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DELTA REPORT

10-K

FULC - FULCRUM THERAPEUTICS, INC

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

The following comparison report has been automatically generated

TOTAL DELTAS	3168
CHANGES	248
DELETIONS	1909
ADDITIONS	1011

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 Number 001-38978

FULCRUM THERAPEUTICS, INC.

(Exact name of registrant as specified in its Charter)

Delaware	**47-4839948**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
26 Landsdowne Street Cambridge, Massachusetts	**02139**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (617) 651-8851

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common stock, par value $0.001 per share	FULC	Nasdaq Global 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 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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "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 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 Exchange Act). YES ☐ NO ☒

As of June 30, 2022 June 30, 2023, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant, based on the closing price of the shares of common stock on the Nasdaq Global Market on June 30, 2022 June 30, 2023, was approximately $136,818,741 163,559,530.

The number of shares of registrant's common stock outstanding as of March 2, 2023 February 20, 2024 was 61,758,994 61,935,171.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive proxy statement pursuant to Regulation 14A relating to the 2022 2024 Annual Meeting of Stockholders within 120 days of the end of the registrant's fiscal year ended December 31, 2022 December 31, 2023. Portions of such definitive proxy statement are incorporated by reference into Part III of this Annual Report on Form 10-K to the extent stated herein.

Table of Contents

In this Annual Report on Form 10-K, unless otherwise stated or as the context otherwise requires, references to "Fulcrum," "Fulcrum Therapeutics," "the Company," "we," "us," "our" and similar references refer to Fulcrum Therapeutics, Inc. together with its consolidated subsidiary. The Fulcrum Therapeutics logo, FulcrumSeek and other trademarks or service marks of Fulcrum Therapeutics, Inc. appearing in this Annual Report on Form 10-K are the property of Fulcrum Therapeutics, Inc. This Annual Report on Form 10-K also contains registered marks, trademarks and trade names of other companies. All other trademarks, registered marks and trade names appearing herein are the property of their respective holders.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements, which reflect our current views with respect to, among other things, our operations and financial performance. All statements other than statements of historical facts contained in this Annual Report on Form 10-K, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans, objectives of management and expected market growth are forward-looking statements. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "might," "outlook," "plan," "potential," "predict," "project," "should," "target," "would," and the negative version of these words and other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words and include, among other statements, statements regarding:

- our ongoing clinical trials of losmapimod;
- our ability to resume clinical trials losmapimod and pociredir (formerly known as FTX-6058), including the effects of FTX-6058 by resolving the full clinical hold placed by the U.S. Food revised inclusion and Drug Administration, or FDA, exclusion criteria on our investigational new drug applicatio or IND, for FTX-6058 on February 23, 2023; trial of pociredir;
- the impact of our organizational streamlining and realignment of resources, including our anticipated cash runway;
- the initiation, timing, progress and results of our drug target discovery screening programs;
- the initiation, timing, progress and results of our current and future preclinical studies and clinical trials and our research and development programs

- our plans to develop and, if approved, subsequently commercialize losmapimod, FTX-6058 pociredir and any other product candidates, including in combination with other drugs and therapies;
- the timing of and our ability to submit applications for, and obtain and maintain regulatory approvals for losmapimod, FTX-6058 pociredir and any otl product candidates;
- our expectations regarding our ability to fund our operating expenses and capital expenditure requirements with our cash, cash equivalents, and marketable securities;
- the potential advantages of our product candidates;
- the rate and degree of market acceptance and clinical utility of our products, if our product candidates are approved;
- our estimates regarding the potential market opportunity for our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our intellectual property position;
- the progress and results of our collaboration with MyoKardia, Inc., or MyoKardia, a wholly-owned subsidiary of Bristol-Myers Squibb Company; Company, or under our exclusive global license agreement with CAMP4 Therapeutics Corp., or CAMP4;
- our ability to identify additional products, product candidates or technologies with significant commercial potential that are consistent with our commercial objectives;
- our estimates regarding expenses, future revenue, timing of any future revenue, capital requirements and needs for additional financing;
- the impact of government laws and regulations;
- the impact of a pandemic or an outbreak of highly infectious or contagious disease, such as the ongoing COVID-19 pandemic, on our business and operations, including our clinical trials and development plans, as well as our future financial results;
- our competitive position;
- developments relating to our competitors and our industry;
- our ability to maintain and establish collaborations or obtain additional funding; and
- our expectations regarding the time during which we will be an emerging growth company or a smaller reporting company as defined under the fede securities laws.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Such forward-looking statements are subject to various risks and uncertainties. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this Annual Report on Form 10-K, particularly in the "Risk Factors" section, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, collaborations, joint ventures or investments we may make or enter into.

You should read this Annual Report on Form 10-K and the documents that we have filed as exhibits to Annual Report on Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements contained in this Annual Report on Form 10-K are made as of the date of this Annual Report on Form 10-K, and we do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law.

This Annual Report on Form 10-K includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties as well as our own estimates of potential market opportunities. All of the market data used in this Annual Report on Form 10-K involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do

not guarantee the accuracy or completeness of such information. Our estimates of the potential market opportunities for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research and other surveys, which may be based on a small sample size and may fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions.

SUMMARY RISK FACTORS

Our business is subject to a number of risks that if realized could materially affect our business, financial condition, results of operations, cash flows and access to liquidity. These risks are discussed more fully in the "Risk Factors" section of this Annual Report on Form 10-K. Our principal risks include the following:

- We have incurred significant losses since our inception. Our net loss was $97.3 million for the year ended December 31, 2023 and $109.9 million fo the year ended December 31, 2022 and $80.8 million for the year ended December 31, 2021. We expect to incur losses over the next several years and may never achieve or maintain profitability. As of December 31, 2022 December 31, 2023, we had an accumulated deficit of $412.3 million $509 million.
- We are currently subject to a full clinical hold on our IND for FTX-6058 for sickle cell disease, or SCD, and we withdrew our separate IND for FTX-6 related to beta thalassemia. We will need to resolve the clinical hold issues with the FDA in order to resume our Phase 1b clinical trial in SCD, other healthy volunteer studies or pursue development of FTX-6058 for beta thalassemia and any other hemoglobinopathies. Our business may be adversely affected if the clinical hold is not resolved in a timely manner or at all, or if other regulatory concerns lead to additional delays. We cannot guarantee that we will be able to respond to FDA's requests in order to resolve the clinical hold.
- We will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our prod development programs or commercialization efforts. We expect to devote substantial financial resources to our ongoing and planned activities, particularly as we continue our clinical trials of losmapimod and pending resolution of the clinical hold, of FTX-6058 pociredir and continue research development and initiate additional clinical trials of, and seek regulatory approval for, these and other product candidates.
- We are early in our development efforts, and we only have two product candidates in clinical trials. If we are unable to commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.
- We may not be successful in our efforts to use FulcrumSeek, our proprietary product engine to build a pipeline of product candidates. A key elemen our strategy is to use FulcrumSeek to identify and validate cellular drug targets that can potentially modulate gene expression to address the root cause of genetically-defined rare diseases, with an initial focus on identifying small molecules specific to the identified cellular target.
- Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. The results of preclinical studies and early clinical trials may not be predictive of future results. We may incur additional costs or

experience further delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

- Because we are developing some of our product candidates for the treatment of diseases in which there is limited clinical experience and, in some cases, using new endpoints or methodologies, the U.S. Food and Drug Administration, or FDA, or other regulatory authorities may not consider the endpoints of our clinical trials to predict or provide clinically meaningful results.
- The ongoing COVID-19 pandemic has and may continue to affect our ability to initiate and complete current or future preclinical studies or clinical tri disrupt regulatory activities or have other adverse effects on our business and operations. In addition, this pandemic may continue to adversely impa economies worldwide, which could result in adverse effects on our business and operations.
- If serious adverse events or unacceptable side effects are identified during the development of our product candidates, including others' product candidates in the same class of drugs, we may need to abandon or limit our development of some of our product candidates.

- We may not be successful in our efforts to use our discovery approach to build a pipeline of product candidates.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than w

do.

- We rely, and expect to continue to rely, on contract manufacturing organizations, or CMOs, to manufacture our product candidates. If we are unable enter into such arrangements as expected or if such organizations do not meet our supply requirements, development and/or commercialization of c product candidates may be delayed.
- We rely, and expect to continue to rely, on third parties to conduct our clinical trials, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, which may harm our business.
- We have entered into, and may in the future enter into, collaborations and license agreements with third parties for the discovery, development or commercialization of product candidates, including our collaboration with MyoKardia. MyoKardia and our license agreement with CAMP4. If our collaboration is not successful or we are not able to develop product candidates that we license-in, we may not be able to capitalize on the market potential of these product candidates and our business could be adversely affected.
- If we are unable to obtain, maintain, enforce and protect patent protection for our technology and product candidates or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and products similar or identical to ours, a our ability to successfully develop and commercialize our technology and product candidates may be adversely affected.
- If we fail to comply with our obligations in our intellectual property licenses and funding arrangements with third parties, or otherwise experience disruptions to our business relationships with our licensors, we could lose intellectual property rights that are important to our business.
- Adverse developments affecting the financial services industry, such as actual events or concerns involving liquidity, defaults or non-performance by financial institutions or transactional counterparties, could adversely affect our current and projected business operations and financial condition and results of operations.
- Our business was negatively impacted by the COVID-19 pandemic and may in the future be impacted by any future pandemics, as well as other geopolitical events that can impact our clinical trials or the supply chain, such as the Russian invasion of Ukraine or recent hostilities in Israel and th Gaza Strip. These events may continue to, and any future pandemics may, adversely impact economies worldwide, which could result in adverse effects on our business and operations.

PART I

Item 1. Business.

Overview

We are a clinical-stage biopharmaceutical company focused on improving developing small molecules to improve the lives of patients with genetically defined rare diseases in areas of high unmet medical need. Our most advanced clinical clinical-stage product candidate, losmapimod, is being developed for the potential treatment of facioscapulohumeral muscular dystrophy, or FSHD. Our other clinical clinical-stage product candidate is pociredir, formerly known as FTX-6058, which is being developed for the potential treatment of certain hemoglobinopathies, including sickle cell disease, or SCD. We initiated REACH, a randomized, double-blind, placebo-controlled, multi-national Phase 3 clinical trial of losmapimod in the second quarter of 2022 and plan we completed enrollment during September 2023. The trial enrolled 260 patients. We expect to complete enrollment report topline data from REACH in the second half fourth quarter of 2023. 2024.

In January 2023, we announced Phase 1b interim data from our Phase 1b clinical trial of FTX-6058 pociredir in SCD. We have completed enrollment in the 6 mg and 2 mg dose cohorts, and we do not plan to enroll additional subjects in these cohorts. Although we commenced enrollment in the 12 mg dose cohort, on February 23, 2023, in February 2023 the U.S. Food and Drug Administration, or FDA, placed a full clinical hold on the Investigational New Drug, or IND, application for FTX-6058 pociredir for SCD. We have suspended enrollment SCD, which was lifted in August 2023. The Phase 1b clinical trial is being re-initiated at the 12 mg once daily dose level, with that cohort expected to enroll approximately 10 patients, and dosing in will be followed by an additional cohort of approximately 10 patients at the 20 mg once daily dose level. Following the clinical hold, we amended the protocol to revise the inclusion and exclusion

criteria for the Phase 1b clinical trial of FTX-6058, withdrew our separate IND for FTX-6058 for beta thalassemia and intend to work diligently target patients with FDA to resolve the hold as soon as possible. higher disease severity.

We In addition to product candidate development, we have developed a proprietary product engine, FulcrumSeek, drug discovery approach that we employ to systematically identify and validate cellular drug targets that can potentially modulate gene expression to treat known root causes of genetically defined rare diseases. Our product engine integrates patient-derived tissue and disease-relevant cell models that we interrogate using our pharmacologically diverse and highly annotated small-molecule compound library and customized CRISPR and RNAi libraries. These screens generate tens of millions of data points and high-content imaging. We then apply computational biology and analytics to identify targets with specificity and selectivity accompanied by a comprehensive data set that significantly accelerates development. This discovery approach led to the identification of both losmapimod for FSHD and FTX-6058 pociredir for hemoglobinopathies, SCD, as well as a robust discovery pipeline.

Our most advanced product candidate, With our priorities focused on the development and potential commercialization of our two clinical-stage assets, losmapimod is a small molecule that we in-licensed from affiliates of GlaxoSmithKline plc, or GSK, and are developing for the treatment of FSHD, a rare, progressive pociredir, and disabling disorder characterized by ongoing work on our preclinical programs in hematology and muscle degeneration and fat infiltration. Disease progression results in the accumulation of disability with many patients ultimately becoming dependent on wheelchairs and losing independence as their ability to perform activities of daily living decreases. Losmapimod selectively targets p38α/ß mitogen activated protein kinase, or p38α/ß. We utilized our product engine to discover that inhibition of p38α/ß reduced expression of the *DUX4* gene in muscle cells derived from patients with FSHD. The aberrant expression of the *DUX4* gene is the known root cause of FSHD. There are no approved therapies for FSHD, one of the most common forms of muscular dystrophy, with an estimated patient population of 16,000 to 38,000 in the United States and 300,000 to 780,000 globally. Losmapimod has received orphan drug designation from both the FDA and the European Medicines Agency, or EMA, for the treatment of FSHD, and in May 2021, received fast track designation from the FDA.

We conducted a randomized, double-blind, placebo-controlled, multicenter, international Phase 2b clinical trial, referred to as ReDUX4, to evaluate losmapimod in 80 patients with FSHD. In this Phase 2b clinical trial, the primary endpoint was change in *DUX4*-driven gene expression, an experimental molecular biomarker. Secondary endpoints included evaluation of safety and tolerability, pharmacokinetics, or PK, in blood, as well as measures of muscle health, structure and function, including muscle fat infiltration, or MFI, reachable workspace, or RWS, and patient-reported outcomes. Concurrently, we initiated a single-center open label Phase 2 clinical trial to investigate the safety and tolerability of chronic treatment with losmapimod in patients with FSHD. In the ongoing extension of the open label trial, diseases, we are also evaluating measures of muscle function, muscle strength, realigning our strategy and patient reported quality of life.

We presented data through 48 weeks resources accordingly and will be winding down certain exploratory activities from the ReDUX4 trial in June 2021. While the primary endpoint was not met, results demonstrated clinically relevant benefits versus placebo on multiple measures of muscle health and function as well as patient reported outcomes at 48 weeks. Losmapimod-treated participants showed decreased progression of MFI as measured in intermediate muscles, which are muscles already affected by disease and most likely to show signs of disease progression. Normal appearing muscles appeared to be preserved in the losmapimod group versus placebo. Treatment with losmapimod was shown to slow the rate of decline and improve accessible surface area in RWS, which is a measure of function that assesses upper extremity range of motion and has been shown to be an important measure of independence. Additionally, patients reported feeling better when treated with losmapimod compared to placebo through the Patient Global Impression of Change, or PGIC, assessment. PGIC is a measure of self-reported change in how a patient feels and functions. Losmapimod was generally well-tolerated, with no drug-related serious adverse events reported.

Based on the ReDUX4 data, we engaged with U.S. and EU regulatory agencies, including FDA, and gained alignment on key aspects of the design of a Phase 3 trial. We initiated our Phase 3 trial, REACH, in the second quarter of 2022 and plan to complete enrollment in the second half of 2023. REACH is a randomized, double-blind, placebo-controlled, multi-national trial to evaluate the efficacy and safety of losmapimod for the treatment of FSHD. The trial is expected to enroll approximately 230 adults with FSHD. Patients are randomized 1:1 to receive either losmapimod, administered orally as a 15 mg tablet twice a day, or placebo, and are evaluated over a 48 week treatment period. The primary endpoint of the study is the absolute change from baseline in RWS. Secondary endpoints include MFI, PGIC, and Quality of Life in Neurological Disorders of the upper extremity, or Neuro QoL UE. The trial also includes patient-centered assessments of healthcare utilization.

