasonably requested by Collateral Agent to achieve any of the following with respect to such "**New Subsidiary**" (defined as a Subsidiary formed or acquired after the date hereof during the term of this Agreement): (i) to cause such New Subsidiary to become either a co-Borrower hereunder or, if such New Subsidiary is a Foreign Subsidiary, a secured guarantor with respect to the Obligations; and (ii) to grant and pledge to Collateral Agent a perfected security interest in the Shares of such New Subsidiary.

6.11 Further Assurances. Execute any further instruments and take further action as Collateral Agent or any Lender reasonably requests to perfect or continue Collateral Agent's Lien in the Collateral or to effect the purposes of this Agreement, including without limitation, permit Collateral Agent or any Lender to discuss Borrower's financial condition with Borrower's accountants.

6.12 Net Product Revenue Covenant. The Borrower shall comply with the financial covenant set forth in Schedule 6.12.

6.13 Liquidity Covenant. The Borrower shall comply with the liquidity covenant set forth on Schedule 6.13.

6.14 Post-Closing Obligations.

(a) Borrower shall deliver updated Perfection Certificates listing all Material Agreements that Borrower or any of its Subsidiaries is a party to or bound by within fourteen (14) days after the Effective Date.

(b) Borrower shall deliver duly executed Control Agreements with respect to all Collateral Accounts (other than Excluded Accounts) maintained by Borrower or any of its Subsidiaries that is a Loan Party within thirty (30) days after the Effective Date.

(c) Borrower shall dissolve or cause the dissolution of any of its direct or indirect Subsidiaries that are not Loan Parties and existing on the Effective Date within sixty (60) days after the Effective Date.

(d) Within sixty (60) days of the Effective Date, Borrower shall deliver a bailee waiver executed in favor of Collateral Agent in respect of each third party bailee where Borrower or any Subsidiary maintains Collateral having a book value in excess of Five Hundred Thousand Dollars ($500,000.00); provided, that Borrower shall have an additional fifteen (15) days to deliver such bailee waivers so long as Borrower is making diligent efforts to obtain such waivers.

(e) Within sixty (60) days of the Effective Date, Borrower shall deliver a landlord's consent executed in favor of Collateral Agent in respect of all of Borrower's and each Subsidiaries' leased locations where Collateral is maintained with a book value in excess of Five Hundred Thousand Dollars ($500,000.00) or which leased location is the

chief executive office of any Borrower; provided, that Borrower shall have an additional fifteen (15) days to deliver such landlord consents so long as Borrower is making diligent efforts to obtain such consents.

(f) Within thirty (30) days of the Effective Date, Borrower shall deliver loss payable and additional insured clauses or endorsements, in favor of Collateral Agent, for the ratable benefit of the Lenders, as required pursuant to Section 6.5, in form and substance reasonably satisfactory to Collateral Agent.

(g) Within ninety (90) days of the Effective Date, Codexis Mayflower Holdings, LLC, shall assign to Borrower all of its active foreign-registered Intellectual Property and its Intellectual property consisting of Copyrights registered or filed with the United States Copyright Office.

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7. NEGATIVE COVENANTS

Borrower shall not, and shall not permit any of its Subsidiaries to, do any of the following without the prior written consent of the Required Lenders:

7.1 Dispositions. Convey, sell, lease, transfer, assign, dispose of (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property (including Intellectual Property), except for Transfers (a) of Inventory in the ordinary course of business, of Intellectual Property in lieu of out-licensing related to Deprioritized Biotherapeutics and Deprioritized Life Science Enzymes, Intellectual Property that is not material to the business of Borrower or its Subsidiaries and that otherwise would lapse, be abandoned, forfeited or dedicated to the public, and Intellectual Property in accordance with the terms of Section 6.7; (b) of worn out, surplus, or obsolete Equipment; (c) in connection with Permitted Liens, Permitted Investments and Permitted Licenses; (d) the use or transfer of money or Cash Equivalents of investments in private stock or short term investments in the ordinary course of business; (e) liquidation or dissolution of a Subsidiary of Borrower to the extent permitted under Section 6, if Executive experiences 7.2, (f) to any Loan Party; (g) consisting of the granting of Permitted Liens and the making of Permitted Investments, and (h) other Transfers of assets (other than Intellectual Property of Borrower) having a Covered Termination fair market value of not more than $350,000 per fiscal year.

7.2 Changes in Business, Management, Ownership, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than during the businesses engaged in by Borrower as of the Effective Date or any business reasonably related thereto; (b) stop conducting or fail to conduct its business in the ordinary course, (c) liquidate or dissolve; provided, that a Change Subsidiary of Borrower may liquidate or dissolve if, prior to such dissolution, such Subsidiary shall transfer substantially all of its assets to a Loan Party or (d)(i) any Key Person shall cease to be actively engaged in the management of Borrower unless written notice thereof is provided to Collateral Agent and each Lender within ten (10) days of such cessation and such Key Person is replaced with someone approved by the board of directors of Borrower within sixty (60) days of such cessation (furthermore, if such Key Person is terminated for cause, then within ten (10) Business Days of such termination, Borrower shall cause its remaining Key Persons (or other Responsible Officers designated by Borrower in the event of the departure of each of Stephen Dilly and Sri Ryali) to forthrightly discuss the reasons for the departure of the Key Person with Collateral Agent, except to the extent that such discussion would violate attorney-client privilege or the terms of any confidentiality agreement to which any such Responsible Officer is subject), or (ii) enter into any transaction or series of related transactions in which (A) the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own or Control Period, more than 49% of the voting interests and/or economic interests in the capital stock of Borrower or shall have obtained the power (whether or not exercised) to elect a majority of the members of the board of directors of Borrower immediately after giving effect to such transaction or related series of such transactions or (B) Borrower ceases to own and Control 100% of the ownership interests of a Subsidiary of Borrower.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock, shares or property of another Person. A Subsidiary may merge or consolidate into another Subsidiary (provided such surviving Subsidiary is a "co Borrower" hereunder or has provided a secured Guaranty of Borrower's Obligations hereunder) or with (or into) Borrower provided Borrower is the surviving legal entity, and as long as no Event of Default is occurring prior thereto or arises as a result therefrom.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens, or permit any Collateral not to be subject to the first priority security interest granted herein (except for Permitted Liens), or enter into any agreement, document, instrument or other arrangement (except with or in favor of Collateral Agent, for the ratable benefit of the Lenders) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower, or any of its Subsidiaries, from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or such Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and except for "**Permitted Liens**".

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.6 hereof.

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7.7 Restricted Payments. Pay any dividends (other than dividends payable solely in capital stock) or make any distribution or payment in respect of or redeem, retire or purchase any capital stock (other than repurchases pursuant to the terms of employee stock purchase plans, employee restricted stock agreements, stockholder rights plans, director or consultant stock option plans, or similar plans, provided such repurchases do not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate per fiscal year); provided, that (i) Borrower may convert any of its convertible stock (including warrants) into other stock issued by Borrower pursuant to the terms of such convertible securities or otherwise in exchange thereof, (ii) Borrower may convert Subordinated Debt issued by Borrower into capital stock issued by Borrower pursuant to the terms of such Subordinated Debt and to the extent permitted under the terms of the applicable subordination or intercreditor agreement; and (iii) Borrower may make cash payments in lieu of fractional shares in an aggregate amount not to exceed $10,000.

7.8 Investments. Directly or indirectly make any Investment other than Permitted Investments.

7.9 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower or any of its Subsidiaries, except for (a) transactions that are (i) in the ordinary course of Borrower's or such Subsidiary's business, (ii) upon fair and reasonable terms (and which are in fact on such terms) that are no less favorable to Borrower or such Subsidiary than would be obtained in an arm's length transaction with a non-affiliated Person, and (iii) disclosed to Collateral Agent in writing no later than ten (10) days after becoming effective; provided, that such notice is not required for (A) confidential disclosure agreements or non-disclosure agreements, (B) transactions with Borrower's board of directors, (C) sale and issuance of equity securities of Borrower for the primary purpose of raising capital, or (D) director, officer and employee compensation and employment agreements (other than executive officer compensation agreements), benefit plans, including retirement, health and stock option, and indemnification arrangements, (b) ordinary indemnifications of customary covered persons in their capacities as representatives of a Borrower or a Subsidiary, or (c) Subordinated Debt or equity investments by Borrower's investors in Borrower or its Subsidiaries.

7.10 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof, breach the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or otherwise adversely affect the subordination of the Subordinated Debt to Obligations owed to the Lenders.

7.11 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Term Loan for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the failure to comply or violation could reasonably be expected to result in a Material Adverse Effect, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower or any of its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

7.12 Compliance with Anti-Terrorism Laws. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries, permit any Affiliate to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executive order or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

7.13 Material Agreements. Neither Borrower nor any of its Subsidiaries shall (i) amend a Material Agreement in a manner materially adverse to the Collateral Agent or Lenders, or (ii) terminate a Material

Agreement, in each case, without providing written notice to Collateral Agent within fourteen (14) days of such amendment or termination, as applicable.

7.14 Subsidiaries. No more than five percent (5%) of the assets or revenues of Borrower and its Subsidiaries on a consolidated basis shall be owned or produced by any Foreign Subsidiary. Borrower shall not directly or indirectly lend to, contribute capital to, or guarantee obligations of, Foreign Subsidiaries in an amount exceeding $250,000.00 in the aggregate. No Subsidiary of Borrower existing on the Effective Date that is not a Loan Party may (i) own any assets with a value in excess of $1,000, individually, or in the aggregate, (ii) own any Intellectual Property, other than, with respect to Codexis Mayflower Holdings, LLC, non-active Intellectual Property, foreign-registered or filed Intellectual Property and United States Copyrights to be transferred to Borrower in accordance with Section 6.14(g), or (iii) conduct any operations or transactions other than those required for liquidation or dissolution of such Subsidiary.

8. EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Term Loan on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day grace period shall not apply to payments due on the Maturity Date or the date or acceleration pursuant to Section 9.1(a) hereof);

8.2 Covenant Default.

(a) Borrower or any of its Subsidiaries fails or neglects to perform any obligation in Sections 6.2 (Financial Statements, Reports, Certificates), 6.4 (Taxes), 6.5 (Insurance), 6.6 (Operating Accounts), 6.7 (Protection of Intellectual Property Rights), 6.10 (Creation/Acquisition of Subsidiaries), 6.12 (Financial Covenant), 6.13 (Liquidity Covenant), or 6.14 (Post-Closing Obligations) or Borrower violates any provision in Section 7; provided, however, in the event that Borrower fails to comply with the requirements of the financial covenant set forth in Section 6.12, Borrower may cure such breach by means of submitting a new Board-approved financial plan to Collateral Agent under which Borrower is expected to (i)(x) break even on a cash flow basis prior to Maturity Date (which financial plan must be acceptable to Collateral Agent in its sole discretion) and (y) pay all of its Obligations under the Loan Documents (including, without limitation, all payments of interest and principal), no later than thirty (30) days after the occurrence of the breach of the financial covenant and (ii) raise, no later than thirty (30) days after the submission of such financial plan to Collateral Agent, such amount of capital from the sale and issuance of its equity securities having terms acceptable to Required Lenders as required per the new financial plan; provided, that upon such cure a set forth in (i) and (ii) above, the parties shall amend the covenant in Section 6.12 in accordance with the new financial plan which amendment must be acceptable to Collateral Agent and shall, among other things, require Borrower to achieve One Hundred percent (100.00%) of the revenue projections set forth in the new financial plan; provided further, in the event that Borrower fails to comply with the requirement to deliver an Unqualified Audit Opinion on the financial statements set forth in Section 6.2(a)(ii), Borrower may cure such breach by either (i) raising, no later than sixty (60) days following the date of the Covered Termination, provides the Company with an executed Release of Claims (as defined below) which is not revoked within the applicable revocation period, if any, then in addition to any accrued but

unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Severance. Executive shall receive a lump sum cash payment in such audit opinion, an amount equal to twelve (12) months of Executive's base salary at capital, from the rate in effect immediately prior to Executive's termination sale and issuance of employment (without giving effect to any reduction in base salary that gives rise to a Voluntary Termination for Good Reason), less applicable withholdings. This severance payment shall be made to Executive in substantially equal installments in accordance with the Company's normal payroll procedures with the first such installment to be made on the first payroll date following the date the Release of Claims becomes effective and irrevocable, provided, that if the Covered Termination occurs after November 1 of any year, the first such

installment shall be made on the first payroll date of the subsequent year and, provided further, that, its equity securities or Subordinated Debt, in each case on terms acceptable to Required Lenders, equal to the first installment shall include any installment payments that would have been made had such installments commenced on difference between the first payroll date after Borrower's projected twelve months cash burn and the Covered Termination.