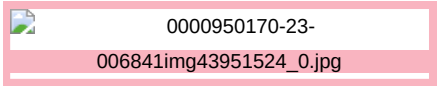
In October 2022, we presented data through 96 weeks from the open label extension portion of ReDUX4. Data presented showed that patients in the initial treatment arm who continued to receive losmapimod experienced maintenance of effect through 96-weeks as measured by RWS mean change from baseline. Additionally, patients who crossed over from placebo to losmapimod after the initial 48-week trial period showed improvement and slowing of disease progression as measured by RWS mean change from baseline. Losmapimod continued to demonstrate an encouraging safety profile and continued to be generally well-tolerated.

Our other product candidate, FTX-6058, is an investigational oral fetal hemoglobin, or HbF, inducer that is in development for the potential treatment of SCD and other certain hemoglobinopathies. FTX-6058 is designed to bind to embryonic ectoderm development, or EED, and inhibit the transcriptional silencing activity of the polycomb repressive complex 2, or PRC2. Inhibition of EED leads to potent downregulation of key fetal globin repressors, including BCL11A, thereby causing an increase in HbF. EED is a member of the PRC2 complex, which also includes EZH2. There are approved products in the EZH2 class of medications and their approved labeling outlines safety risks, including an increased risk of malignancies.

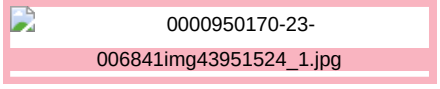
SCD is a genetic blood disorder caused by a mutation in the ß-subunit gene, or *HBB* gene. This mutation results in the formation of abnormal hemoglobin, or HbS, which causes red blood cells, or RBCs, to change from a round shape into a sickle shape that significantly impairs their function. We designed FTX-6058 to compensate for the root cause of these hemoglobinopathies by inducing the expression of the two γ-globin genes, *HBG1/2*, whose expression is normally silenced shortly after birth. The *HBG1/2* genes encode for γ-globin, a component of HbF, which is known to repair the abnormal RBC shape in SCD and to compensate for the presence of HbS in SCD. We have observed *in vitro* and *in vivo* activation of the *HBG1/2* genes in preclinical studies with FTX-6058. We have also observed that FTX-6058 demonstrated robust levels of HbF elevation with no adverse effects on important cellular health markers. We conducted additional pre-clinical profiling in CD34+ derived cells and observed that treatment with FTX-6058 increased HbF levels to approximately 30% of total hemoglobin, as measured by mass spectrometry, high performance liquid chromatography, and fast protein liquid chromatography techniques. The elevation of HbF was significantly greater than we observed with hydroxyurea in the cell models.

Our Phase 1b trial of FTX-6058 in subjects with SCD (both on and off hydroxyurea) is currently subject to a full clinical hold. Although in January 2023 we announced data from subjects with SCD receiving 6 mg of FTX-6058, as well as completion of enrollment in the 6 mg and 2 mg dose cohorts and commencement of enrollment in the 12 mg dose cohort, in February 2023 FDA placed a full clinical hold on the IND for FTX-6058 for SCD. Accordingly, we have suspended enrollment and dosing in the Phase 1b trial of FTX-6058 and intend to work diligently with FDA to resolve the hold as soon as possible.

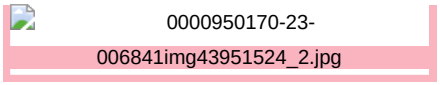
Phase 1b data from evaluable subjects as of the December 21, 2022 data cutoff in the 6 mg dose cohort (n=10) showed up to 9.5% absolute HbF increases from baseline; data suggested no difference in response in subjects on (n=3) and off (n=7) background hydroxyurea. We also observed improved biomarkers of hemolysis in evaluable subjects dosed at 6 mg. The figures below illustrate percentage HbF increase by HPLC and absolute percentage HbF change from baseline for evaluable subjects (n=7) in the 6 mg dose cohort (subjects with asterisks were on hydroxyurea).



We have completed enrollment in the 6 mg and 2 mg dose cohorts, and we do not plan to enroll additional subjects in these cohorts, or in any other cohorts until such time as we are able to resolve the clinical hold. Data from subjects in the 2 mg dose cohort (n=2), showed up to 4.6% absolute HbF increases from baseline.



Enrollment and dosing in the 12 mg dose cohort (including subjects both on and off hydroxyurea) are currently suspended as the Phase 1b trial is on clinical hold. Data from subjects in the 12 mg dose cohort (n=3), prior to the suspension of the trial, showed up to 10.0% absolute HbF increases from baseline after 42 days of treatment. Subjects with asterisks were on hydroxyurea.



Increases in HbF have been shown to reduce the frequency or severity of a broad range of SCD symptoms, including vaso-occlusive crises, or VOC, anemia, pain, infection, stroke and others. Based on a large body of genetic, clinical, and observational evidence showing the effects of higher levels of HbF in people with SCD, the induction of HbF by 5-10% over baseline could be associated with reduced disease burden and improved clinical outcomes. We believe these initial data showing that FTX-6058 increased HbF levels by up to 9.5% support its potential to become a transformative therapy for people living with SCD, if approved.

FTX-6058 has been generally well-tolerated as of the March 3, 2023 data cutoff date. There have been 14 treatment emergent adverse effects, or TEAEs, reported to date, two of which were reported as possibly related to study drug (headache, lip numbness), neither of which were severe and were deemed non-serious. There have been no discontinuations due to TEAEs. Three of the 14 TEAEs were characterized as VOCs, and were deemed unrelated to FTX-6058, one of which was reported as a serious adverse event, or SAE, with acute chest syndrome in a non-adherent subject.

In December 2022, we received Fast Track Designation from the FDA for FTX-6058 for the treatment of SCD.

According to the National Institutes of Health, or NIH, there are approximately 7,000 rare, genetically defined human diseases, many of which have inadequate or no approved treatments. Our current drug target identification and development efforts are focused on rare muscular, hematologic and neurologic, disorders. We also anticipate utilizing FulcrumSeek to discover drug targets for genetically defined diseases in other therapeutic areas and for other disorders. In addition to drug targets that we prioritize for internal development, we may identify other drug targets that we would consider for development through partnerships. For example, we are utilizing FulcrumSeek to discover drug targets for the potential treatment of certain genetically defined cardiomyopathies under our collaboration and license agreement with MyoKardia, a wholly-owned subsidiary of Bristol-Myers Squibb Company.

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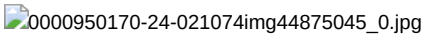
discovery efforts.

Our Pipeline

Using FulcrumSeek, our discovery approach, we have generated a pipeline of potentially disease-modifying therapies that address the known root cause causes of rare genetic diseases. The following chart summarizes key information about our pipeline of clinical stage and pre-clinical programs.



Our Strategy

We are leveraging Through our focus on the broad applicability development of our proprietary product engine to discover and develop small molecule therapies that modulate gene expression to address the known root cause of genetically defined rare diseases in areas of high unmet medical need. We believe that molecules, including our initial product candidates for the treatment of FSHD and SCD, may have the potential our aim is to treat address unmet need in patients with these genetically defined rare diseases that are debilitating and, in some cases, life-threatening illnesses. the case of SCD, life-threatening. The key components of our strategy include:

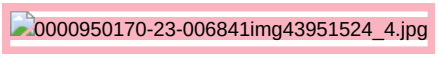
- ***Rapidly develop losmapimod for the treatment of FSHD.*** We aim to rapidly develop complete the clinical development of losmapimod for the treatment of FSHD through clinical development and to support regulatory approval. In the second quarter of 2022, we initiated REACH, a randomized, double-blind, placebo-controlled, 48-week Phase 3 clinical trial to evaluate the efficacy and safety of losmapimod for the treatment of FSHD and plan to complete FSHD. We completed enrollment in September 2023 and expect to report topline data in the second half fourth quarter of 2023. 2024.

- ***Rapidly develop FTX-6058 pociredir for the treatment of SCD.*** We aim to rapidly complete the clinical development of FTX-6058 pociredir for the treatment of SCD to support regulatory approval and intend to work diligently with FDA to resolve approval. We are currently reinitiating the full clinical hold imposed on February 23, 2023. Although we commenced enrollment in the 12 mg dose cohort in a Phase 1b clinical trial at the 12 mg once daily dose level, with that cohort expected to enroll approximately 10 patients, which will be followed by an additional cohort of FTX-6058 in subjects with SCD, dosing and enrollment in this trial are currently on hold. approximately 10 patients at the 20 mg once daily dose level.
- ***Continue to apply FulcrumSeek our discovery efforts to grow our portfolio of product candidates for the treatment of genetically defined rare diseases.*** We have developed a rigorous assessment discovery approach that we employ to systematically identify and selection process to determine which of the approximately 7,000 rare, genetically defined diseases we intend to evaluate in drug target identification activities. We are applying FulcrumSeek to discover validate cellular drug targets to that can potentially modulate gene expression to treat known root causes of genetically defined rare diseases, with a focus on muscle and develop product candidates for the potential treatment of the root cause of disease. hematology diseases. We also seek to explore opportunities to acquire or in-license complementary technologies or therapies, such as our recent exclusive global license agreement with CAMP4 Therapeutics Corp., or CAMP4.
- ***Further expand our product engine capabilities.*** We have significantly enhanced the scale and power of FulcrumSeek to increase the pace of discovery and we intend to further expand our capabilities to enhance the therapeutic reach and productivity of our drug discovery process.

- ***Maximize the commercial potential of our product candidates.*** We have retained all rights to our lead product candidates focused on rare genetically defined diseases, and we plan to commercialize any approved product for such rare genetically defined diseases using a targeted sales infrastructure. We may in the future pursue commercialization partnerships for certain product candidates and/or markets outside the United States.
- ***Selectively enter into strategic partnerships to maximize the value of our product engine discovery approach and pipeline.*** Given the breadth of opportunities for our proprietary product engine discovery approach to discover drug targets and develop product candidates for genetically defined diseases, we may enter into strategic partnerships for certain drug targets, product candidates or disease areas, such as our collaboration and license agreement with MyoKardia, a wholly-owned subsidiary of Bristol Myers Squibb. Partnerships may provide an attractive avenue for expanding the impact of our proprietary product engine. discovery efforts.

Our Lead Product Candidates

We have used our proprietary product engine discovery approach and screening efforts to identify drug targets for our lead product candidates. We candidates and currently have two product candidates in clinical trials. The trials, as shown in the following chart summarizes key information about these lead product candidates. chart.



Losmapimod 

Losmapimod

Overview of Facioscapulohumeral Muscular Dystrophy

Facioscapulohumeral muscular dystrophy is a rare, progressive and disabling disease for which there are no approved treatments. FSHD is one of the most common forms of muscular dystrophy and affects both sexes equally, with onset typically in teens and young adults. FSHD is characterized by progressive skeletal muscle loss that initially causes weakness in muscles in the face, shoulders, arms and trunk and progresses to weakness in muscles in lower extremities and the pelvic girdle. Skeletal muscle weakness results in significant physical limitations, including progressive loss of independence, including impacts to facial muscles that can cause problems with communication, difficulty using arms for activities of daily living and difficulty getting out of

bed, with many patients ultimately becoming dependent upon the use of a wheelchair for daily mobility activities. The majority of patients with FSHD also report experiencing chronic pain, anxiety and depression. The diagnosis and treatment of patients with FSHD is typically performed by neurologists.

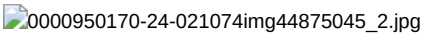
The FSH Society Based on an estimated that the prevalence of FSHD in the United States is approximately 1 in 20,000 people. A recent study conducted in the Netherlands reported a more frequent prevalence of 8,000 people to 1 in 8,333. Based on these estimates 20,000 people (Jia et al, 2021, Neuromuscular Disorders) and a U.S. population of 320 million, approximately 333 million people, we estimate that the FSHD patient population is between 16,000 to 38,000 approximately 30,000 individuals in the United States. We believe that there may be additional patients who are not formally diagnosed due to a perceived difficulty of obtaining a diagnosis and the fact that there are no approved treatments. Approximately two-thirds of FSHD cases are familial-inherited in an autosomal dominant fashion and one-third of cases are sporadic. FSHD affects all ethnic groups with similar incidence and prevalence.

There are no approved therapies for the Current treatment of FSHD. Current treatment FSHD is limited to symptomatic management including physical/occupational therapy, low-intensity aerobic exercise tailored to the patient's distribution of weakness, and general pain management, which may provide limited beneficial effect. Limited range of motion in the shoulder girdle can stem from periscapular muscle weakness leading to scapular winging and in such cases, surgical scapular fixation can result in some functional improvement for certain patients.

Losmapimod could face competition from other therapeutic approaches in development for patients with FSHD. Roche is evaluating RO7204239, a myostatin inhibitor, in a Phase 2 trial in adults with FSHD. Avidity is evaluating AOC 1020, an siRNA antibody-oligonucleotide complex, in a Phase 1/2 clinical trial in adults with FSHD. We are not aware of any product candidate currently in clinical development for FSHD with the same mechanism of action as losmapimod.

FSHD Biology

FSHD is caused by aberrant expression of *DUX4* in skeletal muscle resulting in the inappropriate presence of DUX4*DUX4* protein, a transcription factor causing the expression of other genes. Normally, DUX4-driven gene expression is limited to early embryonic development, after which time the *DUX4* gene is silenced. In patients with FSHD, aberrant production of DUX4*DUX4* protein in skeletal muscle regulates other genes encoding proteins, some of which are toxic to the muscle. The result of aberrant *DUX4* expression in FSHD is death of muscle and its replacement by fat, resulting in skeletal muscle weakness and progressive disability. We believe that reducing expression of the *DUX4* gene and its downstream transcriptional program could provide a disease-modifying therapeutic approach for the treatment of FSHD at its root cause. Published preclinical and human data, in addition to *in vitro* experiments that we have conducted, suggest that any reduction in *DUX4* expression may be beneficial for patients. In preclinical studies, we have demonstrated that there is a direct relationship between muscle cell death (apoptosis) and the level of *DUX4* expression, and a reduction in DUX4*DUX4* leads to a concomitant decrease in apoptosis. As illustrated in the graphic below, in animal models where expression of *DUX4* in skeletal muscle is induced, a corresponding loss of function is observed with increasing levels of *DUX4* expression. In these animal models where low levels of DUX4*DUX4* are expressed, the animals performed similarly to healthy animals in a mobility assessment, suggesting that complete DUX4*DUX4* reduction is not required for a functional benefit. Data from human muscle biopsies likewise indicated that increased DUX4*DUX4* activity is related to worsening muscle pathology.



***: P-value = <0.001

In all patients with FSHD, the *DUX4* gene is unsilenced, or de-repressed, as a result of one of two different types of genetic alterations, leading to FSHD1 or FSHD2. FSHD2; both FSHD1 and FSHD2 converge on a common downstream pathway

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resulting in a clinically indistinguishable phenotype. Approximately 95% of patients have FSHD1 and approximately 5% of patients have FSHD2. FSHD1 is caused by the contraction of an array of DNA, known as a D4Z4 repeat, from greater than ten repeat units to nine or fewer units. This contraction causes de-

repression of *DUX4*. Patients with FSHD2 do not have meaningful D4Z4 repeat contraction, but have mutations in a regulatory gene, known as genes, primarily the *SMCHD1* gene, that which normally contributes contribute to the repression of the *DUX4* gene via DNA methylation.

FulcrumSeek Identified Identification of the Drug Target for FSHD

We utilized patient-derived FSHD1 muscle cells, known as myotubes, and screened them with our small molecule probe library to identify drug targets that reduced *DUX4* expression. We While we identified several potential drug targets, however the modulation of the majority of the targets adversely affected the health or differentiation of muscle cells. One However, one drug target that we identified from our screening efforts for which we did not observe adverse cell health issues consequences was p38α/ß, which had been studied extensively in other diseases but had not been reported to be linked to *DUX4* expression or FSHD until we conducted our screening efforts. We evaluated multiple small molecule p38α/ß inhibitors and observed a consistent reduction of both *DUX4* expression and DUX4-driven gene transcripts with each p38α/ß inhibitor. We conducted further validation experiments to confirm that inhibition of p38α using genetic approaches such as siRNA and CRISPR single-guide RNAs also led to a reduction in *DUX4* expression. Additionally, researchers from Saint Louis University independently published the results of a study which that concluded that inhibitors of p38α/ß, including losmapimod, suppressed *DUX4* expression in cellular and animal FSHD models.

Losmapimod Overview

After identifying p38α/ß as a potential drug target, we evaluated multiple small molecule inhibitors of p38α/ß. Each of these inhibitors had previously been evaluated in clinical trials for the treatment of various diseases but never in muscle disorders. As a result of our evaluation and relative to other p38α/ß inhibitors, we identified losmapimod as the preferred development candidate based on substantial and attractive preclinical and clinical data regarding safety, pharmacokinetics, or PK, and target

inhibition, and its advanced stage of development. Losmapimod was originally evaluated by GSK plc, or GSK, in nearly 3,500 subjects in clinical trials across multiple indications and in multiple countries. GSK did not evaluate losmapimod in FSHD or in any other muscle disorder. Although GSK did not pursue regulatory approval in the indications evaluated, losmapimod demonstrated an attractive PK, pharmacodynamics, or PD, safety and tolerability profile, including in chronic dosing. Additionally, we observed in preclinical studies using losmapimod that inhibition of the p38α/ß pathway reduced *DUX4* expression and downstream gene expression. After identifying losmapimod, we in-licensed the molecule from GSK because we believed that its existing safety data and pharmacology history would significantly expedite our development plan and enhance our future regulatory submissions.

In June 2021, we reported full data from the randomized, double-blind placebo-controlled multicenter international Phase 2b clinical trial, or ReDUX4. Although the primary endpoint was not met, we demonstrated slowing of disease progression and improved function in FSHD patients treated with losmapimod compared to placebo. In October 2022, we presented data through 96 weeks from the open label extension portion of ReDUX4, which showed that patients in the initial treatment-arm who continued to receive losmapimod experienced maintenance of effect through 96 weeks as measured by reachable workspace, or RWS, mean change from baseline. Additionally, patients who crossed over from placebo to losmapimod after the initial 48 week trial period showed improvement and slowing of disease progression as measured by RWS mean change from baseline.

In the second quarter of 2022, we initiated REACH, a randomized, double-blind, placebo-controlled, 48-week Phase 3 clinical trial to evaluate the efficacy of losmapimod for the treatment of FSHD and plan to complete FSHD. We completed enrollment in September 2023 and expect to report topline data in the second half fourth quarter of 2023. 2024.

In January 2020, the FDA granted orphan drug designation to losmapimod for the treatment of FSHD. In March 2020, the EMA granted orphan drug designation to losmapimod for the treatment of FSHD. In May 2021, the FDA granted fast track designation to losmapimod for the treatment of FSHD.

Clinical Trial: Phase 2b (ReDUX4)

In June 2021, at the FSHD International Research Congress, we presented full data from our randomized, double-blind, placebo-controlled multicenter international Phase 2b clinical trial, the ReDUX4 trial, in 80 patients with FSHD1 and clinical severity scores of two to four on the Ricci

scale. In this trial, we evaluated treatment with 15 mg of losmapimod or placebo tablets twice per day over a 24 or 48-week period. Enrollment was completed in February 2020. Patients were randomized 1:1 between the treatment and placebo arms. The FDA accepted the IND for losmapimod in June 2019, and we also submitted CTAs at various dates during 2019 to conduct the trial at sites in Europe and Canada, all of which were accepted. We presented data from a pre-specified interim analysis in August 2020. We completed the ReDUX4 trial in January 2021 and presented full data from the trial at the FSHD International Research Congress on June 24, 2021.

The primary endpoint was the change in *DUX4*-driven gene expression in affected skeletal muscle at 16 or 36 weeks, which was included as an experimental biomarker. The trial was also designed to capture a wide range of data relating to FSHD progression in addition to safety, target engagement and PK data. The secondary endpoints were evaluation of safety and tolerability in FSHD patients, PK in blood, losmapimod concentration in skeletal muscle biopsies, target engagement in blood and in muscle biopsies, and efficacy based on the whole-body skeletal muscle MRI biomarker. The whole-body MRI scans evaluated changes in muscle fat infiltration, or MFI, , muscle fat fraction, or MFF and lean muscle volume. volume, or LMV. The muscles evaluated in the trial were classified as normal appearing (not affected by disease), intermediate (clearly affected by disease but not so severely fat replaced fat-replaced to have lost all function) or end stage (severely fat replaced fat-replaced and have lost most if not all function). The exploratory endpoints included RWS, timed up and go, or TUG test, an optimized timed up and go test for FSHD, or FSHD TUG, muscle strength measured by hand-held dynamometry, other muscle function measures and patient reported outcomes.

The original design of ReDUX4 included a muscle biopsy at week 16 during the 24-week treatment period followed by an open label extension. Sixteen of the 80 subjects in the trial completed the 24-week treatment period and rolled over to the open label extension portion of the trial. As a result of the ongoing impact of the COVID-19 pandemic on clinical site visits, we extended the ReDUX4 treatment period from 24 to 48 weeks through a protocol amendment to ensure the safety of the subjects and to allow for the opportunity for a biopsy either at week 16 as originally intended or at week 36. Approximately 64 subjects who did not complete the original 24-week treatment period continued in the 48-week treatment period in the randomized portion of the trial. The extension from 24 to 48 weeks also allowed for a longer assessment in a placebo-controlled design of the skeletal muscle MRI secondary endpoint and the various exploratory clinical endpoints, such as RWS, optimized FSHD TUG test, muscle function measures and patient reported outcomes.

In August 2020, we announced results from a pre-specified interim analysis of the primary endpoint of the ReDUX4 trial, which is the reduction from baseline of *DUX4*-driven gene expression in affected skeletal muscle after subjects have been treated with losmapimod or placebo. Secondary and exploratory endpoints were not assessed as part of this analysis. Results from the interim analysis in the first 29 randomized subjects indicate that *DUX4*-driven gene expression did not show a separation from placebo at 16 weeks. However, in a pre-specified sensitivity analysis, those with the highest pre-treatment

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DUX4-driven gene expression in their muscle biopsy sample showed a large reduction in *DUX4*-driven gene expression following treatment with losmapimod compared to placebo. The highest expressing muscle biopsies represent the top quartile of biopsies assessed based on baseline *DUX4*-driven gene expression.

The interim results included an analysis of the first 29 subjects who completed their 16-week biopsy. PK, demographics and the primary endpoint were assessed. The interim analysis was not powered for statistical significance and did not include individual patient level data. Subjects were randomized to receive an oral dose of losmapimod 15mg (n=15) or placebo (n=14) twice per day. While results showed a significant reduction in *DUX4*-driven gene expression in the muscle biopsies of subjects whose baseline biopsy showed the highest levels of *DUX4* gene expression (38-fold decrease with losmapimod, n=3, and 5.4 fold-decrease with placebo, n=5), the population level data analysis of the reduction in *DUX4*-driven gene expression from all 29 subjects did not show a separation of losmapimod from placebo (3.7 fold increase with losmapimod, n=15, and 2.8 fold increase with placebo, n=14). Results suggested that muscle biopsies within the higher range of *DUX4*-driven gene expression at baseline may be needed to observe a reduction.

In June 2021, we reported full results from ReDUX4. The trial did not meet the primary endpoint, which was change from baseline in *DUX4*-driven gene expression in affected skeletal muscle at Week 16 or Week 36. Secondary and exploratory endpoints showed clinically relevant and nominally statistically significant benefits in the losmapimod treated group versus placebo on multiple measures of structural and functional FSHD progression and patient reported outcomes at 48 weeks. As the primary endpoint was not met, all comparative analyses are were reported with nominal statistical p-values.

- Treatment with losmapimod was shown to slow the rate of decline and improve accessible surface area in RWS measures ($p<0.05$). RWS, operationalized as relative surface area, or RSA, assessed over five quadrants, is a measure of function that assesses upper extremity range of

motion. Prior studies have shown that RWS correlates with changes in the ability of patients to independently perform activities of daily living. Bas published results, RWS is an important measure of independence. FSHD tends to progress from the upper body down, and loss of shoulder move leads to loss of mobility. Over the 48-week placebo-controlled treatment period, losmapimod resulted in significant improvements in total RSA (assessed with a 500 gram wrist weight) compared with placebo, measured on a 0-1.25 scale, with 1.25 being the greatest RSA. Based on the av of both arms, the total arm RSA was 0.020 for the losmapimod group and and -0.027 for the placebo group, reflecting a difference of 0.047, with a confidence interval of 0.010 and 0.084, respectively (p=0.014).

- Losmapimod-treated participants showed decreased progression in the treatment efficacy composite measure of MFI as measured in intermediate muscles, those most likely to show change over the duration of the study (p=0.01). Normal appearing muscles appeared to be preserved in the losmapimod group versus placebo based on a post hoc analysis. MFI is a measure of diffuse fatty infiltration in lean muscle tissue that is correlate with disease severity in FSHD.
- Treatment with losmapimod was shown to slow the rate of decline and improve accessible surface area in RWS measures (p<0.05). RWS is a measure of function that assesses upper extremity range of motion. Prior studies have shown that RWS correlates with changes in the ability of patients to independently perform activities of daily living. Based on published results, RWS is an important measure of independence. The diseas tends to progress from the upper body down, and loss of shoulder movement leads to loss of mobility. Participants in the losmapimod group Losmapimod-treated participants showed improvements of up to 1.5 points from baseline in the accessible surface area when using a 500g weight on their wrist compared to placebo. Participants in the placebo group were able to access 2 to 4 points less total surface area (with and wit 500g weights) measured by RWS after 48 weeks. The net difference between the groups at 48 weeks was 3.5 to 5 points, which in some patients the difference between functional independence and dependence.
- Participants reported feeling better when treated with losmapimod improved patient-reported outcomes compared to placebo through the PGIC assessment (p=0.02). PGIC, a measure of self-reported change in how a patient feels and functions, showed that shows whether participants were able to recognize improvements after 48 weeks of treatment. More participants in the losmapimod group reported improvement at 48 weeks comp to placebo. Four times more losmapimod participants reported improvement over time as compared to participants treated with placebo. Importan fewer losmapimod participants reported worsening as compared to placebo, and no losmapimod participants reported being “much worse” as compared to more than 13% of placebo participants, who reported that their disease had become “much worse.”

Additional secondary and exploratory endpoints measuring disease progression and function demonstrated differences between losmapimod and placebo at week 48. In a post hoc analysis, dynamometry, which measures losmapimod-treated participants showed improvement or less worsening in muscle strength demonstrated that participants in of the losmapimod group showed non-statistically significant trends of slower progression, as well as meaningful improvements (12-27%) in the strength of bilateral shoulder abductors (~ +18% to ~ -4%) and ankle dorsiflexors (~ +13% to ~ +27%), two muscle groups particularly affected in FSHD, compared as measured by maximum percent change dynamometry, versus subjects in the placebo group who lost strength in shoulder abductors (~ -13% to placebo. ~ – 17%) and ankle dorsiflexors (~-26% to ~-10%). Functional scales including RWS and TUG showed improvements in limb function consistent with dynamometry

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results. Two recently designed scales (FSHD TUG, and FSHD Health Index), did not demonstrate changes from baseline in either group or differences between losmapimod and placebo groups, suggesting that these tests are not sensitive to change over the 48-week time period. Motor function measure also showed no changes in either group or differences between the groups over 48 weeks. There was no difference in muscle fat fraction MFF or lean muscle volume LMV between losmapimod and placebo groups at 48 weeks in intermediate muscles.

Safety and tolerability data were consistent with previously reported results with no drug-related serious adverse events, or SAEs, reported. Losmapimod was generally well-tolerated and the majority of treatment emergent adverse events, or TEAEs, were deemed unlikely related or not related to study drug by the investigator. There were three SAEs (post-op wound infection, alcohol poisoning and a suicide attempt) reported in two participants in the losmapimod group, each assessed as unrelated to losmapimod. There were no deaths or

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discontinuations due to adverse events. Losmapimod has now been evaluated in over 3,600 subjects in clinical trials across multiple indications, including FSHD.

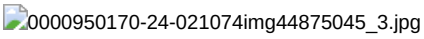
REACH, a Phase 3 Registrational Trial

We initiated REACH, a Phase 3 trial of losmapimod in FSHD, in the second quarter of 2022 and plan to complete enrollment in the second half of 2023. Based on data from the ReDUX4 Phase 2b study, we engaged with U.S. and EU regulatory agencies, including the FDA, and gained alignment on key aspects of the design of a Phase 3 trial intended to support a full registration approval. REACH is a randomized, double-blind, placebo-controlled, multi-national trial to evaluate the efficacy and safety of losmapimod for the treatment of FSHD. The trial is expected to enroll approximately 230 adults with FSHD. Patients will be randomized 1:1 to receive either losmapimod, administered orally as a 15 mg tablet twice a day, or placebo, and evaluated over a 48-week treatment period. The primary endpoint of the study is the absolute change from baseline in RWS. Secondary endpoints include MFI, PGIC, and Neuro QoL UE. The trial will also include patient-centered assessments of healthcare utilization.

Clinical Trial: ReDUX4 Open Label Extension

In February 2020 we initiated an open label extension of the ReDUX4 trial to enable patients who have completed the 24-week or 48-week treatment period with losmapimod or placebo in ReDUX4 to receive long term treatment with losmapimod. This open label extension, which is ongoing, includes clinical assessments of safety and efficacy every three months, whole-body musculoskeletal MRI every six months, and a muscle needle biopsy once after six months of treatment over the first 96 weeks. months. Subsequent to week 96, 168, patients will only be monitored for safety and tolerability. We anticipate that this trial will continue until such time as the drug is approved and available in the commercial setting or the clinical development of losmapimod in FSHD is terminated.

In October 2022, we presented data through 96 weeks from the open label extension portion of ReDUX4. Data presented showed that patients in the initial treatment-arm who continued to receive losmapimod experienced maintenance of effect through 96 weeks as measured by RWS mean change from baseline. Additionally, patients who crossed over from placebo to losmapimod after the initial 48-week trial period showed improvement and slowing of disease progression as measured by RWS mean change from baseline. Losmapimod continued to demonstrate an encouraging safety profile and was generally well tolerated. well-tolerated. 97% of participants in the initial 48 week study remained in the open label extension at week 96. The figures figure below illustrate illustrates annualized percentage change in dominant and non-dominant reachable surface area, or of average total RSA with 500 gram weights.



REACH, a Phase 3 Registrational Trial

We initiated REACH, a Phase 3 trial of losmapimod in FSHD, in the second quarter of 2022 and we completed enrollment in September 2023. We expect to report topline data in the fourth quarter of 2024. Based on data from ReDUX4, we engaged with U.S. and EU regulatory agencies, including the FDA, to discuss key aspects of the design of a Phase 3 trial intended to support a full approval. REACH is a randomized, double-blind, placebo-controlled, multi-national trial to evaluate the efficacy and safety of losmapimod for the treatment of FSHD. The trial enrolled 260 adults with FSHD. Patients are randomized 1:1 to receive either losmapimod, administered orally as a 15 mg tablet twice a day, or placebo, and are evaluated over a 48-week treatment period. The primary endpoint of the study is the absolute change from baseline in RWS.