Borrower's cash balance at the time of the audit opinion, or (ii) electing to increase the applicable minimum Liquidity Covenant in Section 6.13 to 35% of the aggregate principal amount of Term Loans funded (subject to appropriate increase in the event of Borrower's delinquency in payment of its rent or accounts payable to critical vendors) until the issuance of an Unqualified Audit Opinion; or

(b) Continued Healthcare Borrower, or any of its Subsidiaries, fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this . If Executive elects Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to receive continued healthcare coverage pursuant to cure the provisions of default within ten (10) days after the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), the Company shall directly pay, or reimburse Executive for, the premium for Executive, Executive's covered dependents and Executive's spouse or domestic partner from the date of Executive's Covered Termination through the earlier of (i) the twelve (12) month anniversary of the date of Executive's Covered Termination and (ii) the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), occurrence thereof; provided, however, that if (1) any plan pursuant to which the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such benefits are provided ten (10) day period, and such default is not, or ceases prior to the expiration of the continuation coverage period likely to be exempt from the application of Section 409A under Treasury Regulation Section 1.409A-1(a)(5), (2) the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 of the Public Health Service Act), cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over the remaining default, and within such reasonable time period the Company would otherwise directly pay or reimburse Executive. After failure to cure the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance with the provisions default shall not be deemed an Event of COBRA. Default (but no Term Loan shall be made during such cure period);

8.3 Material Adverse Change. A Material Adverse Change has occurred;

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4. Covered Termination Within a Change of Control Period 8.4 Attachment; Levy; Restraint on Business. If Executive experiences a Covered Termination during a Change of Control Period, and if Executive, within sixty (60) days following the date of the Covered Termination, provides the Company with an executed Release of Claims (as defined below) which is not revoked within the applicable revocation period, if any, then in addition to any accrued but unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Severance (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or any of its Subsidiaries or of any entity under control of Borrower or its Subsidiaries on deposit with any institution at which Borrower or any of its Subsidiaries maintains a Collateral Account, or (ii) a notice of lien, levy, or assessment is filed against Borrower or any of its Subsidiaries or their respective assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within thirty (30) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); and

(b) (i) any material portion of Borrower's or any of its Subsidiaries' assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower or any of its Subsidiaries from conducting any part of its business;

8.5 Insolvency. Executive (a) Borrower or any of its Subsidiaries is or becomes Insolvent; (b) Borrower or any of its Subsidiaries begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower or any of its Subsidiaries and not dismissed or stayed within forty-five (45) days (but no Term Loan shall receive be extended while Borrower or any Subsidiary is Insolvent and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is (a) a lump sum cash payment default in any agreement to which Borrower or any of its Subsidiaries is a party with a third party or parties (i) resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount equal in excess of Five Hundred Thousand Dollars ($500,000.00) or (ii) that could reasonably be expected to result in a Material Adverse Effect; provided, however, that the Event of Default under this Section 8.6(a)(ii) caused by the occurrence of a default under such other agreement shall be cured or waived for purposes of this Agreement upon Collateral Agent receiving written notice from the party asserting cure or waiver of the default under such other agreement, if at the time of such cure or waiver under such other agreement (x) Collateral Agent has not declared an Event

of Default under this Agreement and/or exercised any rights with respect thereto; (y) any such cure or waiver does not result in an Event of Default under any other provision of this Agreement or any other Loan Document; and (z) in connection with any such cure or waiver under such other agreement, the terms of any agreement with such third party are not modified or amended in any manner which could in the good faith business judgment of Collateral be materially less advantageous to the sum Borrower or applicable Subsidiary; (b) any default by Borrower or any Subsidiary under a Material Agreement that permits the counterparty thereto to accelerate the payments owed thereunder; or (c) a revocation of eighteen (18) months a Material Agreement to the extent such revocation would materially adversely impair Collateral Agent's ability to exercise its rights and remedies under this Agreement or would materially impair the perfection or priority of Executive's base salary Collateral Agent's Lien on the Collateral.

8.7 Judgments. (a) One or more judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at the rate in effect immediately prior to Executive's termination of employment (without giving effect to any reduction in base salary subsequent to a Change of Control that gives rise to a Voluntary Termination for Good

Reason), less applicable withholdings. This severance payment least Seven Hundred Fifty Thousand Dollars ($750,000.00) (not covered by independent third party insurance) shall be made rendered against Borrower or any of its Subsidiaries and shall remain unsatisfied, unvacated, or unstayed for a period of thirty (30) days after the entry thereof or (b) any judgments, orders or decrees rendered against Borrower that could reasonably be expected to Executive within sixty (60) days following the date of the Covered Termination.

have a Material Adverse Effect;

(b) Equity Awards 8.8 Misrepresentations. Each outstanding equity award, including, without limitation, stock options, restricted stock, Borrower or any of its Subsidiaries or any Person acting for Borrower or any of its Subsidiaries makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Collateral Agent and/or Lenders or to induce Collateral Agent and/or the Lenders to enter this Agreement or any Loan Document, and restricted stock units, held by Executive shall automatically become vested and, if applicable, exercisable such representation, warranty, or other statement, when taken as a whole, is incorrect in any material respect when made;

8.9 Subordinated Debt. A default or breach occurs under any agreement between Borrower or any of its Subsidiaries and any restrictions thereon shall immediately lapse, creditor of Borrower or any of its Subsidiaries that signed a subordination, intercreditor, or other similar agreement with Collateral Agent or the Lenders, or any creditor that has signed such an agreement with Collateral Agent or the Lenders breaches any terms of such agreement;

8.10 Guaranty. (a) Any Guaranty terminates or ceases for any reason to be in each case, full force and effect; (b) any Guarantor does not perform any obligation or covenant under any Guaranty; (c) any circumstance described in Section 8 occurs with respect to one hundred percent (100%) any Guarantor; or (d) a Material Adverse Change with respect to any Guarantor;

8.11 Governmental Approvals; FDA Action. (a) Any Governmental Approval shall have been revoked, rescinded, suspended, modified in an adverse manner, or not renewed in the ordinary course for a full term and such revocation, rescission, suspension, modification or non-renewal has resulted in or could reasonably be

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expected to result in a Material Adverse Effect; or (b)(i) the FDA, DOJ, or other Governmental Authority initiates a Regulatory Action or any other enforcement action against Borrower or any of its Subsidiaries or any supplier of Borrower or any of its Subsidiaries that causes Borrower or any of its Subsidiaries to recall, withdraw, remove or discontinue manufacturing, distributing, and/or marketing any of its products and such enforcement action could reasonably be expected to result in a Material Adverse Effect, even if such action is based on previously disclosed conduct; (ii) the FDA issues a warning letter or Regulatory Action to Borrower or any of its Subsidiaries with respect to any of its activities or products which could reasonably be expected to result in a Material Adverse Effect; (iii) Borrower or any of its Subsidiaries conducts a mandatory or voluntary recall which could reasonably be expected to result in liability and expense to Borrower or any of its Subsidiaries of Seven Hundred Fifty Thousand Dollars ($750,000.00) or more; (iv) Borrower or any

of its Subsidiaries enters into a settlement agreement with the FDA, DOJ, or other Governmental Authority that results in aggregate liability as to any single or related series of transactions, incidents or conditions, of Seven Hundred Fifty Thousand Dollars ($750,000.00) or more, or that could reasonably be expected to result in a Material Adverse Effect even if such settlement agreement is based on previously disclosed conduct; or (v) Borrower or any of its Subsidiaries fails to remediate observations identified in an FDA Form 483 notice of inspection observation to Collateral Agent's reasonable satisfaction within six (6) months of receipt; or (vi) the FDA revokes any authorization or permission granted under any Registration, or Borrower or any of its Subsidiaries withdraws any Registration, that could reasonably be expected to result in a Material Adverse Change.

8.12 Lien Priority; Intellectual Property. Any Lien created hereunder or by any other Loan Document shall at any time fail to constitute a valid and perfected Lien on any of the then unvested shares Collateral purported to be secured thereby, subject to no prior or equal Lien, other than Permitted Liens arising as a matter of applicable law. Any Intellectual Property material to Borrower's business shall cease to be validly owned or licensed by Borrower free and clear of any Liens other than Permitted Liens, or the Borrower or any of its Subsidiaries is prohibited, banned, enjoined, restrained or prevented from developing, manufacturing or commercializing any product as a result of an infringement or other violation of any such equity award. Notwithstanding Intellectual Property.

8.13 Delisting. The shares of common stock of Borrower are delisted from the foregoing, primary stock exchange on which they are traded after their initial public offering and such delisting results in such shares not being listed immediately on any outstanding performance other nationally recognized stock units or performance stock options held by Executive shall automatically become vested with respect to: (i) exchange in the event United States having listing standards at least as restrictive as the primary stock exchange on which such shares were traded after their initial public offering.

8.14 Stock Price Decline. The price as of a Change of Control that occurs prior to the applicable Measurement Date, such number of shares of Company common stock corresponding to of Borrower listed on the target performance primary stock exchange on which they are listed decreases by 95% or more in the aggregate (and after taking into account any stock splits and stock combinations) from the closing price on the Effective Date, and remains at such decreased level for any applicable performance goals; or (ii) in the event a period of a Change of Control that occurs on or after the Measurement Date, such number of shares of Company common stock corresponding to the Company's actual achievement of any applicable performance goals. thirty consecutive calendar days.

9. RIGHTS AND REMEDIES

(c) Continued Healthcare 9.1 Rights and Remedies. If Executive elects to receive continued healthcare coverage pursuant to

(a) Upon the provisions occurrence and during the continuance of COBRA, the Company shall directly pay, an Event of Default, Collateral Agent may, without notice or reimburse Executive for, the premium for Executive, Executive's covered dependents and Executive's spouse demand, do any or domestic partner from the date of Executive's Covered Termination through the earlier of (i) the eighteen (18) month anniversary all of the date following: (i) deliver notice of Executive's Covered Termination the Event of Default to Borrower, (ii) by notice to Borrower declare all Obligations immediately due and (ii) payable (but if an Event of Default described in Section 8.5 occurs all Obligations shall be immediately due and payable without any action by Collateral Agent or the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), Lenders); provided, however, all obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders shall be immediately terminated without any action by Collateral Agent or the Lenders.

(b) Without limiting the rights of Collateral Agent and the Lenders set forth in Section 9.1(a) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) engage such industry, workout, liquidation, and other such consultants as it may elect, and the reasonable fees and expenses thereof shall become part of the Obligations;

(ii) give written notice to Borrower to not dispose of, conceal, transfer, sell, or encumber any or all of the Collateral (including cash) without Collateral Agent's prior written consent, even if such disposition would otherwise be permitted hereunder in the ordinary course of business absent an Event of Default. Any such disposition, concealment, transfer, or sale after the giving of such notice shall constitute a wrongful

conversion of the Collateral. Collateral Agent may obtain a temporary restraining order, injunction, or other equitable relief, without bond, to enforce Borrower's obligation to refrain from so impairing the Collateral;

(iii) foreclose upon and/or sell or otherwise liquidate all or any portion of the Collateral;

(1) to the extent that notice of a particular disposition may be required under the UCC, the notice shall be commercially reasonable if (1) given at least ten (10) days prior to the disposition, unless a shorter notice period is commercially reasonable under the circumstances. Once notice is given of the date after which a private disposition may occur, the notice shall remain in effect regardless of the period of time between the notice date and the ultimate disposition, unless and until the notice is revoked by Collateral Agent in writing;

(2) Collateral Agent may sufficiently advertise dispositions of Collateral through publications or media of general business circulation; may contact other persons, whether or not in the same business as Borrower, for expressions of interest in acquiring all or any plan portion of the Collateral; may publicly advertise the Collateral for sale by type, providing further details that Collateral Agent may have readily available only to prospective purchasers who make direct inquiry; may require potential purchasers to execute confidentiality agreements; and may require potential purchasers to post deposits and/or to otherwise demonstrate their financial ability and legal eligibility to perform upon any bid;

(3) the Collateral may be disposed of in such lots as Collateral Agent may elect. Collateral Agent may adjourn any public or private sale to a different time or place without notice or publication of such adjournment, and may adjourn any sale either before or after offers are received. Collateral Agent (i) may disclaim disposition warranties, including warranties of title, infringement, possession, quiet enjoyment, merchantability, or other like warranties, whether express or implied; (ii) may dispose of assets in wholesale rather than retail markets; (iii) may dispose of Collateral by utilizing Internet sites that provide for the auction of assets of the types of Collateral so offered or that generally match buyers and sellers of assets; (iv) may require the purchaser at any foreclosure sale to indemnify Collateral Agent and other parties against damages incurred in connection with their removal or possession of the Collateral, to require such purchaser to maintain insurance in connection therewith, or both; and (v) shall not be obligated to, and may rely upon a buyer to, obtain any third-party consents for access to Collateral or to obtain governmental or third party consents for the collection or disposition of Collateral to be collected or disposed of;

(iv) apply to the Obligations any (a) balances and deposits of Borrower that Collateral Agent or any Lender holds or controls, or (b) any amount held or controlled by Collateral Agent or any Lender owing to or for the credit or the account of Borrower; and/or

(v) commence and prosecute an Insolvency Proceeding or consent to Borrower commencing any Insolvency Proceeding.