Secondary endpoints include MFI, shoulder dynamometry, PGIC, and Neuro QoL UE. The trial also includes patient-centered assessments of healthcare utilization.

Following the 48-week treatment period with losmapimod or placebo, patients may elect to continue in an open label extension of REACH to receive long term treatment with losmapimod, which is ongoing.

Clinical Trial: Phase 2 Open Label Study Trial

In parallel with the ReDUX4 Phase 2b clinical trial, we also initiated in August 2019 an open label, single center Phase 2 clinical trial of losmapimod in up to 16 patients with FSHD and clinical severity scores of two to four on the Ricci scale. In the first part of the trial, patients received tablets containing 15 mg of losmapimod twice per day for up to 52 weeks. The treatment period was preceded by eight weeks of pre-treatment assessments to establish a baseline for musculoskeletal MRI biomarkers and clinical outcome assessments. We also performed an outpatient mobility assessment using wearable sensors. After the 52-week treatment period, participants had the option to elect to continue in an extension of the study, which is ongoing. We are conducting the trial at a single center in the Netherlands.

The primary objective is to investigate the safety and tolerability of losmapimod for chronic dosing in FSHD patients. The primary endpoints are to assess safety and tolerability over the 52-week period. The secondary endpoints are the change

from baseline in pHSP27 and the ratio of pHSP27 to total HSP27 in blood and muscle for assessment of the inhibition of p38α/ß during the dosing period. This trial is also designed to provide initial data regarding changes in *DUX4*-driven gene expression, MRI biomarkers, objective clinical outcome assessments and patient-reported outcomes that may occur at various times following initiation of treatment with losmapimod relative to the pre-treatment period. We intend to use this data to further guide our clinical development strategy for losmapimod in FSHD.

In the initial 52-week treatment period, we measured *DUX4*-driven gene expression before and during treatment using muscle needle biopsies in affected muscles. All patients had a Patients underwent muscle biopsy pre-treatment, biopsy and we will obtain then a second muscle needle biopsy from each patient after four on-treatment at either Week 4 or eight weeks of treatment. The original trial design included an additional biopsy during chronic treatment at week 48, but we have removed this assessment from the trial protocol because the open label extension of ReDUX4 includes a biopsy during chronic treatment. Week 8.

We measure measured potential losmapimod treatment effects on shoulder and upper arm function and mobility/ambulation, as well as on muscle strength and function and quality of life and activities of daily living, similar to the assessments in the Phase 2b clinical trial. The clinical outcome assessments are were RWS, FSHD-TUG, muscle strength, motor function ability and generic and FSHD-specific patient reports of quality of life and activities of daily living. Other exploratory assessments include included the six minute walk test, spirometry, and muscle ultrasound. There is was also an assessment of day-to-day mobility using wearable sensors. Subsequent to Week 156, this open label extension only includes clinical assessments of safety every three months.

*ReSOLVE Natural History Study*Studies

The Clinical Trial Readiness to Solve Barriers to Drug Development in FSHD, or ReSOLVE study, is an ongoing natural history study funded by the NIH with additional support from industry (including our company) to help identify the patient population, efficacy biomarker and clinical outcome assessments for future FSHD drug trials. The study is being coordinated by the University of Rochester and University of Kansas Medical Center and enrolled the first subject in April 2018. The study will follow up to 160 has enrolled 235 subjects for 24 months (158 in the U.S. and 77 in Europe) across a network of eight eleven U.S. clinical centers and will evaluate three European clinical centers and evaluates multiple biomarkers and clinical outcome assessments that may be suitable for clinical trials and will evaluate patient selection criteria based on genetic, demographic or clinical characteristics. Three sites in the European Union have joined the ReSOLVE protocol and will follow 60 subjects for 24 months. We believe that the results of this natural history study will inform the design and implementation of clinical trials and will inform discussions with regulatory agencies. We also believe that this study may provide valuable insights into the timeline for disease progression and functional changes in FSHD in the absence of treatment.

In connection with the ReSOLVE study, we have funded the addition of a clinical outcome assessment, which we refer to as RWS. RWS is a measure of function that assesses upper extremity range of motion. Specifically, it evaluates total shoulder and proximal arm mobility by utilizing 3D motion sensor technology. Preserving function, as assessed by RWS, is critical for maintaining abilities for self-care and other activities of daily living that directly influence quality of life. Based on published results, RWS is an important measure of independence. The RWS assessments are analyzed by a central reader. We have provided standardized hardware, software, and testing conditions to evaluate RWS at eight sites that are part of the ReSOLVE study in the United States and at three European sites. Furthermore, the RWS assessment has been registered as a medical device in the United States, Canada and Europe.

A recent third-party study (Hatch et al, 2019, Neuromuscular Disorders) assessed changes in RWS for 18 subjects with FSHD for up to five years. As illustrated in the figure below, the study concluded that the RWS measure is able to detect slow declines in upper extremity function in subjects with FSHD as early as 1 year. The study also found that the most notable declines in RWS were in above-the-shoulder level quadrants with no significant changes in lower quadrants and that RWS declined more significantly if the subjects wore 500-gram weights on their wrists.

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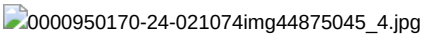
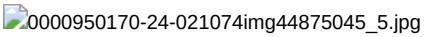


The figure above illustrates RWS in four quadrants. The optimized RWS, as evaluated in Phase 2 ReDUX4 and the primary endpoint in Phase 3 REACH, includes an additional domain (Q5) for the lower back, as illustrated in the figure below. This posterior-facing quadrant (Q5) is associated with functional hygiene/toileting activities.



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Prior Clinical Development of Losmapimod by GSK

GSK conducted multiple Phase 1 and Phase 2 clinical trials and one Phase 3 clinical trial of losmapimod, including in patients with chronic obstructive pulmonary disease, or COPD, acute coronary syndrome and other cardiovascular diseases, neuropathic pain, major depression disorder, focal segmental glomerulosclerosis, and rheumatoid arthritis. Nearly 3,500 subjects in 24 trials were given losmapimod with single doses as high as 60 mg and repeated oral doses as high as 15 mg twice per day for up to 52 weeks. We are using a dose of 15 mg twice per day in our clinical trials of losmapimod in FSHD. GSK did not conduct a clinical trial of losmapimod in patients with FSHD or any other muscle disorder.

In clinical trials of losmapimod conducted by GSK, no significant differences were observed in the frequency of adverse events, or AEs, in subjects given losmapimod and subjects given placebo. GSK generally observed a similar frequency of serious adverse events, or SAEs and deaths between patients given losmapimod and patients given placebo. These trials included extensive evaluation of the cardiovascular risk profile of losmapimod, including completion of an evaluation of the potential to prolong corrected QT. GSK reported that there was no clinically relevant difference with regard to the occurrence of electrocardiogram abnormalities post-baseline or vital signs with losmapimod as compared to placebo. GSK did not identify a safety signal attributed to losmapimod in any of these trials. There were no SAEs reported in 14 of these 24 clinical trials of losmapimod.

The largest placebo-controlled clinical trial of losmapimod conducted by GSK was a Phase 3 clinical trial for the treatment of acute coronary syndrome following a heart attack, in which over 1,700 patients were given 7.5 mg of losmapimod or placebo twice per day for 12 weeks and were followed for an additional 12 weeks. In this trial, GSK observed a similar proportion of AEs and SAEs in the placebo group as compared to the losmapimod group.

There were also ten SAEs of fatality in the placebo group and 13 SAEs of fatality in the losmapimod group. In the placebo group, the SAEs of fatality were infections and infestations (two), general disorders and administrative site conditions (two), respiratory, thoracic and mediastinal disorders (three), cardiac disorder (one), gastrointestinal disorder (one) and neoplasm (one). In the losmapimod group, the SAEs of fatatity fatality were infections and infestations (four), general disorders and administrative site conditions (three), respiratory, thoracic and mediastinal disorders (two), cardiac disorder (one), injury poisoning and procedural complications (one), gastrointestinal disorder (one) and neoplasm (one).

Among the total of 14 Phase 1 and Phase2 Phase 2 placebo-controlled clinical trials of losmapimod (N=1327 on losmapimod; N=735 on placebo), the distribution of SAEs was similar among losmapimod-treated and placebo-treated subjects. The most common SAEs were cardiac disorders (2% placebo; 3% losmapimod) and respiratory, thoracic and mediastinal disorders (1% placebo; 2% losmapimod). SAEs were reported in 11 of these 14 trials; 3 trials reported no SAEs.

In addition to the 24 trials conducted by GSK, another sponsor conducted a placebo-controlled Phase 2 clinical trial of losmapimod in which 73 subjects with COPD with cardiovascular manifestations were given 7.5 mg of losmapimod or placebo for 16 weeks. There were 36 subjects in the losmapimod group and 37 in the placebo group. In this trial, there were a total of six (17%) SAEs in the losmapimod group, consisting of exacerbations of COPD and pneumonia, and there was one (3%) SAE in the placebo group.

Pociredir

FTX-6058

Hemoglobinopathies are a category of genetic disorders affecting hemoglobin, a critical component of RBCs. The function of hemoglobin is to deliver oxygen to tissues: hemoglobin picks up oxygen as RBCs circulate through the lungs and then drops off oxygen to the tissues so that they may function normally. Hemoglobinopathies result in either abnormal (mutant) hemoglobin or low levels of hemoglobin, and both of these conditions are associated with significant morbidity and mortality risks. We are developing FTX-6058, pociredir, which is designed to elevate the level of fetal hemoglobin, or HbF, for the treatment of people with certain hemoglobinopathies, including SCD. We also believe that people with some types of ß-thalassemia may benefit from treatment with FTX-6058. pociredir.

Overview of Sickle Cell Disease

Sickle cell disease is a genetic disorder of RBCs. The root cause of SCD is a mutant hemoglobin that polymerizes in low oxygen conditions. This polymerization creates the abnormal, elongated, or sickle, shape of the RBC and results in, ultimately, hemolysis and vascular injury that causes major morbidities and significantly limits lifespan in people with SCD. People with SCD typically suffer from serious clinical consequences, which may include vaso-occlusive crises, anemia, pain, infections, stroke, heart disease, pulmonary hypertension, kidney failure, liver disease and reduced life expectancy. According to a study published by the American Medical Association, approximately 32.5% of adults with SCD were hospitalized three or more times per year due to pain crises. SCD is reported to shorten life expectancy by approximately 20 to 30 years. People with SCD are primarily treated by hematologists.

In the United States, where newborn screening for SCD is mandatory, the estimated prevalence is approximately 100,000 individuals. In Europe, the estimated prevalence is approximately 50,000 individuals. According to the World Health Organization, the global incidence is estimated to be approximately 300,000 births annually. SCD is most prevalent in Africa and the Middle East.

Approved Several approved drug treatments for SCD focus primarily on the management and reduction of painful vaso-occlusive crises, and improvement of hemolytic anemia. The four drug treatments approved in the United States are hydroxyurea, voxelotor, crizanlizumab, and L-glutamine. Hydroxyurea is approved anemia, as well as gene therapies for the treatment of SCD to reduce the frequency of painful crises and to reduce the need for blood transfusions. Hydroxyurea has a black box warning for myelosuppression and malignancy. In general, it is limited by its adverse side effects, inconsistent responses and concerns regarding the cytotoxic effect of the drug. Voxelotor, marketed by Pfizer, Inc., is approved under accelerated approval as a hemoglobin polymerization inhibitor to increase hemoglobin. This approach maintains or increases the total amount of HbS, the mutant hemoglobin in SCD, by holding on to oxygen longer. Crizanlizumab, a fully-human monoclonal antibody p-selectin inhibitor marketed by Novartis AG, or Novartis, is approved for the reduction in the frequency of vaso-occlusive crises. L-glutamine is approved to reduce acute complications of the disorder.

The only potentially curative treatment currently approved for severe SCD is hematopoeitic stem cell transplant (HSCT). However, HSCT is more commonly offered to pediatric individuals with an available HLA-matched sibling donor. The 5-year survival rates in this young SCD population is quite high but for older individuals (>16 years), the survival rates can be considerably lower. There are also significant risks associated with HSCT including infertility and graft-versus-host disease.

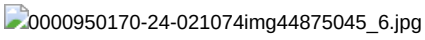
While multiple experimental approaches to treat SCD are being explored in clinical trials, the majority are focused on symptomatic relief or as last-line gene therapy approaches. Symptomatic approaches under investigation aim to affect issues associated with cell adhesion, sickling, thrombosis and iron homeostasis. We anticipate that a novel oral HbF inducer that affects the root cause of SCD by inhibiting the pathological polymerization caused by the mutant hemoglobin may become the standard of care for SCD. Novartis and Pfizer, Inc. have received approval for therapies aiming to provide relief for specific elements of SCD (low hemoglobin and VOCs respectively). Several gene therapy approaches to treat SCD are focused on elevating HbF, however no gene therapy approaches have been approved for SCD and the efficacy, safety and durability of gene therapy approaches have yet to be established. Gene therapies need to be administered in an in-patient procedure through HSCT. As part of the transplant process, the patient receives myeloablative chemotherapy which kills cells in the bone marrow in order to support the gene therapy. Despite ongoing efforts to develop gene therapies and commercialize treatments for SCD, we believe there is still a high unmet need that could be better addressed by a small molecule, oral therapy to treat capable of increasing HbF production. See “Competition” for a more comprehensive description of the disease by increasing HbF.competitive landscape in SCD.

SCD Biology

SCD is caused by a mutation in the *HBB* gene. This gene encodes a protein that is a key component of hemoglobin, a protein complex whose function is to transport oxygen in the body. Hemoglobin in adults is a complex of four proteins, two hemoglobin ß-subunits and two hemoglobin α-subunits. In people with SCD, hemoglobin is composed of two mutant ß-subunits and two α-subunits and the result is the formation of HbS. The result of the mutation is less efficient oxygen transport and the formation of RBCs that have a sickle shape. These sickle shaped cells are much less flexible than healthy cells and can block blood vessels (vaso-occlusion) or rupture cells (lysis), leading to pain, anemia, irreversible organ damage or even death.

During fetal development, the major form of hemoglobin is HbF. Similar to hemoglobin in adults, HbF is also a complex of four proteins, two α-subunits and two γ-subunits. Shortly after birth, the genes encoding the γ-subunits, the *HBG1* and *HBG2* genes, are silenced and the *HBB* gene is activated. As described above, SCD is caused by a mutation in the *HBB* gene that gives rise to mutated ß-subunits.

A small subset of individuals with the sickle cell mutation continue to produce high levels of HbF due to inheritance of additional genetic mutations, which is called Hereditary Persistence of HbF, or HPFH. Individuals with elevated HbF exhibit minimal clinical manifestations of SCD. HbF levels as low as 3% over baseline in individuals without HPFH, due to either therapeutic intervention or the inheritance of other genetic traits, can result in reduced clinical manifestations of the disease.



Our Approach to Address the Root Cause of SCD

Our strategy to address the root cause of SCD was to identify a drug mechanism that induces expression of HbF. We believe that FTX-6058 may address the root cause of SCD through this mechanism of action.

Overview Identification of ß-Thalassemia

ß-thalassemia is a rare blood disorder associated with the absence or reduced production of ß-globin, which is one of the two proteins that comprise adult hemoglobin. This results in an abnormally low level of hemoglobin as well as an excess of α-globin chains that cause destruction of RBCs. The severity of the phenotype is related to the degree of imbalance between α- and non-α-globin chain synthesis. The absence of ß-globin due to *HBB* gene deletions is referred to as $ß^0$ thalassemia. Other *HBB* gene alterations allow some ß-globin to be produced but in reduced amounts. A reduced amount of ß-globin is called $ß^+$thalassemia. Many patients with ß-thalassemia require chronic blood transfusions due to severe anemia that results from low hemoglobin levels, which are referred to as transfusion-dependent patients. It is estimated that 40,000 babies are born worldwide with ß-thalassemia per year of whom 25,000 require blood transfusions. Patients with ß-thalassemia are primarily treated by hematologists.

ß-thalassemia has been clinically characterized into three forms, depending on disease severity: major, intermedia and minor. The most severe form, ß-thalassemia major (also known as Cooley's anemia), is generally diagnosed shortly after birth and patients have life-threatening anemia. Pediatric patients do not grow and gain weight at the typical rates, and often have liver, heart and bone problems. Many ß-thalassemia major patients require frequent blood transfusions to prevent severe anemia, a treatment that itself can cause long-term problems due to a build-up of iron in the body. ß-thalassemia intermedia is a less severe form of the disease that results in mild to moderate anemia. These patients sometimes require blood transfusions depending on the severity of the symptoms. Patients with ß-thalassemia minor suffer from very mild anemia and generally do not require treatment. Having either $ß^0$ or $ß^+$ thalassemia does not necessarily predict clinical disease severity as people with both types have been diagnosed with thalassemia major and thalassemia intermedia.

The current standard of care for many patients with transfusion dependent ß-thalassemia is frequent red blood transfusions to manage anemia. These frequent transfusions may lead to complications of iron overload, which has to be treated with iron chelation therapies. While allogeneic HSCT is a potentially curative treatment for ß-thalassemia, usage of this intervention is limited due to risks of complications, including mortality, and challenges of identifying a suitable HLA-matched sibling donor. In June 2019, the European Commission granted conditional marketing authorization for ZYNTEGLO, a gene therapy developed by bluebird bio, Inc., or bluebird, for the treatment of adult and adolescent patients with transfusion-dependent ß-thalassemia and with certain genotypes, in Europe. However, in August 2021, bluebird announced plans to end commercial operations in Europe and has decided to focus on the U.S. market. ZYNTEGLO was approved by the FDA in August 2022 for the treatment of adult and pediatric patients with beta-thalassemia who require regular red blood cell transfusions. Reblozyl (luspatercept), an erythroid maturation agent, is approved for the treatment of adult patients with anemia associated with ß-thalassemia and who require frequent transfusions. Despite these recently approved gene therapies and small molecule, we believe there is still a high unmet need that could be addressed by a small molecule, oral therapy to treatment the disease by increasing HbF.

Biology of ß-Thalassemia

ß-thalassemia is caused by genetic mutations in the *HBB* gene. The mutations interfere with the production of ß-globin. Some mutations result in no ß-globin being produced, while other mutations result in a decreased amount of ß-globin being produced.

Our Approach to Address the Root Cause of ß-Thalassemia

We believe that some types of ß-thalassemia may be treated by a therapy that upregulates HbF. Babies born with ß-thalassemia major generally do not have any symptoms shortly after birth because they have HbF in their blood. As the HbF levels decrease after birth and the ß-globin fails to increase, anemia appears and the babies with ß-thalassemia begin to exhibit symptoms of the disease. Patients with ß-thalassemia intermedia that have higher levels of HbF have fewer symptoms than patients with low levels of HbF. We believe that FTX-6058 may be suitable for clinical development for the treatment of patients who are not $ß^0$ but who are transfusion dependent.

FulcrumSeek Identified the Drug Target for Certain HemoglobinopathiesSCD

Applying FulcrumSeek, we We conducted target identification and validation activities using human umbilical cord blood-derived erythroid progenitor 2, or HUDEP2, cells as a model to study HbF reactivation. HUDEP2 cells are immature RBCs. By screening our small molecule probe library and a CRISPR library, we identified several potential drug targets that activated the *HBG1/2* genes and resulted in HbF elevation. Each screening approach identified the same protein complex, PRC2, which we believe plays an important role in the expression of genes responsible for the production of HbF. We conducted additional validation experiments in which we observed that inhibition of several components of this complex resulted in the desired elevation of HbF. We also observed that inhibition of these components did not adversely affect important cell health markers.

We selected a member component of this protein complex, EED, for drug discovery activities following an assessment of its tractability as a drug target, which we refer to as the HbF drug target. . The normal physiological role of the HbF drug target EED is to facilitate a post-translational protein modification, and the goal of our medicinal chemistry program was to optimize inhibitors of the HbF drug target. EED. We developed *in vitro* and *in vivo* target engagement assays, as well as enabled X-ray crystallography, to discover and develop FTX-6058, pociredir, a novel small molecule inhibitor of the HbF drug target.EED subunit of PRC2.

FTX-6058Pociredir

FTX-6058 Pociredir is an oral HbF inducer that is in development for certain hemoglobinopathies, including SCD. FTX-6058 Pociredir is designed to bind to EED and inhibit the transcriptional silencing activity of PRC2. Inhibition of EED leads to potent downregulation of key fetal globin repressors, including BCL11A, thereby causing an increase in HbF. EED is a member of the PRC2 complex, which also includes EZH2. There are approved products in the EZH2 class of medications and their approved labeling outlines safety risks, including an increased risk of hematologic malignancies. We initiated our Phase 1b clinical trial of FTX-6058 pociredir in people with SCD in the fourth quarter of 2021. In February 2022, the FDA granted orphan drug designation to FTX-6058 pociredir for the treatment of SCD. In December 2022, the FDA granted fast track designation to FTX-6058 pociredir for SCD. On February 23, 2023, In February 2023, the FDA placed the IND for FTX-6058 pociredir for the potential treatment of SCD on full clinical hold. Accordingly, we suspended enrollment and dosing in the Phase 1b trial of FTX-6058 pociredir and withdrew our separate IND for FTX-6058 pociredir in beta ß-thalassemia. The FDA's clinical hold referenced the data from toxicology studies in rats and dogs that we submitted to the IND in April, October, and December 2022, as well as a response to an early February 2023 information request from the FDA about these toxicology studies that we submitted in mid-February 2023.

As part of our FTX-6058 pociredir development program, we have conducted numerous non-clinical toxicology studies, including studies conducted under good laboratory practice, or GLP. These toxicology studies have included repeat-dose maximum tolerated dose and dose range finding studies; 28-day, 13-week, 17-week, and 26-week studies in rats; and 28-day, 13-week, and 39-week studies in dogs. In connection with the clinical hold, the FDA noted that the profile of hematological malignancies observed in the toxicology studies of FTX-6058 pociredir is similar to that observed with other inhibitors of PRC2 and that hematological malignancies have been reported clinically with other inhibitors of PRC2. We intend to work diligently to provide, as expeditiously as possible, the information that

In August 2023, the FDA will require lifted the full clinical hold on the IND for resolution pociredir for the potential treatment of the SCD of full clinical hold.

The Phase 1b clinical trial is being re-initiated at the 12 mg once daily dose level, with that cohort expected to enroll approximately 10 patients, followed by an additional cohort of 10 patients at the 20 mg once daily dose level. The protocol was amended to revise the inclusion and exclusion criteria to target patients with higher disease severity. Key inclusion criteria includes patients with certain frequencies of vaso-occlusive crises and/or other specified measures of severity, previous experience with hydroxyurea, and previous experience with a stable dose of voxelotor, crizanlizumab, or L-glutamine (or lack of access to these advanced therapies). Key exclusion criteria excludes subjects currently on or having received hydroxyurea and voxelotor, crizanlizumab or L-glutamine within 60 days prior to initiating pociredir.

Clinical Trial: Phase 1b

In January 2023, we announced Phase 1b data from subjects in the 6 mg dose cohort, as well as completion of enrollment in the 6 mg and 2 mg dose cohorts and commencement of enrollment in the 12 mg dose cohort. Until being placed on clinical hold in February 2023, the Phase 1b trial was evaluating subjects both on and off hydroxyurea. background hydroxyurea therapy.

Phase 1b data from subjects in the 6 mg dose cohort (n=10) showed up to 9.5% absolute HbF increases from baseline. These data suggested no difference in response in subjects on (n=3) and off (n=7) background hydroxyurea. We also observed improved biomarkers of hemolysis in evaluable subjects dosed at 6 mg. The figures below illustrate percentage HbF increase by HPLC and absolute percentage HbF change from baseline for evaluable subjects (n=7) in the 6 mg dose cohort. Subjects with asterisks were on background hydroxyurea.

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We have completed enrollment and dosing in the 6 mg and 2 mg dose cohorts, and we do not plan to enroll or dose additional subjects in these cohorts if we are able to resolve the clinical hold. Data from subjects in the 2 mg dose cohort (n=2), showed up to 4.6% absolute HbF increases from baseline.

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Enrollment and dosing of additional subjects in the 12 mg dose cohort (including subjects both on and off hydroxyurea), is currently on hold. Data from subjects in the 12 mg dose cohort (n=3), prior to the suspension of the trial in February 2023, showed up to 10.0% absolute HbF increases from baseline, or total HbF of ~25.0%, after 42 days of treatment. treatment (the full three months of treatment was interrupted by the clinical hold). Subjects with asterisks were on background hydroxyurea.

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Increases in HbF have been shown to reduce the frequency or severity of a broad range of SCD symptoms, including VOC, anemia, pain, infection, stroke and others. Based on a large body of genetic, clinical, and observational evidence showing the effects of higher levels of HbF in people with SCD, the induction of for a given patient, even small increases in total HbF by 5-10% over baseline could are expected to be associated with reduced disease burden and improved clinical outcomes. benefit, with levels in the upper 20% to lower 30%-range being associated with significant reductions in the manifestations of SCD. We believe these initial data showing that FTX-6058 pociredir increases HbF levels by up to 9.5% ~10.0% from baseline after as few as six weeks of therapy support its potential to become a transformative therapy for people living with SCD.

FTX-6058 Pociredir was generally well-tolerated as of the March 3, 2023 data cutoff date. There have been 14 23 TEAEs reported to as of the data cutoff date, two eight of which were reported as possibly related to study drug (headache, lip numbness) numbness, diarrhea, fatigue, somnolence, nausea or tinnitus), neither none of which were severe and were deemed non-serious. There have been no discontinuations due to TEAEs. Three TEAEs as of the

14 data cutoff date. Four of the 23 TEAEs were characterized as VOCs, and were deemed unrelated to FTX-6058, pociredir; one of which these was reported as a serious adverse event, or SAE, with acute chest syndrome in a subject who was non-adherent subject. to study drug administration.

At this time, we are not certain when we will be able to resume In August 2023, the FDA lifted the full clinical hold on the IND for pociredir for the potential treatment of SCD of full clinical hold. The Phase 1b clinical trial if is being re-initiated at all. the 12 mg once daily dose level, with that cohort expected to enroll approximately 10 patients, followed by an additional cohort of 10 patients at the 20 mg once daily dose level. The protocol was amended to revise the inclusion and exclusion criteria to target patients with higher disease severity.

Clinical Trial: Phase 1 Healthy Volunteers

In the fourth quarter of 2020, we initiated a Phase 1 clinical trial of FTX-6058 pociredir in healthy adult volunteers. The Phase 1 randomized, double-blind, placebo-controlled trial was designed to evaluate the safety, tolerability, and PK of ascending doses of FTX-6058. pociredir. In the single ascending dose, or SAD, cohorts, healthy volunteers received one dose of either placebo or 2, 4, 10, 20, 30, 40 or 60mg 60 mg of FTX-6058. pociredir. In the multiple ascending dose, or MAD cohorts, healthy volunteers received a once-daily dose of placebo or 2, 6, 10, 20 or 30mg 30 mg of FTX-6058 pociredir for 14 consecutive days. Each MAD cohort had six subjects on

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drug and two on placebo. Food effect was also studied in a separate 20mg 20 mg dose cohort. Exploratory measures were included in the MAD cohorts to assess target engagement, changes in human hemoglobin messenger RNA, or HBG mRNA, and HbF-containing reticulocytes, (F-reticulocytes). or F-reticulocytes.

We reported data from the 2, 4, 10, 20, 30 and 40mg 40 mg SAD cohorts and the 2, 6 and 10 mg MAD cohorts in healthy volunteers in August 2021, and we reported data from the 60 mg SAD cohort and the 20 and 30 mg MAD cohorts in healthy volunteers, as well as data from the 20 mg cohort assessing food effect in December 2021.

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FTX-6058 Pociredir was generally well-tolerated in healthy adult volunteers with no SAEs reported and no discontinuations due to TEAEs across all SAD and MAD cohorts. Data continued to show dose-proportional PK, with a mean half-life of approximately 6-7 hours in the MAD cohorts, supporting once-daily dosing, and no food effect was observed with FTX-6058. pociredir. Data from the MAD cohorts continued to show robust target engagement, as evidenced by an approximately 75-95% reduction from baseline in H3K27me3 after 14 days of treatment. Based on our preclinical studies, this level of target engagement is predicted to result in robust induction of *HBG1/2* and subsequently increase HbF production.

Data from the MAD cohorts also showed time- and dose-dependent HBG mRNA induction, as shown in the chart below, demonstrating proof-of-biology. Persistent HBG mRNA induction was observed for 7-10 days after treatment. In preclinical studies of FTX-6058, pociredir, increases in HBG mRNA have consistently translated to the same fold increases in HbF protein. Notably, human genetics show that 2-3-fold increases in HbF over typical baseline levels (5-10% HbF) are associated with significantly improved outcomes, and even functional cures, in people with SCD. .

HBG mRNA Mean Fold Induction for FTX-6058 pociredir versus Placebo

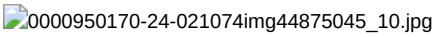
2mg*	6mg*	10mg*	20 mg	30mg	2 mg*	6 mg*	10 mg*	20 mg	30 mg

	Mean Fold Induction	P-value	Mean Fold Induction	P-value	Mean Fold Induction	P-value	Mean Fold Induction	P-value	Mean Fold Induction	P-value	Mean Fold Induction	P-value	Mean Fold Induction	P-value
Day 7	1.28	0.3494	1.94	0.0135	2.08	0.0063	2.06	0.0072	2.29	0.0025	1.28	0.3494	1.94	0.0135
Day 14	1.20	0.5122	2.45	0.0025	3.54	<0.0001	5.63	<0.0001	6.15	<0.0001	1.20	0.5122	2.45	0.0025
Safety Follow-up (Day 21-24)	1.21	0.3736	2.75	<0.0001	3.22	<0.0001	6.45	<0.0001	6.13	<0.0001	1.21	0.3736	2.75	<0.0001

FTX-6058 Pociredir Activity in Preclinical Studies

We have observed *in vitro* and *in vivo* activation of the *HBG1/2* genes in preclinical studies with FTX-6058. pociredir. We observed that FTX-6058 pociredir elevated levels of HbF with minimal adverse effects on important cellular health markers. As depicted in the graphic below, we also observed *in vitro* upregulation of HbF in primary human CD34+ cells differentiated into RBCs from 14 donors, including nine different healthy human donors, four SCD donors and one sickle cell trait donor, after seven days of drug treatment. FTX-6058 Pociredir showed a significant elevation of HbF over baseline in each of these 14 donor cell lines. We have conducted additional preclinical profiling in CD34+ derived cells and observed that treatment with FTX-6058 pociredir increased HbF levels to approximately 30% of total hemoglobin, as measured by mass spectrometry, high performance liquid chromatography, and fast protein liquid chromatography techniques. Notably, based on a review of data from other mechanisms, HbF fold induction in CD34+ cells has translated reliably into the clinic.