(c) Without limiting the rights of Collateral Agent and the Lenders set forth in Sections 9.1(a) and (b) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Collateral Agent considers advisable, notify any Person owing Borrower money of Collateral Agent's security interest in such funds, and verify the amount of such account;

(ii) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Collateral Agent requests and make it available in a location as Collateral Agent reasonably designates. Collateral Agent may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Collateral Agent a license to enter and occupy any of its premises, without charge, to exercise any of Collateral Agent's rights or remedies;

(iii) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, and/or advertise for sale, the Collateral. Collateral Agent is hereby granted a nonexclusive, royalty free license or other right to use, without charge, Borrower's and each of its Subsidiaries' labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, service marks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral

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and, in connection with Collateral Agent's exercise of its rights under this Section 9.1, Borrower's and each of its Subsidiaries' rights under all licenses and all franchise agreements inure to Collateral Agent, for the benefit of the Lenders;

(iv) place a "hold" on any account maintained with Collateral Agent or the Lenders and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to which any Control Agreement or similar agreements providing control of any Collateral;

(v) demand and receive possession of Borrower's Books;

(vi) appoint a receiver to seize, manage and realize upon any of the Collateral, and such benefits are receiver shall have any right and authority as any competent court will grant or authorize in accordance with any applicable law, including any power or authority to manage the business of Borrower or any of its Subsidiaries. Borrower hereby irrevocably consents to and waives any right to object to or otherwise contest the appointment of a receiver as provided above. Borrower (i) grants such waiver and consent knowingly after having discussed the implications thereof with counsel, (ii) acknowledges that (A) the uncontested right to have a receiver appointed for the foregoing purposes is not, considered essential by Collateral Agent in connection with the enforcement of its rights and remedies hereunder and under the other Loan Documents and (B) the availability of such appointment as a remedy under the foregoing circumstances was a material factor in inducing Lenders to extend the Term Loans, and (iii) agrees to enter into any and all stipulations in any legal actions, or ceases prior agreements or other instruments in connection with the foregoing, and to cooperate fully with Lenders and Collateral Agent in connection with the assumption and exercise of control by any receiver; and

(vii) subject to Section 9.1(a) and (b), exercise all rights and remedies available to Collateral Agent and each Lender under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

expiration(d) With respect to a security interest in any Shares:

(i) Collateral Agent may cause any Issuer to register the ownership of its Shares in the name of Collateral Agent or of Collateral Agent's nominee or transferee. Such registration shall be deemed a registration for the purpose of facilitating Collateral Agent's preservation of rights, and not a disposition or strict foreclosure, unless and until all requirements of Section 9-610 or Section 9-620 of the continuation coverage UCC are satisfied;

(ii) upon written notice to the applicable Borrower and Issuer, whether or not the Shares are registered in the name of Collateral Agent or its nominee, Collateral Agent (or Collateral Agent's nominee if so registered) may exercise any or all of any Borrower's rights arising from ownership of such Shares, pursuant to the irrevocable proxy granted in Section 9.1(d)(v) of this Agreement or any other proxy or as otherwise permitted under applicable law. Without limiting the foregoing, Collateral Agent or its nominee may (a) cast any votes in any matter, (b) take actions by written consent in any matter, (c) receive distributions, and (d) otherwise exercise or waive such Borrower's rights in all respects. Upon further written notice to such Borrower and Issuer, Collateral Agent or its nominee may terminate the exercise of such voting rights and likewise reinstate them from time to time;

(iii) Borrower acknowledges that although the Shares may be securities for the purpose of applicable securities laws, as of the Effective Date, none of the Shares have been registered for public sale pursuant to applicable securities laws. Borrower acknowledges and agrees that (a) although a disposition of such Shares absent such a registration may result in prices and other terms less favorable than if such sale were a sale made absent such restrictions, Collateral Agent shall be under no obligation to delay a sale of any of the Shares for the period of time necessary to permit an Issuer or Borrower to register such securities for public sale under the Securities Act of 1933, as amended, or under applicable state securities laws, even if the Issuer or Borrower would agree to do so, (b) Collateral Agent may restrict such sale to purchasers who will represent and agree that such purchaser is purchasing for its own account, for investment, and not with a view to the distribution or sale of such Shares or part thereof, and (c) Collateral Agent may take such other actions as Collateral Agent deems appropriate to assure that the sale is undertaken in compliance with all applicable securities laws;

(iv) Borrower is aware that the staff of the Securities and Exchange Commission have issued various No-Action Letters that describe procedures which, in the view of which staff, permit a foreclosure sale of securities to occur in a manner that is public for purposes of Part 6 of Article 9 of the UCC, yet not public for purposes of Section 4(2) of the Securities Act. Borrower agrees that a foreclosure sale conducted in conformity with the principles set forth in such No-Action Letters (a) shall be considered to be exempt a "public disposition"

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for purposes of Section 9-610(c) of the UCC; (b) shall be considered commercially reasonable notwithstanding that Collateral Agent has not registered or sought to register the interests under the Securities Act, even if such Borrower or the applicable Issuer would agree to pay all costs of the registration process; and (c) shall not be considered to be commercially unreasonable on account of such procedures;

(v) Borrower hereby irrevocably appoints Collateral Agent as the proxy and attorney-in-fact of such Borrower, with full authority in the place and stead of Borrower, and in the name of Borrower or otherwise, to cast the votes and otherwise exercise all rights arising from the ownership of the Shares as provided in this Agreement upon and during the continuation of an Event of Default. **THIS APPOINTMENT IS IRREVOCABLE AND COUPLED WITH AN INTEREST AND SHALL BE EFFECTIVE UNTIL ALL OBLIGATIONS (OTHER THAN INCHOATE INDEMNITY OBLIGATIONS) HAVE BEEN FULLY REPAID AND PERFORMED AND COLLATERAL AGENT'S AND THE**

LENDERS' OBLIGATION TO PROVIDE THE TERM LOAN TERMINATES. No separate proxy shall be necessary to evidence such proxy rights, but if there is such a proxy, Collateral Agent's rights thereunder are cumulative with those in this Agreement.

As provided in Annex I, Collateral Agent shall have the exclusive right to exercise any and all remedies referenced in this Section 9.1. Additionally, notwithstanding any other provision of this Agreement, Collateral Agent may take any action that Collateral Agent deems appropriate to address an Exigent Circumstance, even if such action would ordinarily require the consent of the Required Lenders or of all Lenders under other Sections of this Agreement.

9.2 Power of Attorney. Borrower hereby irrevocably appoints Collateral Agent as its lawful attorney in fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's or any of its Subsidiaries' name on any checks or other forms of payment or security; (b) sign Borrower's or any of its Subsidiaries' name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Collateral Agent determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Collateral Agent or a third party as the Code or any applicable law permits. Borrower hereby appoints Collateral Agent as its lawful attorney in fact to sign Borrower's or any of its Subsidiaries' name on any documents necessary to perfect or continue the perfection of Collateral Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations (other than inchoate indemnity obligations) have been satisfied in full and Collateral Agent and the Lenders are under no further obligation to extend the Term Loan hereunder. Collateral Agent's foregoing appointment as Borrower's or any of its Subsidiaries' attorney in fact, and all of Collateral Agent's rights and powers, coupled with an interest, are irrevocable until all Obligations (other than inchoate indemnity obligations) have been fully repaid and performed and Collateral Agent's and the Lenders' obligation to provide the Term Loan terminates.

9.3 Protective Payments. If Borrower or any of its Subsidiaries fail to obtain the insurance called for by Section 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower or any of its Subsidiaries is obligated to pay under this Agreement or any other Loan Document, Collateral Agent may obtain such insurance or make such payment, and all amounts so paid by Collateral Agent are Lenders' Expenses and immediately due and payable, bearing interest at the Default Rate, and secured by the Collateral. Collateral Agent will make reasonable efforts to provide Borrower with notice of Collateral Agent obtaining such insurance or making such payment at the time it is obtained or paid or within a reasonable time thereafter. No such payments by Collateral Agent are deemed an agreement to make similar payments in the future or Collateral Agent's waiver of any Event of Default.

9.4 Application of Payments and Proceeds. Notwithstanding anything to the contrary contained in this Agreement, upon the occurrence and during the continuance of an Event of Default, (a) Borrower irrevocably waives the right to direct the application of Section 409A any and all payments at any time or times thereafter received by Collateral Agent from or on behalf of Borrower or any of its Subsidiaries of all or any part of the Code, under Treasury Regulation Section 1.409A-1(a)(5), (2) Obligations, and, as between Borrower on the Company is otherwise unable one hand and Collateral Agent and Lenders on the other, Collateral Agent shall have the continuing and exclusive right to continue apply and to cover Executive reapply any and all payments received against the Obligations in such manner as Collateral Agent may deem advisable notwithstanding any previous application by Collateral Agent, and (b) the proceeds of any sale of, or Executive's dependents under its group health plans, other realization upon all or (3) the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 any part of the Public Health Service Act), then, Collateral shall be applied: first, to the Lenders' Expenses; second, to accrued and unpaid interest and any make-whole amount due on the Obligations (including any amounts which, but for the provisions of the United States Bankruptcy Code, would have accrued on such amounts); third, to any applicable Prepayment Fee or Final Fee; fourth, to the principal amount of the Obligations outstanding; and fifth, to any other indebtedness or obligations of Borrower owing to Collateral Agent or any Lender under the Loan Documents. Any balance remaining shall be delivered to Borrower or to whoever may

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be lawfully entitled to receive such balance or as a court of competent jurisdiction may direct. In carrying out the foregoing, (x) amounts received shall be applied in the numerical order provided until exhausted prior to the application to the next succeeding category, and (y) each of the Persons entitled to receive a payment in any such case, particular category shall receive an amount equal to its *pro rata* share of amounts available to be applied pursuant thereto for such category. Any reference in this Agreement to an allocation between or sharing by the Lenders of any right, interest or obligation "ratably," "proportionally" or in similar terms shall refer to Pro Rata Share unless expressly provided otherwise. Collateral Agent, or if applicable, each remaining Company subsidy Lender, shall thereafter be paid to Executive in substantially equal monthly installments over the remaining period the Company would otherwise directly pay or reimburse Executive. After the Company ceases to pay premiums pursuant promptly remit to the preceding sentence, Executive other Lenders such sums as may if eligible, elect be necessary to continue healthcare coverage at Executive's expense in accordance with ensure the provisions ratable repayment of COBRA.

5. Death or Disability. If Executive terminates employment with the Company due to death or Disability and such termination constitutes a "separation from service" within the meaning each Lender's portion of Section 409A of Code any Term Loan and the Department ratable distribution of Treasury regulations interest, fees and other guidance promulgated thereunder (a "Separation from Service"), then in addition to any accrued but unpaid salary, bonus, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Pro-Rata Vesting of Equity Awards. Each outstanding equity award, including, without limitation, stock options, restricted stock and restricted stock units, held reimbursements paid or made by Executive shall automatically become vested and, if applicable, exercisable and any restrictions thereon shall immediately lapse, in each case, with respect to that number of shares of Company common stock that would otherwise vest on the next vesting date for such equity award, assuming Executive's continued service through such date, pro-rated to the date of Executive's termination due to death or Disability. For purposes of determining the number of shares subject to any outstanding performance stock units or performance stock options that would otherwise vest on the

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next vesting date pursuant to Borrower. Notwithstanding the foregoing, sentence, a Lender receiving a scheduled payment shall not be responsible for determining whether the applicable performance goals shall be deemed achieved: (i) in the event of a termination due to death or Disability that occurs prior to the applicable Measurement Date, at the target performance level; or (ii) in the event of a termination due to death or Disability that occurs other Lenders also received their scheduled payment on or after the Measurement Date, based on the Company's actual achievement.

(b) Continued Healthcare. If Executive, or any beneficiary of Executive, elects to receive continued healthcare coverage pursuant to the provisions of COBRA, the Company shall directly pay, or reimburse Executive, or such beneficiary, for, the premium for Executive, Executive's covered dependents and Executive's spouse or domestic partner from the date of Executive's termination due to death or Disability through the earlier of (i) the twelve (12) month anniversary of the date of Executive's termination of employment and (ii) the date Executive, Executive's covered dependents, if any, and Executive's spouse or domestic partner, if any, become eligible for healthcare coverage under another employer's plan(s), date; provided, however, if it is later determined that if (1) a Lender received more than its ratable share of scheduled payments made on any plan pursuant date or dates, then such Lender shall remit to which Collateral Agent or other Lenders such benefits are provided is not, sums as may be necessary to ensure the ratable payment of such scheduled payments, as instructed by Collateral Agent. If any payment or ceases prior distribution of any kind or character, whether in cash, properties or securities, shall be received by a Lender in excess of its ratable share, then the portion of such payment or distribution in excess of such Lender's ratable share shall be received by such Lender in trust for and shall be promptly paid over to the expiration other Lender for application to the payments of amounts due on the other Lenders' claims. To the extent any payment for the account of Borrower is required to be returned as a voidable transfer or otherwise, the Lenders shall contribute to one another as is necessary to ensure that such return of payment is on a pro rata basis. If any Lender shall obtain possession of any Collateral, it shall hold such Collateral for itself and as agent and bailee for Collateral Agent and other Lenders for purposes of perfecting Collateral Agent's security interest therein.

9.5 Liability for Collateral. So long as Collateral Agent and the Lenders comply with reasonable lending practices regarding the safekeeping of the continuation coverage period to Collateral in the possession or under the control of Collateral Agent and the Lenders, Collateral Agent and the Lenders shall not be exempt from liable or responsible for: (a) the application of Section 409A safekeeping of the Code, under Treasury Regulation Section 1.409A-1(a)(5), (2) Collateral; (b) any loss or damage to the Company is otherwise unable to continue to cover Executive or Executive's dependents under its group health plans, or (3) Collateral; (c) any diminution in the Company cannot provide the benefit without violating applicable law (including, without limitation, Section 2716 value of the Public Health Service Act), then, in Collateral; or (d) any such case, an amount equal to each remaining Company subsidy shall thereafter be paid to Executive in substantially equal monthly installments over act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the remaining period the Company would otherwise directly pay or reimburse Executive. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive, Collateral.

9.6 No Waiver; Remedies Cumulative. Failure by Collateral Agent or any beneficiary Lender, at any time or times, to require strict performance by Borrower of Executive, may, if eligible, elect to continue healthcare coverage at his or her expense in accordance with the provisions any provision of COBRA.

6. Termination in Connection With a Change of Control. Notwithstanding anything in this Agreement to the contrary, in the event Executive experiences a Covered Termination and the Involuntary Termination without Cause underlying the Covered Termination, or the event upon which a Voluntary Termination for Good Reason underlying the Covered Termination is based, occurs at the direction of a person or entity that has entered

into an agreement with the Company that contemplates a transaction that, if consummated, would constitute a Change of Control, then for all purposes hereunder, including, without limitation, Sections 4 and 7, such Covered Termination shall be deemed to have occurred during a Change of Control Period and, in lieu of the benefits provided under Section 3, Executive shall be entitled to the benefits set forth in Section 4 with such benefits to be paid, or commence being paid, upon the Covered Termination, but otherwise subject to the terms and conditions of Section 4.