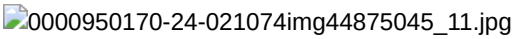
Effect of FTX-6058 pociredir treatment
in differentiated primary human CD34+ cells



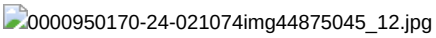
Additionally, we compared the effect of FTX-6058 pociredir in CD34+ derived cells relative to that of hydroxyurea. We observed that hydroxyurea had a minimal impact on HbF elevation, whereas we observed that FTX-6058 pociredir significantly elevated HbF. In cells treated with the combination of FTX-6058 pociredir and hydroxyurea, we observed an increased effect relative to either compound alone.

Additionally, we studied FTX-6058 pociredir in a mouse model of SCD, known as the Townes mouse model. In this model, mouse globin genes have been replaced with human globin genes, thereby allowing investigations of mechanisms that may regulate human hemoglobin gene expression. The Townes mouse model has been widely used to study potential treatments for SCD. As shown in the figures below, we observed that FTX-6058 pociredir resulted in a significant increase in HbF-expressing cells, or F-cells, and HbF protein levels after 13 days of dosing at 5 mg/kg once per day whereas hydroxyurea resulted in modest increases in F-cells and HbF.

Percentage of F-cells in Townes mice
treated with FTX-6058 pociredir



HbF protein levels in Townes mice
treated with FTX-6058 pociredir



In the graphic on the left, we quantified the percentage of F-cells as a percentage of total cells (%F-cells) for the three treatment conditions from mouse blood, shown as a percentage of vehicle-alone-treated SCD mice. In the graphic on the right, we determined the level of human HbF protein for the three treatment conditions, quantifying HbF protein as a percentage of total hemoglobin. Each value represents the mean value from eight mice per treatment after 13 days of treatment. In these studies, we used a conventional method of assessing statistical significance known as a one-way analysis of variance, or ANOVA. The p-value for FTX-6058 pociredir was less than 0.001 for both studies and the p-value for hydroxyurea in the study depicted on the right was less than 0.01.

Our Discovery Platform

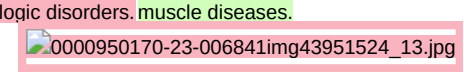
FulcrumSeek is our high-throughput discovery platform that we designed to identify and validate drug targets for our rare disease portfolio. According to the National Institutes of Health, or NIH, there are approximately 7,000 rare, genetically defined human diseases, many of which have inadequate or no approved treatments. In our approach, we obtain patient-derived, tissue-relevant cell lines or other disease relevant cell lines, which we differentiate to recapitulate and interrogate the targeted disease pathology.

These cell lines are interrogated at scale, using our proprietary automation systems to study the effects of chemical and genomic perturbations on the disease phenotype or transcriptome. We apply our highly annotated, proprietary small-molecule compound library of chemogenomic probes, designed with the intent to optimize biological diversity. In contrast with other small molecule screening approaches that optimize chemical diversity, our highly annotated library enables the rapid identification and validation of targets, as well as potential lead molecules that modulate these targets.

We also employ computational biology, such as machine learning algorithms, to guide drug target selection. Our iterative and systematic approach enables us to explore diseases with less-defined genetic links, and instead screen for targets that modulate root cause biology. As a result, we believe that we can greatly expand the number of diseases that we can potentially interrogate with FulcrumSeek.

Discovery Screening Programs

We have leveraged FulcrumSeek our discovery approach to discover targets that we are pursuing with small molecules for FSHD and SCD. We are leveraging the broad applicability of FulcrumSeek our discovery approach to discover drug targets for other rare, genetically defined diseases across muscular, hematologic within hematology and neurologic disorders. muscle diseases.



Our target identification strategy and approach continue to evolve. In addition to conducting screens to identify targets that modulate the expression of a single root cause gene, we are able to simultaneously interrogate multiple (approximately 10) root cause genes and to monitor effects on cell health all in a single screen (*i.e.*, multiplexed screening). We believe that this new approach provides significant efficiencies in productivity and allows us to test multiple hypotheses in parallel. Importantly, the expansion of FulcrumSeek with the use of high content molecular profiling, including RNAseq and cellular imaging, allows us to simultaneously measure the expression of 8,000-10,000 genes and integrate key measures related to cell health and biology, which enables us to scale our screening capacity and productivity. With the use of our small molecule probe library and our functional genomics capabilities, we aim to conduct target identification at a significantly increased scale and with cost-effectiveness. Moreover, we are using our product engine in hypothesis testing mode and in hypothesis generation mode, which we expect to increase the probability of identifying attractive targets to advance in our portfolio or in collaboration with partners 

License Agreements and Collaborations

Right of Reference and License Agreement with GlaxoSmithKline

In February 2019, we entered into a right of reference and license agreement with affiliates of GSK, as amended in September 2020, pursuant to which GSK granted us a right of reference to certain INDs filed with the FDA and controlled by GSK or its affiliates relating to losmapimod and an exclusive worldwide license under certain patent rights related to losmapimod. The agreement also provides us with an exclusive worldwide license to certain of GSK's preclinical and clinical data with respect to losmapimod. As partial consideration for the right of reference and licenses granted under the agreement, we issued 12,500,000 shares of our Series B preferred stock to GSK at the time we entered into the reference and license agreement. The agreement obligates us to use commercially reasonable efforts to develop and commercialize a licensed product for the treatment of FSHD.

The agreement grants us an exclusive, sublicensable license under the licensed patent rights and data rights to research, develop and commercialize losmapimod or any product containing losmapimod as an API, which we refer to as a licensed product, to treat disease in humans. GSK retained the right, without the right to grant sublicenses, to conduct nonclinical research under the licensed patents and data rights and, with our consent, GSK may engage in certain developmental activities relating to the use of a licensed product in connection with a specified prophylactic use. GSK also agreed to and has since transferred to us its existing manufactured supply of losmapimod.

Under the agreement, we will be obligated to make milestone payments to GSK aggregating up to $37.5 million upon the achievement of specified development and regulatory milestones with respect to the first licensed product to first achieve such milestones, including a $5.0 million milestone payment that we made to GSK during the year ended December 31, 2022 upon the initiation of the REACH Phase 3 clinical trial and a $2.5 million milestone payment we made to GSK during the year ended December 31, 2019 upon the initiation of ReDUX4, and up to $60.0 million upon the first achievement of one-time aggregate annual worldwide net sales milestones for a licensed product. We will also be obligated to pay royalties

ranging from a mid single-digit percentage to a low double-digit, but less than teens, percentage to GSK based on our, and any of our affiliates' and sublicensees', annual net sales of licensed products. The royalties are payable on a licensed product-by-licensed product and country-by-country basis, and may be reduced in specified circumstances.

Our obligation to make royalty payments extends with respect to a licensed product in a country until the earlier of the approval of a generic version of such licensed product by the applicable regulatory agency in such country or the tenth anniversary of the first commercial sale of such licensed product in such country, which we refer to as the royalty term. Following the expiration of any exclusive marketing rights or data exclusivity rights granted by a regulatory authority, other than patent rights, for any licensed product on a country-by-country basis, the applicable royalty rate will be reduced in such country. Additionally, if we or our affiliates or sublicensees determine that it is necessary to obtain a license from a third party under any patent rights to exploit a licensed product in a country, then we may deduct a certain percentage of the license fees under such third party license payable by us to the third party from the royalty payment that would otherwise be due to GSK in such country.

Unless earlier terminated in accordance with its terms, the agreement continues on a country-by-country and licensed product-by-licensed product basis until the expiration of the royalty term in each country, at which time the agreement expires with respect to such licensed product in such country and we shall have a fully-paid up, royalty-free and perpetual license to the licensed patent rights and data rights with respect to such licensed product in such country. Either party has the

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right to terminate the agreement if the other party has materially breached in the performance of its obligations under the agreement and such breach has not been cured within the applicable cure period.

Collaboration and License Agreement with MyoKardia, a wholly-owned subsidiary of Bristol-Myers Squibb Company

In July 2020, we entered into a collaboration and license agreement with MyoKardia to identify biological targets that are capable of modulating genes of interest with relevance to certain genetically defined cardiomyopathies. Under the terms of the agreement, we granted MyoKardia an exclusive worldwide license under certain intellectual property rights to research, develop, make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported, export, have exported, distribute, have distributed, market, have marketed, promote, have promoted, or otherwise exploit products directed against certain biological targets identified by us that are capable of modulating certain genes of interest with relevance to certain genetically defined cardiomyopathies.

Pursuant to a mutually agreed research plan, we will perform assay screening and related research activities to identify and validate up to a specified number of potential cardiomyopathy gene targets, or the Identified Targets, for further research, development, manufacture and commercialization by MyoKardia. We and MyoKardia will work together to determine how best to advance at each stage of the research activities under the research plan and to identify which of the Identified Targets, if any, meet the criteria set forth in the research plan, or the Cardiomyopathy Target Candidates. Upon completion of the research plan, the parties will work together to prepare a final data package and MyoKardia may designate certain Cardiomyopathy Target Candidates for MyoKardia's further exploitation under the agreement, or the Cardiomyopathy Targets. If MyoKardia does not designate any Cardiomyopathy Targets during the designated period, then the agreement will automatically terminate. If MyoKardia designates one or more Cardiomyopathy Targets, then MyoKardia will be obligated to use commercially reasonable efforts to seek regulatory approval for and to commercialize one product directed against an Identified Target in certain specified countries.

During the period in which we are performing the research activities pursuant to the research plan, or the Research Term and for a specified period beyond the Research Term if MyoKardia designates a Cardiomyopathy Target, we may only use the data generated from such research activities for MyoKardia in accordance with the agreement. During the Research Term and for a specified period thereafter, we may not research, develop, manufacture, commercialize, use, or otherwise exploit any compound or product (a) that is a compound or product under the agreement that is directed against the Cardiomyopathy Target Candidates for the treatment, prophylaxis, or diagnosis of any indication or (b) for the treatment of any genetically defined cardiomyopathies shown to be related to certain specified genes of interest that are modulated by the Cardiomyopathy Targets.

Under the agreement, MyoKardia made a $10.0 million upfront payment and a $2.5 million payment as prepaid research funding to us in July 2020. MyoKardia will also reimburse us for the costs of the research activities not covered by the prepaid research funding, up to a maximum amount of total research funding (including the prepaid research funding). Upon the achievement of specified preclinical, development and sales-based milestones, we will be entitled to preclinical milestone payments, development milestone payments and sales-based milestone payments of up to $298.5 million in the aggregate per

target for certain Identified Targets, and of up to $150.0 million in the aggregate per target for certain other Identified Targets. To date, we have achieved a $2.5 million specified preclinical milestone. MyoKardia will also pay us tiered royalties ranging from a mid single-digit percentage to a low double-digit percentage based on MyoKardia's, and any of its affiliates' and sublicensees', annual worldwide net sales of products under the agreement directed against any Identified

Target. The royalties are payable on a product-by-product basis during a specified royalty term, and may be reduced in specified circumstances.

The agreement continues on a country-by-country and product-by-product basis until the expiration of the last to expire royalty term for a product, at which time the agreement expires with respect to such product in such country, unless the agreement is terminated earlier in accordance with its terms. Either party has the right to terminate the agreement if the other party has materially breached in the performance of its obligations and such breach has not been cured within the applicable cure period. MyoKardia also has the right to terminate the agreement for convenience in its entirety or on a target-by-target, product-by-product or molecule-by-molecule basis, upon prior written notice to us.

License Agreement with CAMP4

In July 2023, we entered into a license agreement with CAMP4 pursuant to which we received a worldwide exclusive license (including the right to sublicense) from CAMP4 to rights under its Diamond Blackfan Anemia, or DBA program, which includes certain small molecule compounds, composition of matter and method of use patent rights, and know-how for us to research, develop, manufacture, use, commercialize or otherwise exploit therapeutic products in any indication, including the grant of a sublicense under certain intellectual property rights that CAMP4 has licensed under an agreement with Children's Medical Center Corporation, or CMCC.

We made an undisclosed upfront non-refundable, non-creditable payment to CAMP4. If we succeed in developing and commercializing licensed products, CAMP4 will be eligible to receive (i) up to $35.0 million in development and regulatory milestone payments, and (ii) up to $35.0 million in sales milestone payments. CAMP4 is also eligible to receive royalties on worldwide net sales of licensed products ranging from mid-single digit to low-double digit, subject to potential reduction following loss of patent coverage, the launch of certain generic products or royalty stacking for licenses of third party intellectual property. The royalties will expire on a product-by-product and country-by-country basis upon the latest to occur of (i) the expiration of all valid patent claims covering the compounds in such country, (ii) the expiration of all regulatory exclusivities in such country, and (iii) 10 years following the first commercial sale of in such country. We are responsible for the costs associated with the development and regulatory approvals of licensed products.

Unless earlier terminated in accordance with its terms, the license agreement continues on a country-by-country and licensed product-by-licensed product basis until the expiration of the royalty term in each country, at which time the license agreement expires with respect to such licensed product in such country and we will have a fully-paid up, royalty-free and perpetual license to the licensed patent rights and know-how with respect to such licensed product in such country. CAMP4 has the right to terminate the license agreement in the event of our non-payment (subject to cure periods and tolling for bona fide disputes). CAMP4 may also terminate the license agreement if we challenge certain patents sublicensed to us by CAMP4. Either party may terminate the license agreement in its entirety for the other party's material breach if such other party fails to cure the breach. Either party may also terminate the agreement in its entirety upon certain insolvency events involving the other party. We have the right to terminate the license agreement with CAMP4 for any or no reason upon prior written notice to CAMP4.

Intellectual Property

We strive to protect and enhance the proprietary technology, our discovery approach, inventions and improvements that are commercially important to the development of our business, including by seeking, maintaining and defending patent rights, whether developed internally or licensed from third parties. We also rely on trade secrets, know-how, continuing technological innovation and in-licensing opportunities to develop, strengthen and maintain our proprietary position in our field.

Our future commercial success depends, in part, on our ability to: obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business; defend and enforce in our intellectual property rights, in particular our patents rights; preserve the confidentiality of our trade secrets; and operate without infringing, misappropriating or violating the valid and enforceable patents and proprietary rights of third parties. Our ability to stop third parties from making, using, selling, offering to sell or importing our products may depend on the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities.

The patent positions of biotechnology and pharmaceutical companies like ours are generally uncertain and can involve complex legal, scientific and factual issues. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient proprietary protection from competitors. We also cannot ensure that patents will issue with respect to any patent applications that we or our licensors may file in the future, nor can we ensure that any of our owned or licensed patents or future patents will be commercially useful in protecting our product candidates and methods of manufacturing the same. In addition, the coverage claimed in a patent application may be significantly reduced before a patent is issued, and its scope can be reinterpreted and even challenged after issuance. As a result, we cannot guarantee that any of our products will be protected or remain protectable by enforceable patents. Moreover, any patents that we hold may be challenged, circumvented or invalidated by third parties. See “Risk Factors—Risks Related to Our Intellectual Property” for a more comprehensive description of risks related to our intellectual property.

We generally file patent applications directed to our key programs in an effort to secure our intellectual property positions vis-a-vis these programs. As of March 2, 2023 February 20, 2024, we owned or in-licensed 11 eight U.S. patents, seven nine U.S. pending non-provisional patent applications and related pending foreign patent applications, and three one pending U.S. provisional patent applications.application.

The intellectual property portfolio for our most advanced programs as of March 2, 2023 February 20, 2024, is summarized below. Prosecution is a lengthy process, during which the scope of the claims initially submitted for examination by the U.S. Patent and Trademark Office may be significantly narrowed before issuance, if issued at all. We expect this may be the case with respect to some of our pending patent applications referred to below.

Losmapimod

With respect to losmapimod, we own one U.S. patent covering the method of use of losmapimod for the treatment of patients with FSHD and two U.S. patent patents covering the use of other clinical-stage p38 inhibitors for the treatment of patients

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with FSHD, each of which are expected to expire in 2038, and related patents and pending patent applications in Canada and Mexico, Europe, Africa, Australia and New Zealand, South America, and Asia with expiration dates in 2038. We also own three related two pending U.S. non-provisional applications one and related patent applications pending PCT application in Europe, China, and other countries directed to methods of using losmapimod for FSHD, and one pending U.S. provisional application relating to method formulations of using losmapimod for FSHD and other disorders that, if resulting in issued patents, are expected to expire between 2038 and 2043. 2044. The patents to losmapimod licensed from GSK as a composition of matter and pharmaceutical composition have expired.

FTX-6058 Pociredir

Currently, our patent portfolio related to FTX-6058 pociredir includes two issued U.S. patents directed to composition of matter that is expected to expire in 2040, two one U.S. non-provisional applications application and related pending patent applications in Canada

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and Mexico, Europe, Africa, Australia and New Zealand, South America, and Asia that, if issued, are expected to expire between 2039 and 2040. We also own three U.S. non-provisional applications and related patent applications pending in Europe directed to solid forms and methods of using pociredir and one

pending PCT applications and two pending U.S. provisional applications application directed to FTX-6058 pociredir methods of use and formulations, that, if resulting in issued patents, would be expected to expire between 2042 and 2043.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the earliest date of filing a non-provisional patent application.

In the United States, the term of a patent covering an FDA-approved drug may, in certain cases, be eligible for a patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984 as compensation for the loss of patent term during the FDA regulatory review process. The period of extension may be up to five years, but cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval. Only one patent among those eligible for an extension and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. Similar provisions are available in Europe and in certain other jurisdictions to extend the term of a patent that covers an approved drug. It is possible that issued U.S. patents covering the use of losmapimod and products from our intellectual property may be entitled to patent term extensions. If our use of drug candidates or the drug candidate itself receive FDA approval, we intend to apply for patent term extensions, if available, to extend the term of patents that cover the approved use or drug candidate. We also intend to seek patent term extensions in any jurisdictions where available, however, there is no guarantee that the applicable authorities, including the FDA, will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions.

In addition to patent protection, we rely upon unpatented trade secrets and confidential know-how and continuing technological innovation to develop and maintain our competitive position. However, trade secrets and confidential know-how are difficult to protect. We seek to protect our proprietary information, in part, using confidentiality agreements with any collaborators, scientific advisors, employees and consultants and invention assignment agreements with our employees. We also have agreements requiring assignment of inventions with selected consultants, scientific advisors and collaborators. These agreements may not provide meaningful protection. These agreements may also be breached, and we may not have an adequate remedy for any such breach. In addition, our trade secrets and/or confidential know-how may become known or be independently developed by a third party, or misused by any collaborator to whom we disclose such information. Despite any measures taken to protect our intellectual property, unauthorized parties may attempt to copy aspects of our products or to obtain or use information that we regard as proprietary. Although we take steps to protect our proprietary information, third parties may independently develop the same or similar proprietary information or may otherwise gain access to our proprietary information. As a result, we may be unable to meaningfully protect our trade secrets and proprietary information. See “Risk Factors—Risks Related to our Intellectual Property” for a more comprehensive description of risks related to our intellectual property.

Manufacturing

We do not have any manufacturing facilities. We have obtained sufficient quantities of losmapimod from a contract manufacturing organization to complete our ongoing Phase 3 clinical trial in FSHD.

We have obtained sufficient quantities of FTX-6058 pociredir from a contract manufacturing organization to complete our Phase 1b clinical trial, which is currently on clinical hold. trial.

We expect to continue to rely on third parties for the manufacture of FTX-6058 pociredir for any future clinical trials and for the manufacture of any future product candidates for preclinical and clinical testing, as well as for commercial manufacture if our product candidates receive marketing approval. Our lead product candidates are small molecules and can be manufactured in reliable and reproducible synthetic processes from readily available starting materials. We expect to continue to develop product candidates that can be produced cost-effectively at contract manufacturing facilities.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. While we believe that our technologies, knowledge, experience and scientific resources provide us with competitive advantages, we face

competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future.

Many of the companies against which we are competing or against which we may compete in the future have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industry may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

The key competitive factors affecting the success of all of our therapeutic product candidates, if approved, are likely to be their efficacy, safety, convenience, price, the effectiveness of companion diagnostics in guiding the use of related therapeutics, the level of generic competition and the availability of reimbursement from government and other third-party payors.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval or emergency use authorizations for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic products. If our product candidates achieve marketing approval, we expect that they will be priced at a significant premium over competitive generic products.

If our lead product candidates are approved for the indications for which we are currently undertaking clinical trials, they will compete with the therapies and currently marketed drugs discussed below.

FSHD

There are no approved therapies for the treatment of FSHD. Current treatment is limited to symptomatic management including physical/ occupational therapy, low-intensity aerobic exercise tailored to the patient's distribution of weakness, and general pain management, which may provide limited beneficial effect. Limited range of motion in the shoulder girdle can stem from periscapular muscle weakness leading to scapular winging and in such cases, surgical scapular fixation can result in some functional improvement for certain patients.

Losmapimod could face competition from other therapeutic approaches in development for patients with FSHD. Roche is evaluating RO7204239, a myostatin inhibitor, in a Phase 2 study in adults with FSHD. Avidity is evaluating AOC 1020, an siRNA antibody-oligonucleotide complex, in a Phase½ Phase 1/2 clinical trial in adults with FSHD. Arrowhead Pharmaceutical is evaluating ARO-DUX4, an antibody-oligonucleotide conjugate, in adults with FSHD in a Phase 1/2a trial. We are not aware of any product candidate currently in clinical development for FSHD with the same mechanism of action as losmapimod.

SCD

Approved Several approved drug treatments for SCD focus primarily on the management and reduction of painful vaso-occlusive crises, and improvement of hemolytic anemia. The four six drug treatments approved in the United States are hydroxyurea, voxelotor, crizanlizumab, L-glutamine, lovo-cel, and L-glutamine. exa-cel. Hydroxyurea is approved for the treatment of SCD, to reduce the frequency of painful crises and to reduce the need for blood transfusions. Hydroxyurea is available in both generic and brand name formulations including DROXIA manufactured by Bristol Myers Squibb, and SIKLOS

manufactured by Addmedica. Voxelotor, brand name OXBRYTA, marketed by Pfizer Inc., is approved under accelerated approval as a hemoglobin polymerization inhibitor to increase hemoglobin. Crizanlizumab, a fully-human monoclonal antibody p-selectin inhibitor marketed by Novartis, is approved for the reduction in the frequency of VOCs. L-glutamine, brand name ENDARI, marketed by Emmaus Life Sciences, Inc., is approved to reduce acute complications of the disorder.

Lovo-cel and exa-cel are gene therapies approved for the treatment of severe SCD. Lovo-cel, brand name LYFGENIA, is a gene therapy designed to add functional copies of a modified form of the β-globin gene into patient's hematopoietic stem cells (HSCs), to make normally functioning RBCs. Exa-cel, brand name CASGEVY, is a gene therapy consisting of autologous CD34+ cells edited by CRISPR/Cas9-technology to decrease BCL11A expression, resulting in increased HbF production. Gene therapies need to be administered in an in-patient procedure known as HSCT. As part of the transplant process, the patient receives myeloablative chemotherapy to remove the original unedited stem cells in the bone marrow in order to enable the genetically modified stem cells to engraft.

A supportive care option for management of SCD is red blood cell transfusion but this can potentially be complicated by alloimmunization, transfusion reactions, and iron overload.

The only An additional potentially curative treatment currently approved for severe SCD populations is HSCT. allo-HSCT. However, HSCT allo-HSCT is more commonly offered to pediatric individuals with an available HLA-matched sibling donor. The 5-year survival rates in this young population is quite high but for older individuals (>16 years), the survival rates can be considerably lower. There are also significant risks associated with HSCT allo-HSCT including infertility and graft-versus-host disease.

FTX-6058 A supportive care option for management of SCD is red blood cell transfusion but this can potentially be complicated by alloimmunization, transfusion reactions, and iron overload.

Pociredir could face competition from a number of different therapeutic approaches in development for people with SCD. Novo Nordisk A/S, or Novo, is evaluating nDec (decitabine-tetrahydrouridine), a small molecule designed to increase production of HbF, in a Phase 2 clinical trial that began enrolling in the summer of 2022. Novo is also evaluating etavopivat,

a PKR agonist, in a Phase 2/3 clinical trial. Agios Pharmaceuticals, Inc., is evaluating mitapivat, a PKR agonist, in a Phase 2/3 clinical trial in subjects with SCD. Pfizer, Inc. is evaluating GBT-601, an HbS polymerization inhibitor, that is anticipated to initiate a Phase 3 clinical trial in 2023, inclacumab, a P-selectin inhibitor that is being evaluated in two Phase 3 clinical trials, and PF-07209326, an anti-E-selectin inhibitor, in a Phase 1 clinical trial. Takeda Pharmaceutical Company Limited, is evaluating TAK-755, recombinant ADAMTS13 protein, in a Phase 1 clinical trial in participants with baseline health SCD and SCD with acute VOCs. Vertex Pharmaceuticals Incorporated, or Vertex, expects to complete a rolling BLA submission in the first quarter of 2023 for exagamglogene autotemcel (exa-cel), a gene therapy for the potential treatment of SCD. Vertex has announced that they intend to focus initial commercialization efforts on 32,000 people with severe SCD and ß-thalassemia in the United States and the EU. Sangamo Therapeutics Inc., or Sangamo, is developing SAR445136, a gene editing cell therapy that modifies cells to produce functional RBCs using HbF, in a Phase 1/2 clinical trial. bluebird is evaluating lovo-cel, a gene therapy, in a Phase 3 clinical trial and expects to submit a BLA in the first quarter of 2023. There are also several other gene editing approaches being evaluated by Intellia Therapeutics, Inc. (in collaboration with Novartis), Editas Medicine, Inc., Graphite Bio, and Beam Therapeutics.

ß-thalassemia

The current standard of care for many patients with transfusion dependent ß-thalassemia is frequent red blood transfusions to manage anemia. These frequent transfusions may lead to complications of iron overload, which has to be treated with iron chelation therapies. While allogeneic HSCT is a potentially curative treatment for ß-thalassemia, usage of this intervention is limited due to risks of complications, including mortality, and challenges of identifying a HLA-matched sibling. In June 2019, European Commission granted conditional marketing authorization for ZYNTEGLO, a gene therapy developed by bluebird, for the treatment of adult and adolescent patients with transfusion-dependent ß-thalassemia and with certain genotypes, in Europe. However, in August 2021, bluebird announced plans to end commercial operations in Europe and has decided to focus on the U.S. market. ZYNTEGLO was approved by the FDA in August 2022 for the treatment of adult and pediatric patients with beta-thalassemia who require regular red blood cell transfusions. Reblozyl (luspatercept), an erythroid maturation agent, is approved for the treatment of adult patients with anemia associated with ß-thalassemia and who require frequent transfusions. Despite these recently approved gene therapies and small molecule, we believe there is still a high unmet need that could be addressed by a small molecule, oral therapy to treatment the disease by increasing HbF.

FTX-6058 could face competition from a number of different therapeutic approaches in development for patients with transfusion-dependent ß-thalassemia. Agios Pharmaceuticals, Inc., is evaluating mitapivat, a PKR agonist, in two Phase 3 clinical trials in patients with non-transfusion dependent and transfusion-dependent ß-thalassemia. Novo is evaluating etavopivat , a PKR agonist, in a Phase 2 clinical trial in non-transfusion and transfusion-dependent ß-thalassemia. Ionis Pharmaceuticals, Inc., is evaluating sapablursen (formerly IONIS TMPRSS6-LRx), an ASO therapy targeting TMPRSS6, in a Phase 2 clinical trial of non-transfusion dependent β-thalassemia intermedia. Disc Medicine is developing MWTX-003, a monoclonal antibody against TMPRSS6 and plans to initiate a Phase 1 clinical trial in the second half of 2023. Silence Therapeutics is investigating SLN124, an siRNA therapy targeting TMPRSS6, in a Phase 1 healthy volunteer study. Vertex expects to complete a rolling BLA submission in the first quarter of 2023 for exagamglogene autotemcel (exa-cel), a gene therapy for the potential treatment of transfusion dependent ß-thalassemia

Government Regulation and Product Approvals

Government authorities in the United States at the federal, state and local level, and in other countries and jurisdictions, including the European Union, extensively regulate, among other things, the research, development, testing, manufacture, pricing, reimbursement, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of biopharmaceutical products. The

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processes for obtaining marketing approvals in the United States and in foreign countries and jurisdictions, along with compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

Approval and Regulation of Drugs in the United States

In the United States, drug products are regulated under the Federal Food, Drug and Cosmetic Act, or FDCA, and applicable implementing regulations and guidance. The failure of an applicant to comply with the applicable regulatory requirements at any time during the product development process, including non-clinical testing, clinical testing, the approval process or post-approval process, may result in delays to the conduct of a study, regulatory review and approval and/or administrative or judicial sanctions.

An applicant seeking approval to market and distribute a new drug in the United States generally must satisfactorily complete each of the following steps before the product candidate will be approved by the FDA:

- preclinical testing including laboratory tests, animal studies and formulation studies, which must be performed in accordance with the FDA's GLP regulations and standards;
- submission to the FDA of an IND for human clinical testing, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, representing each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials to establish the safety potency and purity effectiveness of the product candidate fo each proposed indication, in accordance with current good clinical practices, or GCP;
- preparation and submission to the FDA of a new drug application, or NDA, for a drug product which includes not only the results of the clinical trials but also, detailed information on the chemistry, manufacture and quality controls for the product candidate and proposed labelling for one or more proposed indication(s);
- review of the product candidate by an FDA advisory committee, where appropriate or if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities, including those of third parties, at which the product candidate components thereof are manufactured to assess compliance with current good manufacturing practices, or cGMP, requirements and to assure that facilities, methods and controls are adequate to preserve the product's identity, strength, quality and purity;
- satisfactory completion of any FDA audits of the non-clinical and clinical trial sites to assure compliance with GCP and the integrity of clinical data in support of the NDA;

- payment of user fees and securing FDA approval of the NDA to allow marketing of the new drug product; and
- compliance with any post-approval requirements, including the potential requirement to implement a Risk Evaluation and Mitigation Strategy, or REI and the potential requirement to conduct any post-approval studies required by the FDA.

Preclinical Studies

Before an applicant begins testing a product candidate with potential therapeutic value in humans, the product candidate enters the preclinical testing stage, including *in vitro* and animal studies to assess the safety and activity of the drug for initial testing in humans and to establish a rationale for therapeutic use. Preclinical tests include laboratory evaluations of product chemistry, formulation and stability, as well as other studies to evaluate, among other things, the toxicity of the product candidate. The conduct of the preclinical tests and formulation of the compounds for testing must comply with federal regulations and requirements, including GLP regulations and standards. The results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical trials, among other things, are submitted to the FDA as part of an IND. Some long-term preclinical testing, such as animal tests of reproductive adverse events and carcinogenicity and long-term toxicity studies may continue after the IND is submitted.

The IND and IRB Processes

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include, among other things, the requirement that all

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research subjects provide their voluntary informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written study protocols detailing, among other things, the inclusion and exclusion criteria, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND.

An IND is an exemption from the FDCA that allows an unapproved product candidate to be shipped in interstate commerce for use in an investigational clinical trial and a request for FDA authorization to administer such investigational product to humans. Such authorization must be secured prior to interstate shipment and administration of any product candidate that is not the subject of an approved NDA. In support of a request for an IND, applicants must submit a protocol for each clinical trial, and any subsequent protocol amendments must be submitted to the FDA as part of the IND. The FDA requires a 30-day waiting period after the filing of each IND before clinical trials may begin. This waiting period is designed to allow the FDA to review the IND to determine, among other things, whether human research subjects will be exposed to

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unreasonable health risks. At any time during this 30-day period, the FDA may raise concerns or questions about the conduct of the trials as outlined in the IND and impose a clinical hold or partial clinical hold. In these cases, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can begin.