7. Termination for Cause; Voluntary Resignation. If Executive's service with the Company is terminated by the Company for Cause or by Executive for any or no reason other than due to death, Disability or as a Covered Termination, then Executive shall only be entitled to any accrued but unpaid salary, bonus, vacation and expense reimbursement in accordance with applicable law.

8. Limitation on Payments. In the event that the severance and other benefits provided for in this Agreement or otherwise payable any other Loan Document shall not waive, affect, or diminish any right of Collateral Agent or any Lender thereafter to Executive (i) constitute "parachute payments" within the meaning of Section 280G of the Code demand strict performance and (ii) but for this Section 8, would be subject to the excise tax imposed by Section 4999 of the Code, then Executive's severance benefits under this Agreement compliance herewith or therewith. No waiver hereunder shall be payable either

(a) in full, or

(b) as to such lesser amount which would result in no portion of such severance benefits being subject to excise tax under Section 4999 of the Code, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes effective unless signed by Collateral Agent and the excise tax imposed by Section 4999 Required Lenders and then is only effective for the specific instance and purpose for which it is given. The rights and remedies of the Code, results in the receipt by Executive on an after-tax basis, of the greatest amount of severance benefits under this Agreement, notwithstanding that all or some portion of such severance benefits may be taxable under Section 4999 of the Code. The specific benefits that shall be reduced, if any, Collateral Agent and the order of such reduction shall be determined by the Executive in his or her sole discretion. Unless the Company and Executive otherwise agree in writing, any determination required under this Section 8 shall be made in writing by the Company's independent public accountants (the "Accountants"), whose determination shall be conclusive and binding upon Executive and the Company for all purposes. For purposes of making the calculations required by this Section 8, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and Executive shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section 8.

9. Definition of Terms. The following terms referred to in this Agreement shall have the following meanings:

(a) Change of Control. "Change of Control" shall mean (i) a dissolution or liquidation of the Company; (ii) a sale of all or substantially all the assets of the Company; (iii) a merger or consolidation in which the Company is not the surviving corporation and in which beneficial ownership of securities of the Company representing at least fifty percent (50%) of the combined voting power entitled to vote in the election of directors has changed; (iv) a reverse merger in which the Company is the surviving corporation but the shares of the common stock of the Company outstanding immediately before the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise, and in which beneficial ownership of securities of the Company representing at least fifty percent (50%) of the combined voting power entitled to vote in the election of directors has changed; (v) an acquisition by any person, entity or group within the meaning of Section 13(d) or 14(d) of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), or any comparable successor provisions (excluding any employee benefit plan, or related trust, sponsored or maintained by the Company or subsidiary of the Company or other entity controlled by the Company) of the beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act, or comparable successor rule) of securities of the Company representing at least fifty percent (50%) of the combined voting power entitled to vote in the election of directors; or, (vi) in the event that the individuals who are members of the Incumbent Board cease for any reason to constitute at least fifty percent (50%) of the Board.

Notwithstanding the foregoing, a Change of Control shall not include any transaction effected primarily for the purpose of financing the Company with cash (as determined by the Board acting in good faith and without regard to whether such transaction is effectuated by a merger, equity financing or otherwise) or the initial public offering of the Company's common stock. Further notwithstanding the foregoing, if a Change of Control would give rise to a payment or settlement event that constitutes "nonqualified deferred compensation," the transaction or event constituting the

Change of Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event, to the extent required by Section 409A.

(b) Change of Control Period. "Change of Control Period" shall mean the period commencing ninety (90) days prior to a Change of Control and ending on the first anniversary of the Change of Control.

(c) Covered Termination. "Covered Termination" shall mean an Involuntary Termination without Cause or a Voluntary Termination for Good Reason that constitutes the Executive's Separation from Service.

(d) Disability. "Disability" shall mean that Executive has been unable to perform Executive's Company duties as the result of Executive's incapacity due to physical or mental illness, and such inability, at least one hundred eighty (180) days after its commencement, is determined to be total and permanent by a physician selected by the Company or its insurers and acceptable to Executive or Executive's legal representative (such agreement as to acceptability not to be unreasonably withheld). Termination resulting from Disability may only be effected after at least thirty (30) days' written notice by the Company of its intention to terminate Executive's employment. In the event that Executive resumes the performance of substantially all of Executive's duties hereunder before the termination of Executive's employment becomes effective, the notice of intent to terminate shall automatically be deemed to have been revoked.

(e) Incumbent Board. "Incumbent Board" shall mean the individuals who, as of the Effective Date, are members of the Board. If the election, or nomination for election by the Company's stockholders, of any new director is approved by a vote of at least fifty percent (50%) of the Incumbent Board, such new director shall be considered as a member of the Incumbent Board.

(f) Involuntary Termination without Cause. "Involuntary Termination without Cause" shall mean the termination of Executive's employment by the Company other than a termination following (i) the willful and continued failure to substantially perform the Executive's duties with the Company (other than as a result of physical or mental disability) after a written demand for substantial performance is delivered to the Executive by the Company, which demand specifically identifies the manner in which the Company believes that the Executive has not substantially performed the Executive's duties and that has not been cured within fifteen (15) days following receipt by the Executive of the written demand; (ii) commission of a felony (other than a traffic-related offense) that in the written determination of the Company is likely to cause or has caused material injury to the Company's business; (iii) dishonesty with respect to a significant matter relating to the Company's business; or (iv) material breach of any agreement by and between the Executive and the Company, which material breach has not been cured within fifteen (15) days following receipt by the Executive of written notice from the Company identifying such material breach.

(g) Release of Claims. "Release of Claims" shall mean a general release of all claims against the Company and its affiliates in a form reasonably acceptable to the Company.

(h) Voluntary Termination for Good Reason. "Voluntary Termination for Good Reason" shall mean Executive's voluntarily resignation after the occurrence of any of the following without Executive's written consent: (i) a material diminution in Executive's base compensation; (ii) a material diminution in Executive's authority, duties or responsibilities; (iii) a material change of at least thirty-five (35) miles in the geographic location at which Executive must perform Executive's services; or (iv) a material breach of this Agreement by the Company. Notwithstanding the foregoing, a resignation shall not constitute a "Voluntary Termination for Good Reason" unless the condition giving rise to such resignation continues more than thirty (30) days following Executive's written notice of the condition within ninety (90) days of the first occurrence of such condition and Executive's termination occurs within one hundred eighty (180) days following the first occurrence of such condition.

(h) Measurement Date. "Measurement Date," with respect to an award of performance stock units or performance stock options, shall mean the date the Compensation Committee of the Board of Directors determines the achievement of the applicable performance goals for the applicable performance period.

10. Successors.

(a) Company's Successors. Any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the obligations Lenders under this Agreement and agree the other Loan Documents are cumulative. Collateral Agent and the Lenders have all rights and remedies provided under the Code, any applicable law, by law, or in equity. The exercise by Collateral Agent or any Lender of one right or remedy is not an election, and Collateral Agent's or any Lender's waiver of any Event of Default is not a continuing waiver. Collateral Agent's or any Lender's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives, to the fullest extent permitted by law, demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Collateral Agent or any Lender on which Borrower or any Subsidiary is liable.

9.8 Standards. Where not expressly founded upon specific rights of Collateral Agent as a secured party under the UCC, the provisions of this Article 9 shall be interpreted as the agreement of Collateral Agent, Lenders and Borrower as to perform the obligations under standards measuring the fulfillment of the duties of Collateral Agent as a secured party. Borrower warrants, represents, and agrees that none of the provisions of this Article are "manifestly unreasonable" for the purposes of Section 9-603 of Article 9 of the UCC. Nothing contained in this Article shall be construed to grant any rights to Borrower or to impose any duties on Collateral Agent that would not have been granted or imposed by this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations or by applicable law in the absence of a succession. For all purposes under this Article.

10. NOTICES

All notices, consents, requests, approvals, demands, or other communication (collectively, "**Communication**") by any party to this Agreement the term "Company" shall include or any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this Section 10(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive's Successors. The terms of this Agreement and all rights of

Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

11. Notices. Notices and all other communications contemplated by this Agreement shall Loan Document must be in writing and shall be deemed to have been duly validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when personally delivered sent by facsimile or email transmission with confirmation; (c) one day following mailing via Federal Express or similar (1) Business Day after deposit

[*] = CERTAIN MARKED INFORMATION HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

with a reputable overnight courier service. In the case with all charges prepaid and required verification of Executive, mailed notices delivery; or (d) when delivered, if hand delivered by messenger, all of which shall be addressed to Executive at Executive's home address that the Company has on file for Executive. In the case of the Company, mailed notices shall party to be addressed to its corporate headquarters, notified and all notices shall be directed sent to the attention address, facsimile number, or email address indicated below. Any of Collateral Agent, Lender or Borrower may change its Secretary. mailing address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower: CODEXIS, INC.
200 Penobscot Drive
Redwood City, CA 94063
Attn: Sri Ryali
Email: [*]

with a copy (which shall not constitute notice) to:
Sidley Austin LLP
1001 Page Mill Road, Building 1 Palo Alto, CA 94304
Attn: Cynthia Bai
Email: [*]

12. If to Collateral Agent: INNOVATUS LIFE SCIENCES
LENDING FUND I, LP
777 Third Avenue, 25Confidentiality; Non-Solicitation, th Floor
New York, NY 10017
Attn: Claes Ekstrom, Webb George
Email: [*]

with a copy (which shall
not constitute notice) to: Cooley LLP
3 Embarcadero Center, 20th Floor
San Francisco, CA 94111
Attn: Mischi a Marca
Fax: (415) 693 2222
Email: [*]

11. CHOICE OF LAW, VENUE AND JURY TRIAL WAIVER

11.1 Waiver of Jury Trial. EACH OF BORROWER, COLLATERAL AGENT AND LENDERS UNCONDITIONALLY WAIVES ANY AND ALL RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) BASED UPON OR ARISING OUT OF THIS AGREEMENT, ANY OF THE OTHER LOAN DOCUMENTS, ANY OF THE INDEBTEDNESS SECURED HEREBY, ANY DEALINGS AMONG BORROWER, COLLATERAL AGENT AND/OR LENDERS RELATING TO THE SUBJECT MATTER OF THIS TRANSACTION OR ANY RELATED TRANSACTIONS, AND/OR THE RELATIONSHIP THAT IS BEING ESTABLISHED AMONG BORROWER, COLLATERAL AGENT AND/OR LENDERS. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT. THIS WAIVER IS IRREVOCABLE. THIS WAIVER MAY NOT BE MODIFIED EITHER ORALLY OR IN WRITING. THE WAIVER ALSO SHALL APPLY TO ANY SUBSEQUENT AMENDMENTS, RENEWALS, SUPPLEMENTS OR MODIFICATIONS TO THIS AGREEMENT, ANY OTHER LOAN DOCUMENTS, OR TO ANY OTHER DOCUMENTS OR AGREEMENTS RELATING TO THIS TRANSACTION OR ANY RELATED TRANSACTION. THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.

11.2 Governing Law and Jurisdiction.

(a) Confidentiality Governing Law. THIS AGREEMENT, THE OTHER LOAN DOCUMENTS (EXCLUDING THOSE LOAN DOCUMENTS THAT BY THEIR OWN TERMS ARE EXPRESSLY GOVERNED BY THE LAWS OF ANOTHER JURISDICTION) AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER AND THEREUNDER AND ALL MATTERS ARISING FROM OR RELATED THERETO SHALL IN ALL RESPECTS BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK (WITHOUT REGARD TO THE CONFLICT OF LAWS PRINCIPLES THAT WOULD RESULT IN THE APPLICATION OF ANY LAWS OTHER THAN THE LAWS OF THE STATE OF NEW YORK), INCLUDING ALL MATTERS OF CONSTRUCTION, VALIDITY. While Executive is employed by the Company, and thereafter while Executive receives severance benefits hereunder, Executive shall not directly or indirectly disclose or make available to any person, firm, corporation, association or other entity for any reason or purpose whatsoever, any Confidential Information (as defined below). Upon termination of

Executive's employment with the Company, all Confidential Information in Executive's possession

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that is AND PERFORMANCE, REGARDLESS OF THE LOCATION OF THE COLLATERAL, PROVIDED, HOWEVER, THAT IF THE LAWS OF ANY JURISDICTION OTHER THAN NEW YORK SHALL GOVERN IN REGARD TO THE VALIDITY, PERFECTION OR EFFECT OF PERFECTION OF ANY LIEN OR IN REGARD TO PROCEDURAL MATTERS AFFECTING ENFORCEMENT OF ANY LIENS IN COLLATERAL, SUCH LAWS OF SUCH OTHER JURISDICTIONS SHALL CONTINUE TO APPLY TO THAT EXTENT.

(b) Submission to Jurisdiction. Any legal action or proceeding with respect to the Loan Documents shall be brought exclusively in written the courts of the State of New York located in the City of New York, Borough of Manhattan, or of the United States of America for the Southern District of New York and, by execution and delivery of this Agreement, Borrower hereby accepts for itself and in respect of its Property, generally and unconditionally, the jurisdiction of the aforesaid courts. Notwithstanding the foregoing, Collateral Agent and Lenders shall have the right to bring any action or proceeding against Borrower (or any property of Borrower) in the court of any other jurisdiction Collateral Agent or Lenders deem necessary or appropriate in order to realize on the Collateral or other tangible form (together security for the Obligations. The parties hereto hereby irrevocably waive any objection, including any objection to the laying of venue or based on the grounds of forum non conveniens, that any of them may now or hereafter have to the bringing of any such action or proceeding in such jurisdictions.

(c) Service of Process. Borrower irrevocably waives personal service of any and all legal process, summons, notices and other documents and other service of process of any kind and consents to such service in any suit, action or proceeding brought in the United States of America with respect to or otherwise arising out of or in connection with any Loan Document by any means permitted by applicable requirements of law, including by the mailing thereof (by registered or certified mail, postage prepaid) to Codexis, Inc., attention: Sri Ryali, located at 200 Penobscot Drive, Redwood City, California 94063, and each Borrower hereby appoints Codexis, Inc. as its agent to receive such service of process. Borrower agrees that a final judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law.

(d) Non-exclusive Jurisdiction. Nothing contained in this Section 11.2 shall affect the right of Collateral Agent or Lenders to serve process in any other manner permitted by applicable requirements of law or commence legal proceedings or otherwise proceed against Borrower in any other jurisdiction.

12. GENERAL PROVISIONS

12.1 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not transfer, pledge or assign this Agreement or any rights or obligations under it without Collateral Agent's prior written consent (which may be granted or withheld in Collateral Agent's discretion, subject to Section 12.5). The Lenders have the right, without the consent of or notice to Borrower, to sell, transfer, assign, pledge, negotiate, or grant participation in (any such sale, transfer, assignment, negotiation, or grant of a participation, a "**Lender Transfer**") all or any part of, or any interest in, the Lenders' obligations, rights, and benefits under this Agreement and the other Loan Documents.

12.2 Indemnification. Borrower agrees to indemnify, defend and hold Collateral Agent and the Lenders and their respective directors, officers, employees, consultants, agents, attorneys, or any other Person affiliated with or representing Collateral Agent or the Lenders (each, an "**Indemnified Person**") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, "**Claims**") asserted by any other party in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents; and (b) all losses or Lenders' Expenses incurred, or paid by Indemnified Person in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents between Collateral Agent, and/or the Lenders and Borrower (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct (as determined in a final, non-appealable judgment of a court of competent jurisdiction). Borrower hereby further indemnifies, defends and holds each Indemnified Person harmless from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements of any kind or nature whatsoever (including the fees and disbursements of counsel for such Indemnified Person) in connection with any investigative, response, remedial, administrative or judicial matter or proceeding, whether or not such Indemnified Person shall be designated a party thereto and including any such proceeding initiated by or on behalf of Borrower, and the reasonable expenses of investigation by engineers, environmental consultants and similar technical personnel and any commission, fee or compensation claimed by any broker (other than any broker retained by Collateral Agent or Lenders) asserting any right to payment for the transactions contemplated hereby which may be imposed on, incurred by or asserted against such Indemnified Person as a result of or in connection with the transactions contemplated hereby and the use or intended use of the proceeds of the loan proceeds except

for liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements directly caused by such Indemnified Person's gross negligence or willful misconduct (as determined in a final, non-appealable judgment of a court of competent jurisdiction).

12.3 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.Notwithstanding the foregoing, this Agreement and any other Loan Document may be amended by Collateral Agent without the need to obtain the consent of Borrower or any Lender if such amendment is delivered in order to correct or cure (x) ambiguities, errors, omissions, or defects, (y) to effect administrative changes of a technical or immaterial nature or (z) incorrect cross references or similar inaccuracies in this Agreement or the applicable Loan Document.

12.4 Interest Rate Limitation. Notwithstanding anything herein to the contrary, if at any time the interest rate applicable to any Loan, together with all copies fees, charges and other amounts that are treated as interest on such Loan under Applicable Law (collectively, "**charges**"), shall exceed the maximum lawful rate (the "**Maximum Rate**") that may be contracted for, charged, taken, received or duplicates reserved by the Lender holding such Loan in accordance with Applicable Law, the rate of interest payable in respect of such Loan hereunder, together with all charges payable in respect thereof, including computer files) shall be returned limited to the Company Maximum Rate. To the extent lawful, the interest and charges that would have been paid in respect of such Loan but were not paid as a result of the operation of this Section shall be cumulated and the interest and charges payable to such Lender in respect of other Loans or periods shall be increased (but not above the amount collectible at the Maximum Rate therefor). Any amount collected by such Lender that exceeds the maximum amount collectible at the Maximum Rate shall be applied to the reduction of the principal balance of such Loan or refunded to Borrower so that at no time shall the interest and charges paid or payable in respect of such Loan exceed the maximum amount collectible at the Maximum Rate.

12.5 Correction of Loan Documents. Collateral Agent may correct patent errors and fill in any blanks in this Agreement and the other Loan Documents consistent with the agreement of the parties, and shall not be retained by Executive or furnished to any third party, in any form except as provided herein; *provided, however*, that Executive shall not be obligated to treat as confidential, or return to the Company provide Borrower copies of any Confidential Information that (i) was publicly known at the time such amended Loan Documents.

12.6 Amendments in Writing; Integration.

(a) No amendment, modification, termination or waiver of disclosure to Executive, (ii) becomes publicly known or available thereafter other than by any means in violation provision of this Agreement or any other duty owed Loan Document, no approval or consent thereunder, or any consent to the Company any departure by any person Borrower or entity, or (iii) is lawfully disclosed to Executive by a third party. For purposes of this Agreement, the term "Confidential Information" shall mean information disclosed to Executive or known by Executive as a consequence of or through his or her relationship with the Company, about the customers, employees, business methods, public relations methods, organization, procedures or finances, including, without limitation, information of or relating to customer lists, of the Company and its affiliates. In addition, Executive shall continue to be subject to the Confidential Information, Secrecy, and Invention Agreement entered into between Executive and the Company (the "Confidential Information Agreement").

(b) Non-Solicitation. In addition to each Executive's obligations under the Confidential Information Agreement, Executive shall not for a period of one (1) year following
Executive's termination of employment for any reason, either on Executive's own account or jointly with or as a manager, agent, officer, employee, consultant, partner, joint venturer, owner or stockholder or otherwise on behalf of any other person, firm or corporation, directly or indirectly solicit or attempt to solicit away from the Company any of its officers or employees or offer employment to any person who is an officer or employee of the Company; *provided, however*, that a general advertisement to which an employee of the Company responds Subsidiaries therefrom, shall in no any event be deemed to result in a breach of this Section 12(b). Executive also agrees not to harass or disparage the Company or its employees, clients, directors or agents or divert or attempt to divert any actual or potential business of the company.

(c) Survival of Provisions. The provisions of this Section 12 shall survive the
termination or expiration of the applicable Executive's employment with the Company and shall be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this Section 12 is excessive in duration or scope or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state.

13. Dispute Resolution.

(a) To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved to the fullest extent

permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Mateo County, California, conducted by Judicial Arbitration and Mediation Services, Inc. ("JAMS") under the applicable JAMS employment rules. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding**. The arbitrator shall: (i) have the authority to compel adequate discovery for the resolution of the dispute and to award such

relief as would otherwise be permitted by law; and (ii) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that Executive or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS' arbitration fees in excess of the amount of court fees that would be required if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute over intellectual property rights by Court action instead of arbitration.

14. Miscellaneous Provisions.

(a) Section 409A. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (i) the expiration of the six-month period measured from the date of the Executive's Covered Termination or termination of employment due to Disability or (ii) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 14(a) shall be paid in a lump sum to Executive, and any remaining payments due under the Agreement shall be paid as otherwise provided herein.

(b) Waiver. No provision of this Agreement shall be modified, waived or discharged effective unless the modification, waiver or discharge is agreed to same shall be in writing and signed by Executive Borrower, Collateral Agent and the Required Lenders provided that:

(i) no such amendment, waiver or other modification that would have the effect of increasing or reducing a Lender's Term Loan Commitment or Commitment Percentage shall be effective as to such Lender without such Lender's written consent;

(ii) no such amendment, waiver or modification that would affect the rights and duties of Collateral Agent shall be effective without Collateral Agent's written consent or signature;

(iii) no such amendment, waiver or other modification shall, unless signed by all the Lenders directly affected thereby, (A) reduce the principal of, rate of interest on or any fees with respect to any Term Loan or forgive any principal, interest (other than default interest) or fees (other than late charges) with respect to any Term Loan; (B) postpone the date fixed for, or waive, any payment of principal of any Term Loan or of interest on any Term Loan (other than default interest) or any fees provided for hereunder (other than late charges or for any termination of any commitment); (C) change the definition of the term "Required Lenders" or the percentage of Lenders which shall be required for the Lenders to take any action hereunder; (D) release all or substantially all, or any material portion, of the Collateral, authorize Borrower to sell or otherwise dispose of all or substantially all, or any material portion, of the Collateral or release any Guarantor of all or any portion of the Obligations or its guaranty obligations with respect thereto, except, in each case with respect to this clause (D), as otherwise may be expressly permitted under this Agreement or the other Loan Documents (including in connection with any disposition permitted hereunder); (E) amend, waive or otherwise modify this Section 12.6 or the definitions of the terms used in this Section 12.6 insofar as the definitions affect the substance of this Section 12.6; (F) consent to the assignment, delegation or other transfer by Borrower of any of its rights and obligations under any Loan Document or release Borrower of its payment obligations under any Loan Document, except, in each case with respect to this clause (F), pursuant to a merger or consolidation permitted pursuant to this Agreement; (G) amend any of the provisions of Section 9.4 or amend any of the definitions of Pro Rata Share, Term Loan Commitment, Commitment Percentage or that provide for the Lenders to receive their Pro Rata Shares of any fees, payments, setoffs or proceeds of Collateral hereunder; (H) subordinate the Liens granted in favor of Collateral Agent securing the Obligations; or

(I) amend any of the provisions of Section 12.6. It is hereby understood and agreed that all Lenders shall be deemed directly affected by an authorized officer amendment, waiver or other modification of the Company (other type described in the preceding clauses (C), (D), (E), (F), (G) and (H) of the immediately preceding sentence; and

(iv) Borrower's consent shall not be required as to any amendment or waiver to Annex I, except as to Section 9 thereof.

(b) Other than Executive). No waiver as expressly provided for in Section 12.5(a)(i) and (iii), Collateral Agent may, if requested by either party of any breach of, or of compliance with, any condition or provision of the Required Lenders, from time to time designate covenants in this Agreement less restrictive by the other party shall be considered notification to a waiver representative of any other condition or provision or of the same condition or provision at another time. Borrower.

(c) Whole Agreement. This Agreement and the Confidential Information Agreement Loan Documents represent the entire understanding of the parties hereto agreement about this subject matter and supersede prior negotiations or agreements with respect to such subject matter. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter hereof and supersede all prior arrangements and understandings regarding same.

(d) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by and the laws of the State of California.

(e) Severability. The invalidity or unenforceability of any provision or provisions of Loan Documents merge into this Agreement shall not affect and the validity or enforceability of any other provision hereof, which shall remain in full force and effect. Loan Documents.

(f) 12.7 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.8 Survival. All covenants, representations and warranties made in this Agreement continue in full force and effect until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been satisfied. The obligation of Borrower in Section 12.2 to indemnify each Lender and Collateral Agent, as well as the confidentiality provisions in Section 12.8 below, shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.9 Confidentiality. In handling any confidential information each of Borrower, the Lenders and Collateral Agent shall exercise the same degree of care that it exercises for their own proprietary information, but disclosure of information may be made: (a) subject to the terms and conditions of this Agreement, to the Lenders' and Collateral Agent's Subsidiaries or Affiliates; (b) to prospective transferees (other than those identified in (a) above) or purchasers of any interest in the Term Loan (provided, however, the Lenders and Collateral Agent shall, except upon the occurrence and during the continuance of an Event of Default, obtain such prospective transferee's or purchaser's agreement to the terms of this provision or to similar confidentiality terms); (c) as required by law, regulation, subpoena, or other order; (d) to Lenders' or Collateral Agent's regulators (including any self-regulatory authority) or as otherwise required in connection with an examination or audit; (e) in exercising remedies under the Loan Documents or in connection with any suit, action or proceeding relating to this Agreement, any other Loan Document or the enforcement of rights hereunder or the defense of any claim, suit, action or proceeding; (f) with the consent of the Borrower, and (g) to third party service providers of the Lenders and/or Collateral Agent so long as such service providers have executed a confidentiality agreement or have agreed to similar confidentiality terms with the Lenders and Collateral Agent with terms no less restrictive than those contained herein. Confidential information does not include information that either: (i) is in the public domain or in the Lenders' and/or Collateral Agent's possession when disclosed to the Lenders and/or Collateral Agent, or becomes part of the public domain after disclosure to the Lenders and/or Collateral Agent at no fault of the Lenders or Collateral Agent; or (ii) is disclosed to the Lenders and/or Collateral Agent by a third party, if the Lenders and/or Collateral Agent does not know that the third party is prohibited from disclosing the information; or (iii) is independently developed by such Person other than as a result of a breach of this Section 12.8. Collateral Agent and the Lenders may use confidential information for any purpose, including, without limitation, for the development of client databases, reporting purposes, and market analysis. The provisions of the immediately preceding sentence shall survive the termination of this Agreement. The agreements provided under this Section 12.8 supersede all prior agreements, understanding, representations, warranties, and negotiations between the parties about the subject matter of this Section 12.8.

12.10 Limitations of Damages. In no event shall Lenders or Collateral Agent ever be liable to Borrower, nor shall Borrower be liable to Collateral Agent or any Lender for (i) special, consequential, incidental, or other such damages arising from or related to the Term Loans or any of the Loan Documents, or (ii) punitive, exemplary, or other such damages arising from or related to the Term Loans or any of the Loan Documents.

12.11 Waiver as to Assignees. To the fullest extent permitted by Section 9-403 of the UCC, Borrower agrees not to assert against an assignee of any of the Obligations any claim or defense that they may have against Collateral Agent or a Lender.

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12.12 Right of Set Off. Borrower hereby grants to Collateral Agent and to each Lender, a lien, security interest and right of set off as security for all Obligations to Collateral Agent and each Lender hereunder, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Collateral Agent or the Lenders or any entity under the control of Collateral Agent or the Lenders (including a Collateral Agent affiliate) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Collateral Agent or the Lenders may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE COLLATERAL AGENT TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED BY BORROWER.

12.13 Cooperation of Borrower. If necessary, Borrower agrees to (i) execute any documents reasonably required to effectuate and acknowledge each assignment of a Term Loan Commitment or Term Loan to an assignee in accordance with Section 12.1, (ii) make Borrower's management available to meet with Collateral Agent and prospective participants and assignees of Term Loan Commitments (which meetings shall be conducted no more often than twice every twelve months unless an Event of Default has occurred and is continuing), and (iii) assist Collateral Agent or the Lenders in the preparation of information relating to the financial affairs of Borrower as any prospective participant or assignee of a Term Loan Commitment or Term Loan reasonably may request. Subject to the provisions of Section 12.9, Borrower authorizes each Lender to disclose to any prospective participant or assignee of a Term Loan Commitment, any and all information in such Lender's possession concerning Borrower and its financial affairs which has been delivered to such Lender by or on behalf of Borrower pursuant to this Agreement, or which has been delivered to such Lender by or on behalf of Borrower in connection with such Lender's credit evaluation of Borrower prior to entering into this Agreement.

12.14 Public Announcement. Borrower hereby agrees that Collateral Agent and each Lender may make a public announcement of the transactions contemplated by this Agreement, and may publicize the same in marketing materials, newspapers and other publications, and otherwise, and in connection therewith may use Borrower's name, tradenames and logos.

12.15 Collateral Agent and Lender Agreement. Collateral Agent and each Lender hereby agree to the terms and conditions set forth on Annex I attached hereto. Borrower acknowledges and agrees to the terms and conditions set forth on Annex I attached hereto.

12.16 Borrower Liability. Any Borrower may, acting singly, request Credit Extensions hereunder. Each Borrower hereby appoints the other as agent for the other for all purposes hereunder, including with respect to requesting Credit Extensions hereunder. Each Borrower hereunder shall be jointly and severally obligated to repay all Credit Extensions made hereunder, regardless of which Borrower actually receives said Credit Extension, as if each Borrower hereunder directly received all Credit Extensions. Each Borrower waives (a) any suretyship defenses available to it under the Code or any other applicable law, and (b) any right to require Collateral Agent or any Lender to: (i) proceed against any Borrower or any other person; (ii) proceed against or exhaust any security; or (iii) pursue any other remedy. Collateral Agent and or any Lender may exercise or not exercise any right or remedy it has against any Borrower or any security it holds (including the right to foreclose by judicial or non-judicial sale) without affecting any Borrower's liability. Notwithstanding any other provision of this Agreement or other related document, each Borrower (i) irrevocably waives all rights that it may have at law or in equity subrogating Borrower to the rights of Collateral Agent and the Lenders under this Agreement or otherwise allowing Borrower to benefit from, or to participate in, any security for the Obligations and (ii) waives, until the Obligations have been paid in full, all rights that it may have at law or in equity to seek contribution, indemnification or any other form of reimbursement from any other Borrower, or any other Person now or hereafter primarily or secondarily liable for any of the Obligations, for any payment made by Borrower with respect to the Obligations in connection with this Agreement or otherwise. Any agreement providing for indemnification, reimbursement or any other arrangement prohibited or limited under this Section shall be null and void to the extent of such prohibition or limitation. If any payment is made to a Borrower in contravention of this Section, such Borrower shall hold such payment in trust for Collateral Agent and the Lenders and such payment shall be promptly delivered to Collateral Agent for application to the Obligations, whether matured or unmatured.

13. DEFINITIONS

As used in this Agreement, the following terms have the following meanings:

"**Account**" is any "account" as defined in the Code.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Affiliate**" means, with respect to a specified Person, another Person that, directly or indirectly through one or more intermediaries, (i) Controls or is Controlled by, or is under common Control with, the Person specified, (ii) owns, is owned by, or is under common ownership with, the Person specified, as to more than ten percent (10%) of voting equity or of equity value, or (iii) has a Managing Role with respect to the Person specified or with another Person that is an Affiliate of the specified Person by operation of subsection (i) of this definition.

"**Amortization Date**" is the earliest of (i) an Event of Default occurring and (ii)(x) March 1, 2027, or (y) if the I/O Extension Event occurs, March 1, 2028.

"**Annual Projections**" is defined in Section 6.2(a)(iii).

"**Anti-Terrorism Laws**" are any laws relating to terrorism or money laundering, including without limitation Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

"**Basic Rate**" is with respect to each Term Loan, the floating per annum rate of interest (based on a year of three hundred sixty five (365) days) equal to the sum of (a) the greater of (i) Prime Rate, subject to Section 2.3(f), and (ii) seven and one half percent (7.50%), plus (b) three and one quarter percent (3.25%).

"**Blocked Person**" is any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law, (d) a Person that commits, threatens or conspires to commit or supports "terrorism" as defined in Executive Order No. 13224, or (e) a Person that is named a "specially designated national" or "blocked person" on the most current list published by OFAC or other similar list.

"**Borrower's Books**" are Borrower's or any of its Subsidiaries' books and records including ledgers, federal, and state tax returns, records regarding Borrower's or its Subsidiaries' assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Collateral Agent is closed.

"**Cash Equivalents**" are (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc., and (c) certificates of deposit maturing no more than one (1) year after issue provided that the account in which any such certificate of deposit is maintained is subject to a Control Agreement in favor of Collateral Agent.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of New York; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; providedfurther, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Collateral Agent's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of New York, the term "**Code**" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account, or any other bank account maintained by Borrower or any Subsidiary at any time.

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"**Commitment Percentage**" is set forth in Schedule 1.1, as amended from time to time.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made under the Code, except for deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's, or any of its Subsidiaries', employees and identified to Collateral Agent by Borrower as such in the Perfection Certificate.

"**Compliance Certificate**" is that certain certificate in substantially the form attached hereto as Exhibit C.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another Person such as an obligation directly or indirectly guaranteed, endorsed, co made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control**" means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a Person, whether through the ability to exercise voting power, by contract or otherwise. "Controlling" and "Controlled" have meanings analogous thereto.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower or any of its Subsidiaries maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower or any of its Subsidiaries maintains a Securities Account or a Commodity Account, Borrower and such Subsidiary, and Collateral Agent pursuant to which Collateral Agent, for the benefit of the Lenders, obtains "control" (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" means an advance of funds under a Term Loan.

"**Default**" means an event that with the passage of time could result in an Event of Default.

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Deprioritized Biotherapeutics**" are [*].

"**Deprioritized Life Science Enzymes**" are [*].

"**Disbursement Letter**" is that certain form attached hereto as Exhibit B-2.

"**DOJ**" means the U.S. Department of Justice or any successor thereto or any other comparable Governmental Authority.

"**Dollars**," "dollars" and "$" each mean lawful money of the United States.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, and vehicles (including motor vehicles and trailers) not held for sale or lease, and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, as amended, and its regulations.

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"**Excluded Account**" means (i) deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's, or any of its Subsidiaries' employees, (ii) collateral accounts permitted under clause (l) of the definition of Permitted Liens, in each case identified to Collateral Agent by Borrower as such, and (iii) any other deposit account of Borrower or any Subsidiary which Collateral Agent agrees in its discretion may be deemed an original, but "Excluded Account".

"**Exigent Circumstance**" means any event or circumstance that, in the reasonable judgment of Collateral Agent, imminently threatens the ability of Collateral Agent to realize upon all or any material portion of the Collateral, such as, without limitation, fraudulent removal, concealment, or abscondment thereof, destruction or material waste thereof, or failure of Borrower or any of its Subsidiaries after reasonable demand to maintain or reinstate adequate casualty insurance coverage, or which, in the judgment of Collateral Agent, could reasonably be expected to result in a material diminution in value of the Collateral.

"**Facility Fee**" is a fee due on each Funding Date, an amount equal to 1.00% of the amount of Term Loan funded on such Funding Date, payable to the Lenders in accordance with their respective Pro Rata Shares.

"**FDA**" means the U.S. Food and Drug Administration or any successor thereto or any other comparable Governmental Authority.

"**Final Fee**" is a payment (in addition to and not a substitution for the regular monthly payments of principal or accrued interest or any other fee payable hereunder) due on the earliest to occur of (a) the Maturity Date, or (b) the acceleration of any Term Loan, or (c) the prepayment of the Term Loan pursuant to Section 2.2(c) or (d), in each case equal to three percent (3.00%) *multiplied* by the aggregate amount of the Term Loans funded under this Agreement, payable to Lenders in accordance with their respective Pro Rata Shares.

"**Foreign Subsidiary**" is a Subsidiary that is not an entity organized under the laws of the United States or any state thereof.

"**Funding Date**" is any date on which the Term Loan is made to or on account of Borrower, which shall be a Business Day.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession in the United States, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" are all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, any trade secret rights, including any rights to unpatented inventions, payment intangibles, royalties, contract rights, goodwill, franchise agreements, purchase orders, customer lists, route lists, telephone numbers, domain names, claims, income and other tax refunds, security and other deposits, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body (including, without limitation, the FDA and any state board of pharmacy or state pharmacy licensing authority), court, central bank, arbitration authority, or other entity exercising executive, legislative, judicial, quasi-judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Guarantor**" is any Person providing a Guaranty in favor of Collateral Agent for the benefit of the Lenders.

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"**Guaranty**" is any guarantee of all or any part of the Obligations, as the same may from time to time be amended, restated, modified or otherwise supplemented.

"**I/O Extension Event**" means Borrower has achieved, prior to March 1, 2027, trailing twelve months of Operating Cash Flow greater than $0.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, excluding unsecured trade payables arising in the ordinary course of business, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions or proceedings seeking reorganization, arrangement, or other relief.

"**Insolvent**" means not Solvent.

"**Intellectual Property**" means all of Borrower's or any of its Subsidiaries' right, title and interest in and to the following:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know how, operating manuals;

(c) any and all source code;

(d) any and all design rights which together will constitute may be available to Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above;

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents; and

(g) all licenses, sublicenses or other contracts under which Borrower or any Subsidiary is granted rights by third parties in any Intellectual Property asset.

"**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made under the Code, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of any Person's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

"**IP Security Agreement**" is that certain Intellectual Property Security Agreement executed and delivered by Borrower to Collateral Agent and dated as of the Effective Date, as may be amended, restated, or otherwise modified or supplemented from time to time.

"**Issuer**" means an issuer of Shares.

"**Key Person**" is each of Borrower's (i) [*], (ii) [*]and (iii) [*].

"**Knowledge**" means to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

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"**Lender**" is any one of the Lenders.

"**Lenders**" are the Persons identified on Schedule 1.1 hereto and each assignee that becomes a party to this Agreement pursuant to Section 12.1.

"**Lenders' Expenses**" are all reasonable and documented audit fees and expenses, costs, and expenses (including reasonable and documented out-of-pocket attorneys' fees and expenses, as well as appraisal fees, fees incurred on account of lien searches, inspection fees, auditor fees and filing fees) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred by Collateral Agent and/or the Lenders in connection with the Loan Documents.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest, or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement, the IP Security Agreement, each Secured Promissory Note, each Warrant, the Perfection Certificate(s), each Control Agreement, each Compliance Certificate, each Loan Payment Request Form, each Disbursement Letter, any subordination agreements, any note, or notes or guaranties executed by Borrower or any other Person, and any other present or future agreement entered into by Borrower, any Guarantor or any other Person for the benefit of the Lenders and Collateral Agent in connection with this Agreement; all as amended, restated, or otherwise modified or supplemented from time to time.

"**Loan Party**" or "**Loan Parties**" means each Borrower and each Guarantor.

"**Loan Payment Request Form**" is that certain form attached hereto as Exhibit B-1.

"**Management Plan**" is Borrower's projected revenue provided to Collateral Agent as of the Effective Date, as such Management Plan may be updated from time to time in accordance with Section 8.2.

"**Managing Role**" means a managing member, manager, director, executive officer, or other role with senior management responsibilities as to a Person.

"**Market Capitalization**" means, with respect to Borrower, as of any date of determination, an amount equal to the closing price (or 30-day volume weighted average price where specified) of Borrower's common shares multiplied by the total outstanding common shares of Borrower as of such date.

"**Material Adverse Change**" is an event or circumstance that, either individually or in the aggregate, has had or could reasonably be expected to have a Material Adverse Effect.

"**Material Adverse Effect**" is (a) a material adverse change in, or a material adverse effect on, the operations, business, properties, liabilities (actual or contingent), condition (financial or otherwise), or prospects of Borrower or any Subsidiary or guarantor of the Obligations, including such changes affecting Borrower that result from matters that generally affect the industries and markets in which Borrower operates, such as changes in financial markets or general economic conditions and outbreak or escalation of war or major hostilities or epidemic or acts of terrorism, or (b) a material adverse effect on (i) the ability of Borrower to timely perform its Obligations including with respect to the Collateral, (ii) the legality, validity, binding effect, or enforceability against Borrower of any Loan Document to which it is a party or (iii) the rights, remedies and benefits available to, or conferred upon, Collateral Agent or any Lender under any Loan Documents.

"**Material Agreement**" is any license, agreement or other contractual arrangement with any Person (i) whereby Borrower or any of its Subsidiaries is or is reasonably likely to pay or receive aggregate consideration on or after the Effective Date equal to at least $5,000,000, (ii) that is otherwise material to the business, condition (financial or otherwise), operations, performance, properties, or prospects of Borrower or any Subsidiary such that the termination thereof of or default thereunder by any Person would reasonably be expected to have a Material Adverse Effect.

"**Maturity Date**" is February 13, 2029.

"**Net Product Revenue**" is the sum, as of any period of determination, of (i) consolidated product revenue determined in accordance with GAAP for such period and (ii) revenue from licensing, royalties, collaboration and

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partnership transactions for such period related to Borrower's ECO Synthesis and CodeEvolver platforms, or other partnered enzymes that may not be accounted for as product revenue under GAAP (but otherwise determined in accordance with GAAP); provided that Net Product Revenue excludes Research and Development Revenue and Paxlovid Revenue.

"**Obligations**" are all of Borrower's obligations to pay when due any debts, principal, interest, make-whole amount, Lenders' Expenses, the Prepayment Fee, the Final Fee, and other amounts Borrower owes the Lenders now or later, in connection with, related to, following, or arising from, out of or under, this Agreement or the other Loan Documents (other than the Warrant), or otherwise, and including interest and other amounts accruing after Insolvency Proceedings begin (whether or not allowed) and debts, liabilities, or obligations of Borrower assigned to the Lenders and/or Collateral Agent, and the performance of Borrower's duties under the Loan Documents (other than the Warrant).

"**OFAC**" is the U.S. Department of Treasury Office of Foreign Assets Control.

"**OFAC Lists**" are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

"**Operating Cash Flow**" is, for any period, cash flow from operations including capital expenditures for such period, determined in accordance with GAAP.

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, re-examination certificates, utility models, extensions and continuations-in-part of the same.

"**Paxlovid Revenue**" is the retainer fee to the extent recognized as revenue on Borrower's statement of operations prepared in accordance with GAAP arising out of the sale of CDX-616 to Pfizer Inc. and its affiliates for the manufacture of Paxlovid (including any such revenue recognized in respect of that certain Enzyme Supply Agreement, dated July 14, 2022, between Borrower and Pfizer Ireland Pharmaceuticals, as amended, restatement, replaced, supplemented or otherwise modified from time to time).

"**Payment Date**" is the first (1st) calendar day of each calendar month, commencing on March 1, 2024.

"**Permitted Exclusive Licenses**" are (i) exclusive licenses existing as of the Effective Date and disclosed to Lender in the Perfection Certificate, including any extensions, renewals, and replacements thereof, (ii) [*], (iii) [*], (iv) [*], and (v) [*].

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to the Lenders and Collateral Agent under this Agreement and the other Loan Documents;

(h) Indebtedness existing on the Effective Date and disclosed on the Perfection Certificate(s);

(i) Subordinated Debt;

(j) Indebtedness in connection with credit cards incurred in the ordinary course of business;

(k) Indebtedness consisting of capitalized lease obligations and purchase money Indebtedness, in each case incurred by Borrower or any of its Subsidiaries to finance the acquisition, repair, improvement or construction of fixed or capital assets of such Person, provided that (i) the aggregate outstanding

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principal amount of all such Indebtedness does not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any time and (ii) the principal amount of such Indebtedness does not exceed the lower of the cost or fair market value of the property so acquired or built or of such repairs or improvements financed with such Indebtedness (each measured at the time of such acquisition, repair, improvement or construction is made);

(l) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of Borrower's business;

(m) Indebtedness consisting of letters of credit in an amount not to exceed Five Hundred Thousand Dollars ($500,000) in the aggregate at any time;

(n) Intercompany indebtedness constituting a Permitted Investment;

(o) guarantees of Permitted Indebtedness;

(p) unsecured Indebtedness in an aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000) at any time; and

(q) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (j) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose materially more burdensome terms upon Borrower, or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments disclosed on the Perfection Certificate(s) and existing on the Effective Date;

(b) Investments consisting of cash and Cash Equivalents, and any Investments permitted by Borrower's investment policy, as amended from time to time, provided that such investment policy (and any such amendment thereto) has been approved in writing by Collateral Agent;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower;

(d) Investments consisting of Excluded Accounts and Deposit Accounts in which Collateral Agent has a perfected security interest;

(e) Investments in connection with Transfers permitted by Section 7.1;

(f) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by Borrower's board of directors, not to exceed One Hundred Seventy Five Thousand Dollars ($175,000.00) in the aggregate for (i) and (ii) in any fiscal year;

(g) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(h) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (h) shall not apply to Investments of Borrower in any Subsidiary;

(i) Investments (i) by a Loan Party in another Loan Party, (ii) by a Subsidiary that is not a Loan Party in a Loan Party, (iii) by a Loan Party in Subsidiaries (other than Subsidiaries existing on the Effective Date that are not Loan Parties), that are not Loan Parties in an aggregate amount not to exceed Fifty Thousand Dollars ($50,000.00) per fiscal year;

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(j) cash Investments in joint ventures or strategic alliances in an amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in any fiscal year and One Million Dollars ($1,000,000.00) in the aggregate;

(k) non-cash Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the non-exclusive licensing of technology, the development of technology or the providing of technical support; and

(l) other Investments not exceeding Five Hundred Thousand Dollars ($500,000) in the aggregate in any fiscal year of Borrower.

"**Permitted Licenses**" are (A) licenses of over-the-counter software that is commercially available to the public, (B) non-exclusive licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries related to ECO Synthesis and CodeEvolver platforms entered into in the ordinary course of business, (C) Permitted Exclusive Licenses, (D) any other licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries consented to by the Required Lenders (which shall not be unreasonably withheld), and (E) non-exclusive intercompany licenses, sublicenses or grants of rights for development, manufacture, production, commercialization (including commercial sales to end users), marketing, promotion, co-promotion, sales or distribution, in each case, solely among the Loan Parties; provided, that, with respect to each such license described in clauses (B), (C) or (D), the license constitutes an arm's-length transaction, the terms of which, on their face, do not provide for a sale or assignment of such Intellectual Property that would result in or the equivalent of a transfer of title of such Intellectual Property, and do not restrict the ability of Borrower or any of its Subsidiaries, as applicable, to (i) pledge, grant a security interest in or lien on, or assign or otherwise Transfer any Intellectual Property or (ii) grant a security interest to Collateral Agent therein.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and disclosed on the Perfection Certificates or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on Borrower's Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) liens securing Indebtedness permitted under clause (e) of the definition of "Permitted Indebtedness," provided that (i) such liens exist prior to the acquisition of, or attach substantially simultaneous with, or within twenty (20) days after the, acquisition, lease, repair, improvement or construction of, such property financed or leased by such

Indebtedness and (ii) such liens do not extend to any property of Borrower other than the property (and proceeds thereof) acquired, leased or built, or the improvements or repairs, financed by such Indebtedness;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed Three Hundred Fifty Thousand Dollars ($350,000.00), and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) servitudes, easements, rights of way, restrictions and other similar encumbrances on real property imposed by applicable laws and encumbrances consisting of zoning or building restrictions, easements, licenses, restrictions on the use of property or minor imperfections in title thereto which, in the aggregate, are not material, and which do not in any case materially detract from the value of the property subject thereto or interfere with the ordinary conduct of the business;

(g) deposits or pledges of cash to secure bids, tenders, contracts (other than contracts for the payment of money), leases, surety and appeal bonds and other obligations of a like nature arising in the ordinary

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course of business, in an aggregate amount not exceeding Two Hundred and Fifty Thousand Dollars ($250,000) at any time;

(h) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(i) leases or subleases of real property granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases, non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Collateral Agent or any Lender a security interest in such license;

(j) banker's liens, rights of setoff and Liens in favor of financial institutions incurred in the ordinary course of business arising in connection with Borrower's deposit accounts or securities accounts held at such institutions solely to secure payment of fees and similar costs and expenses and provided such accounts are maintained in compliance with Section 6.6 hereof;

(k) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 8.4 or 8.7;

(l) Liens securing Indebtedness described in clause (g) of the definition of "Permitted Indebtedness"; and

(m) Permitted Licenses.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or Governmental Authority.

"**Prepayment Fee**" is, with respect to any Term Loan subject to prepayment prior to the Maturity Date, whether by mandatory or voluntary prepayment, acceleration or otherwise, an additional fee payable to the Lenders in amount equal to:

(a) for a prepayment made on or after the Effective Date through and including the first anniversary of the Effective Date, three percent (3.00%) of the principal and accrued interest amount of the Term Loan prepaid; provided, however, no voluntary prepayment may be made during such period;

(b) for a prepayment made after the date which is the first anniversary of the Effective Date through and including the date which is the second anniversary of the Effective Date, two percent (2.00%) of the principal and accrued interest amount of the Term Loan prepaid; and

(c) for a prepayment made after the date which is the second anniversary of the Effective Date through and including the date which is the third anniversary of the Effective Date, one percent (1.00%) of the principal and accrued interest amount of the Term Loan prepaid; and

(d) for a prepayment made after the date which is the third anniversary of the Effective Date and prior to the Maturity Date, zero percent (0.00%) of the principal and accrued interest amount of the Term Loan prepaid.

"**Prime Rate**" is the Prime Rate published in the Money Rates section of The Wall Street Journal.

"**Property**" means any interest in any kind of property or asset, whether real, personal or mixed, and whether tangible or intangible.

"**Pro Rata Share**" is, as of any date of determination, with respect to each Lender, a percentage (expressed as a decimal, rounded to the ninth decimal place) determined by dividing the outstanding principal amount of the Term Loan held by such Lender by the aggregate outstanding principal amount of the Term Loan.

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"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Registration**" means any registration, authorization, approval, license, permit, clearance, certificate, and exemption issued or allowed by the FDA or state pharmacy licensing authorities (including, without limitation, new drug applications, abbreviated new drug applications, biologics license applications, investigational new drug applications, over-the-counter drug monograph, device pre-market approval applications, device pre-market notifications, investigational device exemptions, product recertifications, manufacturing approvals, registrations and authorizations, CE Marks, pricing and reimbursement approvals, labeling approvals or their foreign equivalent, controlled substance registrations, and wholesale distributor permits).

"**Regulatory Action**" means an administrative, regulatory, or judicial enforcement action, proceeding, investigation or inspection, FDA Form 483 notice of inspectional observation, warning letter, untitled letter, other notice of violation letter, recall, seizure, Section 305 notice or other similar written communication, injunction or consent decree, issued by the FDA or a federal or state court.

"**Related Persons**" means, with respect to any Person, each Affiliate of such Person and each director, officer, employee, agent, trustee, representative, attorney, accountant and each insurance, environmental, legal, financial and other advisor and other consultants and agents of or to such Person or any of its Affiliates.

"**Required Lenders**" means (i) for so long as all of the Persons that are Lenders on the Effective Date (each an "**Original Lender**") have not assigned or transferred any of their interests in the Term Loan, Lenders holding one hundred percent (100%) of the aggregate outstanding principal balance of the Term Loan, or (ii) at any time from and after any Original Lender has assigned or transferred any interest in its Term Loan, Lenders holding at least fifty one percent (51%) of the aggregate outstanding principal balance of the Term Loan.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Research and Development Revenue**" is all research services fees classified as research and development revenue on Borrower's statement of operations prepared in accordance with GAAP.

"**Responsible Officer**" is any of the [*].

"**Secured Promissory Note**" is defined in Section 2.6.

"**Secured Promissory Note Record**" is a record maintained by each Lender with respect to the outstanding Obligations owed by Borrower to Lender and credits made thereto.

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Shares**" is one hundred percent (100.00%) of the stock, units or other evidence of ownership held by Borrower or its Subsidiaries of any Subsidiary; provided, however, as to any stock, units or other evidence of ownership held by Borrower or its Subsidiary in a Foreign Subsidiary, "Shares" shall be limited to the greater of sixty-five percent (65%) of the Foreign Subsidiary or the maximum portion thereof that may from time to time be pledged without causing a material adverse tax consequence to Borrower.

"**Solvent**" is, with respect to any Person: the fair salable value of such Person's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of such Person's liabilities; such Person is not left with unreasonably small capital after the transactions in this Agreement; and such Person is able to pay its debts (including trade debts) as they mature in the ordinary course (without taking into account any forbearance and extensions related thereto).

"**Subordinated Debt**" is indebtedness incurred by Borrower or any of its Subsidiaries subordinated to all Indebtedness of Borrower and/or its Subsidiaries to the Lenders (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Collateral Agent and the Lenders entered into between

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Collateral Agent, Borrower, and/or any of its Subsidiaries, and the other creditor), on terms acceptable to Collateral Agent and the Lenders, as determined in their sole discretion.

"**Subsidiary**" is, with respect to any Person, any Person of which more than fifty percent (50%) of the voting stock or other equity interests (in the case of Persons other than corporations) is owned or controlled, directly or indirectly, by such Person or through one or more intermediaries. Unless otherwise specified, references herein to a Subsidiary means a Subsidiary of Borrower.

"**Term Loan**" is defined in Section 2.2(a)(ii).

"**Term A Loan**" is defined in Section 2.2(a)(i).

"**Term B Loan**" is defined in Section 2.2(a)(ii).

"**Term B Draw Period**" means the period commencing on the later of January 1, 2025 and the first date on which Borrower achieves the Term B Milestone and ending on the earlier of (i) June 30, 2025 or (ii) the occurrence of an Event of Default (unless such Event of Default is waived by Collateral Agent and Lenders for the purposes of the continuation of the Term B Draw Period); provided, however, that the Term B Draw Period shall not commence if when Borrower achieves the Term B Milestone, an Event of Default has occurred and is continuing.

"**Term B Milestone**" is the achievement by Borrower of (i) TTM Net Product Revenue of [*], and (ii) the pro forma, after giving effect to the Term B Loan, ratio of aggregate amount of Indebtedness of Borrower to its then Market Capitalization (based on a 30-day volume weighted average price) equal to twenty five percent (25.00%) or less.

"**Term Loan Commitment**" is, for any Lender, the obligation of such Lender to make the Term Loan, up to the principal amount shown on Schedule 1.1. "**Term Loan Commitments**" means the aggregate amount of such commitments of all Lenders.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same instrument. and like protections, and the entire goodwill of the business of Borrower and each of its Subsidiaries connected with and symbolized by such trademarks.

"**TTM Net Product Revenue**" means trailing twelve (12) months' Net Product Revenue, as of any date of determination.

"**Warrant**" means any of that certain Warrant to Purchase Stock dated the Effective Date issued by Borrower in favor of each Lender or such Lender's Affiliates or any other warrant entered into in connection with the Term Loan, all as may be amended, restated, or otherwise modified or supplemented from time to time.

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[Signature page follows]

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IN WITNESS WHEREOF each of, the parties has executed hereto have caused this Agreement in the case of the Company by its duly authorized officer, to be executed as of the day and year set forth below. Effective Date.

BORROWER:

CODEXIS, INC.

By:
By /s/ Sri Ryali
Name: Stephen Dilly Sri Ryali
Title: President and CEO
Date: Chief Financial Officer

COLLATERAL AGENT AND LENDER:

EXECUTIVE INNOVATUS LIFE SCIENCES LENDING FUND I, LP

By: Innovatus Life Sciences GP, LP
Its: General Partner

By /s/ Sri Ryali Andy Dym
Sri Ryali Name: Andy Dym
Date: 12/30/2022 Title: Authorized Signer

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SCHEDULE 1.1

Lenders and Commitments

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EXHIBIT A

Description of Collateral

The Collateral consists of all of Borrower's presently owned and hereafter acquired or arising right, title and interest in and to following personal property and fixtures:

All goods, Accounts (including health care insurance receivables), Equipment, fixtures, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (including Intellectual Property, payment intangibles, and software), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, money, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit (whether or not the letter of credit is evidenced by a writing) and letter-of-credit rights, investment property (including certificated securities, uncertificated securities, securities entitlements, securities accounts, commodity contracts, and commodity accounts), supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral shall not include: (i) any interest of a Loan Party as a lessee under an Equipment lease if such Loan Party is prohibited by the terms of such lease from granting a security interest in such lease or under which such an assignment or Lien would cause a default to occur under such lease; provided, however, that upon termination of such prohibition, such interest shall immediately become Collateral without any action by any Loan Party or Lender, (ii) Equipment that is subject to a Permitted Lien in connection with the financing of such Equipment if the holder of such Lien has prohibited in writing the applicable Loan Party from granting Liens on such property in favor of third parties; provided that immediately upon the ineffectiveness, lapse or termination of any such provision, the term "Collateral" shall automatically include, and the applicable Loan Party shall be deemed to have granted a security interest in, all of its rights, title and interests in and to such property as if such provision had never been in effect, (iii) any Excluded Accounts, (iv) the equity interests in any joint venture where the pledge of such equity interests would be prohibited by any applicable contractual requirement pertaining to any such joint venture, or (v) any leases, licenses, permits or agreements to which Borrower is a party, or any of its right, title or interest thereunder, to the extent that, and for so long as, a grant of a security interest therein would, under the express terms of such lease, license, permit or agreement, result in a breach of the terms of, constitute a default under or create a right of termination in favor of any party thereto (other than Borrower) under, such lease, license, permit or agreement (other than to the extent that any such term (a) has been waived or (b) would be rendered ineffective pursuant to Sections 9-406, 9-407, 9-408, 9-409 of the UCC or other applicable provisions of the UCC of any relevant jurisdiction or any other applicable law or principles of equity); provided, however, that (x) the Collateral shall include (and such security interest shall attach) immediately upon the ineffectiveness, lapse, termination or waiver of such provision and (y) the Collateral shall include all proceeds arising under or from any such lease, license, permit or contract.

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EXHIBIT B-1

Loan Payment Request Form

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EXHIBIT B-2

Form of Disbursement Letter

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EXHIBIT C-1

Compliance Certificate

[*]

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Exhibit C-2

Loan Confirmation

[*]

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EXHIBIT D

Form of Secured Promissory Note

[see attached]

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SECURED PROMISSORY NOTE
(Term [A][B] Loan)

$_____ Dated: [_____], 2024

FOR VALUE RECEIVED, the undersigned, CODEXIS, INC., a Delaware corporation ("**Borrower**") HEREBY PROMISES TO PAY to the order of INNOVATUS LIFE SCIENCES LENDING FUND I, LP ("**Lender**") the principal amount of [_____] MILLION DOLLARS ($_____) or such lesser amount as shall equal the outstanding principal balance of the Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated February 13, 2024 by and among Borrower, Lender, INNOVATUS LIFE SCIENCES LENDING FUND I, LP, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Term [A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2(c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Term [A][B] Loan, interest on the Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of New York.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

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IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

CODEXIS, INC.

By
Name:
Title:

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EXHIBIT E
CORPORATE BORROWING CERTIFICATE

[*]

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ANNEX I

Collateral Agent and Lender Terms

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ANNEX Y

LOAN INTEREST RATE AND PAYMENT OF PRINCIPAL
(Term Loan)

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SCHEDULE 6.12

NET PRODUCT REVENUE COVENANT

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SCHEDULE 6.13

LIQUIDITY COVENANT

Signature Page to Change of Control Severance Agreement [*]

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

Codexis, Inc.
Redwood City, California

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-255926) and Form S-8 (Nos. (No. 333-167752, 333-172166, 333-179903, 333-187711, 333-194524, 333-202596, 333-210022, 333-216587, 333-223693, 333-224885, 333-230037, 333-232262, 333-269163, 333-273661, and 333-269163) 333-273662) of Codexis, Inc. of our reports dated February 27, 2023 February 28, 2024, relating to the consolidated financial statements, and the effectiveness of Codexis, Inc.'s the Company's internal control over financial reporting, which appear in this Annual Report on Form 10-K.

/s/ BDO USA, LLP P.C.
San Jose, California Francisco, CA

February 27, 2023 28, 2024

Exhibit 31.1

CERTIFICATION

I, Stephen Dilly, certify that:

1. I have reviewed this Annual Report on Form 10-K of Codexis, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2023 February 28, 2024

/s/Stephen Dilly
Stephen Dilly
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Sriram Ryali, certify that:

1. I have reviewed this Annual Report on Form 10-K of Codexis, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2023 February 28, 2024

/s/Sriram Ryali

Sriram Ryali

Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Codexis, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2022 December 31, 2023, as filed with the Securities and Exchange Commission (the "Report"), Stephen Dilly, President and Chief Executive Officer of the Company and Sriram Ryali, Chief Financial Officer of the Company, respectively, do each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 27, 2023 February 28, 2024

/s/Stephen Dilly

Stephen Dilly

President and Chief Executive Officer

/s/Sriram Ryali

Sriram Ryali

Chief Financial Officer

CODEXIS, INC.
POLICY ON RECOUPMENT OF INCENTIVE COMPENSATION

Introduction

The Board of Directors (the "***Board***") of Codexis, Inc. (the "***Company***") has adopted this Policy on Recoupment of Incentive Compensation (this "***Policy***"), which provides for the recoupment of compensation in certain circumstances in the event of a restatement of financial results by the Company.This Policy shall be interpreted to comply with the requirements of U.S. Securities and Exchange Commission ("***SEC***") rules and Nasdaq Stock Market ("***Nasdaq***") listing standards implementing Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "***Dodd-Frank Act***") and, to the extent this Policy is in any manner deemed inconsistent with such rules, this Policy shall be treated as retroactively amended to be compliant with such rules.

Administration

This Policy shall be administered by the Compensation Committee (the "***Compensation Committee***") of the Board. Any determinations made by the Compensation Committee shall be final and binding on all affected individuals. The Compensation Committee is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate or advisable for the administration of this Policy, in all cases consistent with the Dodd-Frank Act. The Board or Compensation Committee may amend this Policy from time to time in its discretion.

Covered Executives

This Policy applies to any current or former "executive officer," within the meaning of Rule 10D-1 under the Securities Exchange Act of 1934, as amended, of the Company or a subsidiary of the Company (each such individual, an "***Executive***"). This Policy shall be binding and enforceable against all Executives and their beneficiaries, executors, administrators, and other legal representatives.

Recoupment Upon Financial Restatement

If the Company is required to prepare an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (a "***Financial Restatement***"), the Compensation Committee shall cause the Company to recoup from each Executive, as promptly as reasonably possible, any erroneously awarded Incentive-Based Compensation, as defined below.

No-Fault Recovery

Recoupment under this Policy shall be required regardless of whether the Executive or any other person was at fault or responsible for accounting errors that contributed to the need for the Financial Restatement or engaged in any misconduct.

Compensation Subject to Recovery; Enforcement

This Policy applies to all compensation granted, earned or vested based wholly or in part upon the attainment of any financial reporting measure determined and presented in accordance with

the accounting principles used in preparing the Company's financial statements, and any measure that is derived wholly or in part from such measures, whether or not presented within the Company's financial statements or included in a filing with the SEC, including stock price and total shareholder return ("***TSR***"), including but not limited to performance-based cash, stock, options or other equity-based awards paid or granted to the Executive ("***Incentive-Based Compensation***"). Compensation that is granted, vests or is earned based solely upon the occurrence of non-financial events, such as base salary, restricted stock or options with time-based vesting, or a bonus awarded solely at the discretion of the Board or Compensation Committee and not based on the attainment of any financial measure, is not subject to this Policy.

In the event of a Financial Restatement, the amount to be recovered will be the excess of (i) the Incentive-Based Compensation received by the Executive during the Recovery Period (as defined below) based on the erroneous data and calculated without regard to any taxes paid or withheld, over (ii) the Incentive-Based Compensation that would have been received by the Executive had it been calculated based on the restated financial information, as determined by the Compensation Committee. For purposes of this Policy, "***Recovery Period***" means the three completed fiscal years immediately preceding the date on which the Company is required to prepare the Financial Restatement, as determined in accordance with the last sentence of this paragraph, or any transition period that results from a change in the Company's fiscal year (as set forth in Section 5608(b)(i)(D) of the Nasdaq Listing Rules). The date on which the Company is required to prepare a Financial Restatement is the earlier to occur of (A) the date the Board or a Board committee (or authorized officers of the Company if Board action is not required) concludes, or reasonably should have concluded, that the Company is required to prepare a Financial Restatement or (B) the date a court, regulator, or other legally authorized body directs the Company to prepare a Financial Restatement.

For Incentive-Based Compensation based on stock price or TSR, where the amount of erroneously awarded compensation is not subject to mathematical recalculation directly from the information in the Financial Restatement, then the Compensation Committee shall determine the amount to be recovered based on a reasonable estimate of the effect of the Financial Restatement on the stock price or TSR upon which the Incentive-Based Compensation was received and the Company shall document the determination of that estimate and provide it to Nasdaq.

Incentive-Based Compensation is considered to have been received by an Executive in the fiscal year during which the applicable financial reporting measure was attained or purportedly attained, even if the payment or grant of such Incentive-Based Compensation occurs after the end of that period. The Company may use any legal or equitable remedies that are available to the Company to recoup any erroneously awarded Incentive-Based Compensation, including but not limited to by collecting from the Executive cash payments or shares of Company common stock from or by forfeiting any amounts that the Company owes to the Executive.

No Indemnification

The Company shall not indemnify any Executive or pay or reimburse the premium for any insurance policy to cover any losses incurred by such Executive under this Policy.

Exceptions

The compensation recouped under this Policy shall not include Incentive-Based Compensation received by an Executive (i) prior to beginning service as an Executive or (ii) if he or she did not serve as an Executive at any time during the performance period applicable to the Incentive-

Based Compensation in question. The Compensation Committee (or a majority of independent directors serving on the Board) may determine not to seek recovery from an Executive in whole or part to the extent it determines in its sole discretion that such recovery would be impracticable because (A) the direct expense paid to a third party to assist in enforcing recovery would exceed the recoverable amount (after having made a reasonable attempt to recover the erroneously awarded Incentive-Based Compensation and providing corresponding documentation of such attempt to Nasdaq),

(B) recovery would violate the home country law that was adopted prior to November 28, 2022, as determined by an opinion of counsel licensed in the applicable jurisdiction that is acceptable to and provided to Nasdaq, or (C) recovery would likely cause the Company's 401(k) plan or any other tax-qualified retirement plan to fail to meet the requirements of Section 401(a)(13) or Section 411(a) of the Internal Revenue Code of 1986, as amended, and the regulations thereunder.

Other Remedies Not Precluded

The exercise by the Compensation Committee of any rights pursuant to this Policy shall be without prejudice to any other rights or remedies that the Company, the Board or the Compensation Committee may have with respect to any Executive subject to this Policy.

Effective Date and Applicability

This Policy has been adopted by the Board on August 24, 2023, and shall apply to any Incentive-Based Compensation that is received by an Executive on or after October 2, 2023.

DISCLAIMER

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