Following commencement of a clinical trial under an IND, the FDA may also place a clinical hold or partial clinical hold on that trial. Clinical holds are imposed by the FDA whenever there is concern for patient safety and may be a result of new data, findings, or developments in clinical, nonclinical, and/or chemistry, manufacturing, and controls areas. A clinical hold is an order issued by the FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation. A partial clinical hold is a delay or suspension of only part of the clinical work requested under the IND. For example, a specific protocol or part of a protocol may not be allowed to proceed, while other protocols may be allowed. No more than 30 days after imposition of a clinical hold or partial clinical hold, the FDA will provide the sponsor a written explanation of the basis for the hold. Following issuance of a clinical hold or partial clinical hold, a clinical trial may only resume after the FDA has so notified the sponsor. The FDA will base that determination on information provided by the sponsor correcting the deficiencies previously cited or otherwise satisfying the FDA that the clinical trial can proceed.

A sponsor may choose, but is not required, to conduct a foreign clinical study under an IND. When a foreign clinical study is conducted under an IND, all FDA IND requirements must be met unless waived. When a foreign clinical study is not conducted under an IND, the sponsor must ensure that the study complies with certain regulatory requirements, including GCP requirements, of the FDA in order to use the study as support for an IND or application for marketing approval. The GCP requirements encompass both ethical and data integrity standards for clinical studies. The FDA's regulations are intended to help ensure the protection of human subjects enrolled in non-IND foreign clinical studies, as well as the quality and integrity of the resulting data. They further help ensure that non-IND foreign studies are conducted in a manner comparable to that required for IND studies.

In addition to the foregoing IND requirements, an IRB representing each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. An IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements, the protocol, or other requirements or if the product candidate has been associated with unexpected serious harm to patients.

Additionally, some trials are overseen by an independent group of qualified experts organized by the trial sponsor, known as a data safety monitoring board or committee. This group provides authorization as to whether or not a trial may move forward at designated check points based on access that only the group maintains to available data from the study.

Suspension or termination of development during any phase of clinical trials can occur for many reasons, including if the FDA, an IRB, a data safety monitoring board, or we determine that the participants or patients are being exposed to an unacceptable health risk. Other reasons for suspension or termination may be made by us based on factors such as evolving business objectives and/or the competitive environment.

Information about clinical trials must be submitted within specific timeframes to the NIH for public dissemination on its ClinicalTrials.gov website. Similar requirements for posting clinical trial information are present in the European Union (EudraCT) website: https://eudract.ema.europa.eu/ and other countries, as well.

Expanded Access to an Investigational Drug for Treatment Use

Expanded access, sometimes called "compassionate use," is the use of investigational new drug products outside of registrational clinical trials to treat patients with serious or immediately life-threatening diseases or conditions when there are no comparable or satisfactory alternative treatment options. The rules and regulations related to expanded access are intended

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to improve access to investigational drugs for patients who may benefit from investigational therapies that do not conflict with registrational trials. FDA regulations allow access to investigational drugs under an IND by the company or the treating physician for treatment purposes on a case-by-case basis for: individual patients (single-patient IND applications for treatment in emergency settings and non-emergency settings); intermediate-size patient populations; and larger populations for use of the drug under a treatment protocol or Treatment IND Application.

When considering an IND application for expanded access to an investigational product, the FDA will determine suitability when all of the following criteria apply: patient(s) have a serious or immediately life-threatening disease or condition, and there is no comparable or satisfactory alternative therapy to diagnose, monitor, or treat the disease or condition; the potential patient benefit justifies the potential risks of the treatment and the potential risks are not unreasonable in the context or condition to be treated; and the expanded use of the investigational drug for the requested treatment will not interfere with the initiation, conduct, or completion of clinical investigations that could support marketing approval of the product or otherwise compromise the potential development of the product.

There is no obligation for a sponsor to make its drug products available for expanded access; however, sponsor must make its expanded access policy publicly available upon the earlier of initiation of a Phase 2 or Phase 3 clinical trial; or 15 days after the drug or biologic receives designation as a breakthrough therapy, fast track product, or regenerative medicine advanced therapy.

Human Clinical Trials in Support of an NDA

Clinical trials involve the administration of the investigational product candidate to human subjects under the supervision of a qualified investigator in accordance with GCP requirements, which include, among other things, the requirement that all research subjects provide their informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written clinical trial protocols detailing, among other things, the objectives of the study, inclusion and exclusion criteria, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated.

Human clinical trials are typically conducted in three sequential phases, but the phases may overlap or be combined. Additional studies may also be required after approval.

Phase 1 clinical trials are initially conducted in a limited population to test the product candidate for safety, including adverse effects, dose tolerance, absorption, metabolism, distribution, excretion and pharmacodynamics in healthy humans or in patients. During Phase 1 clinical trials, information about the investigational drug product's PK and pharmacological effects may be obtained to permit the design of scientifically valid Phase 2 clinical trials.

Phase 2 clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, evaluate the efficacy of the product candidate for specific targeted indications and determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more costly Phase 3 clinical trials. Phase 2 clinical trials are well controlled, closely monitored and conducted in a limited patient population.

Phase 3 clinical trials proceed if the Phase 2 clinical trials demonstrate that a dose range of the product candidate is potentially effective and has an acceptable safety profile. Phase 3 clinical trials are undertaken within an expanded patient population to further evaluate dosage, provide substantial evidence of clinical efficacy and further test for safety in an expanded and diverse patient population at multiple, geographically dispersed clinical trial sites. A well-controlled, statistically robust Phase 3 clinical trial that is designed to deliver the data that regulatory authorities will use to decide whether or not to approve, and, if approved, how to appropriately label a drug, is referred to as "pivotal."

In some cases, the FDA may approve an NDA for a product candidate but require the sponsor to conduct additional clinical trials to further assess the product candidate's safety and effectiveness after approval. Such post-approval trials are typically referred to as Phase 4 clinical trials. These studies are used to gain additional experience from the treatment of a larger number of patients in the intended treatment group.

IND annual reports detailing, among other things, the results of the clinical trials must be submitted to the FDA and IND safety reports must be submitted to the FDA for any of the following: serious and unexpected suspected adverse reactions; findings from other studies or animal or *in vitro* testing that suggest a significant risk in humans exposed to the product; and any clinically important increase in the case of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. The FDA will typically inspect one or more clinical sites to assure compliance with GCP and the integrity of the clinical data submitted.

Concurrent with clinical trials, companies often complete additional animal studies. They must also develop additional information about the chemistry and physical characteristics of the drug as well as finalize a process for manufacturing the

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product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the drug candidate and, among other things, must develop methods for testing the identity, strength, quality, purity, and potency of the final drug. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the drug candidate does not undergo unacceptable deterioration over its shelf life.

Pediatric Studies

Under the Pediatric Research Equity Act of 2003, or PREA, an NDA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. Sponsors must also submit pediatric study plans that contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests and other information required by regulation. The applicant, the FDA, and the FDA's internal review committee must then review the information submitted, consult with each other and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or grant full or partial waivers from the pediatric data requirements. The FDA maintains a list of diseases that are exempt from the requirements of PREA, due to low prevalence of disease in the pediatric population, and product candidates that have received orphan drug designation are generally exempt from PREA requirements, although orphan-designated drugs intended for treatment of certain molecularly targeted cancer indications are not eligible for the exemption.

Review and Approval of an NDA

In order to obtain approval to market a drug product in the United States, a marketing application must be submitted to the FDA that provides sufficient data establishing the safety and effectiveness of the proposed drug product for its intended indication. The application includes all relevant data available from pertinent preclinical and clinical trials, 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 trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by independent investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety, purity and potency of the drug product to the satisfaction of the FDA.

The NDA is a vehicle through which applicants formally propose that the FDA approve a new drug product for marketing and sale in the United States for one or more indications. Every new non-biologic drug product candidate must be the subject of an approved NDA before it may be commercialized in the United States. BLAs are submitted for approval of biologic products. Under federal law, the submission of most NDAs is subject to an application user fee, which for federal fiscal year 2023 is $3,242,026 for an application requiring clinical data. The sponsor of an approved NDA is also subject to an annual program fee, which for fiscal year 2023 is $393,933. Certain exceptions and waivers are available for some of these fees, such as an exception from the application fee for products with orphan designation, an exception from the program fee when the program does not engage in manufacturing the drug during a particular fiscal year and a waiver for certain small businesses.

The FDA conducts a preliminary review of the application, generally within 60 calendar days of its receipt, and strives to inform the sponsor within 74 days whether the application is sufficiently complete to permit substantive review. The FDA may request additional information rather than accept the application for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Under certain circumstances, the FDA may determine the application is not sufficiently complete to permit a substantive review and will issue a refuse to file letter. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA has agreed to specified performance goals in the review process of NDAs. Under that agreement, 90% of applications seeking approval of New Molecular Entities, or NMEs, are meant to be reviewed within ten months from the date on which the FDA accepts the application for filing, and 90% of applications for NMEs that have been designated for Priority Review are meant to be reviewed within six months of the filing date. The review process and the Prescription Drug User Fee Act, or PDUFA, goal date may be extended by the FDA to consider new information or clarification provided by the applicant, to address a deficiency identified by the FDA in the original submission, or for other reasons.

Before approving an application, the FDA typically will inspect the facility or facilities where the product is being or will be manufactured. These pre-approval inspections may cover all facilities associated with an NDA submission, including

component manufacturing, finished product manufacturing and control testing laboratories. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP.

The FDA may refer an application for a novel product to an advisory committee or explain why such referral was not made. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that review, evaluate and provide a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but the FDA considers such recommendations carefully when making decisions.

Fast Track, Breakthrough Therapy, Priority Review

The FDA has certain programs designed to expedite the development and review of product candidates intended to address an unmet medical need in the treatment of a serious or life-threatening disease or condition. These programs include Fast Track designation, Breakthrough Therapy designation, Priority Review designation and Regenerative Medicine Advanced Therapy designation. Sponsors must request these designations at appropriate points in the development process.

The FDA may designate a product for Fast Track review if it is intended, whether alone or in combination with one or more other products, for the treatment of a serious or life-threatening disease or condition and it demonstrates the potential to address unmet medical needs for such a disease or condition. For Fast Track products, sponsors may have greater interaction with the FDA, and the FDA may initiate review of sections of a Fast Track product's application before the application is complete, in a process called rolling review. The sponsor must also provide, and the FDA must approve, a schedule for the submission of the remaining information, and the sponsor must pay applicable user fees. However, the FDA's PDUFA goal for reviewing a Fast Track application does not begin until the last section of the application is submitted. In addition, the Fast Track designation may be withdrawn if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process or for the other reasons.

A product may be designated as a Breakthrough Therapy if it is intended, either alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. A product that receives Breakthrough Therapy Designation is eligible for all of the features of Fast Track Designation, and additionally is eligible for intensive guidance throughout the development process and a commitment to involve senior staff.

The FDA may designate a product for Priority Review if it treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness. The FDA determines, on a case-by-case basis, whether the proposed product represents a significant improvement when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting product reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, and evidence of safety and effectiveness in a new subpopulation. A Priority Review designation is intended to direct overall attention and resources to the evaluation of such applications and to shorten the FDA's goal for taking action on a marketing application from ten months to six months.

Accelerated Approval Pathway

The FDA may grant accelerated approval to a product for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely, based on epidemiologic, therapeutic, pathophysiologic, or other evidence, to predict clinical benefit. The FDA may also grant accelerated approval for such a condition when the product has an effect on an intermediate clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality, or IMM, and that is reasonably likely to predict an effect on IMM or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. Products granted accelerated approval must meet the same statutory standards for safety and effectiveness as those granted traditional approval.

For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, efficacy biomarker or other measure that is thought to predict clinical benefit but is not itself a measure of clinical benefit. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints.

The accelerated approval pathway is most often used in settings in which the course of a disease is long and an extended period of time is required to measure the intended clinical benefit of a product, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. The benefit of accelerated approval derives from the potential to receive approval based on surrogate endpoints sooner than possible for trials with clinical or survival endpoints, rather than deriving from any explicit shortening of the FDA approval timeline, as is the case with Priority Review.

The accelerated approval pathway is contingent on a sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the product's clinical benefit. As a result, a product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Under the Food and Drug Omnibus Reform Act of 2022, or FDORA, the FDA is now permitted to require, as appropriate, that such trials be underway prior to approval or within a specific time period after the date accelerated approval is granted. Under FDORA, the FDA has increased authority for expedited procedures to withdraw approval of the product if, for example, the confirmatory trial fails to verify the predicted clinical benefit of the product. In addition, the FDA generally requires, unless otherwise informed by the agency, pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

The FDA's Decision on an NDA

On the basis of the FDA's evaluation of the application and accompanying information, including the results of the inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

If the FDA approves a new product, it may limit the approved indications for use of the product, require that contraindications, warnings or precautions be included in the product labeling, or require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess the drug's safety after approval. The agency may also require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including Risk Evaluation and Mitigation Strategies (REMS), to help ensure that the benefits of the product outweigh the potential risks. REMS programs can include medication guides, communication plans for health care professionals, and elements to assure safe use, or ETASU. ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patent registries. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. The FDA may require a REMS before or after approval if it becomes aware of a serious risk associated with use of the product. The requirement for a REMS can materially affect the potential market and profitability of a product. After approval, many types of changes to the approved product, such as adding new indications, changing manufacturing processes and adding labeling claims, are subject to further testing requirements and FDA review and approval.

Post-Approval Regulation

A sponsor that obtains regulatory approval for marketing of a new product or a new indication for an existing product, will be subject to numerous post-approval regulatory requirements. The sponsor will be required to report, among other things, certain adverse reactions and manufacturing problems to the FDA, provide updated safety and efficacy information, comply with requirements concerning advertising and promotional labeling requirements, and submit NDA annual reports. Manufacturers and certain of their subcontractors, including those supplying products, ingredients and components, are required to register their establishments with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP regulations, which impose certain procedural and documentation

requirements upon manufacturers. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. Accordingly, the sponsor and its third-party manufacturers must continue to expend time, money and effort to maintain compliance with cGMP regulations and other regulatory requirements.

The FDA may withdraw approval if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, may result in revisions to the approved

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labeling to add new safety information, requirements for post-market studies or clinical trials to assess safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences may include:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical trials;

- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approv
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates the marketing, labeling, advertising and promotion of prescription drug products placed on the market. This regulation includes, among other things, standards and regulations for direct-to-consumer advertising, communications regarding unapproved uses, industry-sponsored scientific and educational activities, and promotional activities involving the Internet and social media. Promotional claims about a drug's safety or effectiveness are prohibited before the drug is approved. After approval, a drug product generally may not be promoted for uses that are not approved by the FDA, as reflected in the product's prescribing information. In the United States, health care professionals are generally permitted to prescribe drugs for such uses not described in the drug's labeling, known as off-label uses, because the FDA does not regulate the practice of medicine. However, FDA regulations impose rigorous restrictions on manufacturers' communications, prohibiting the promotion of off-label uses. It may be permissible, under very specific conditions, for a manufacturer to engage in nonpromotional, non-misleading communication regarding off-label information, such as distributing scientific or medical journal information.

If a company is found to have promoted off-label uses, it may become subject to administrative and judicial enforcement by the FDA, the Department of Justice, or the DOJ, or the Office of the Inspector General of the Department of Health and Human Services, as well as state authorities. This could subject a company to a range of penalties that could have a significant commercial impact, including civil and criminal fines and agreements that materially restrict the manner in which a company promotes or distributes drug products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion, and has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed.

In addition, manufacturers and other parties involved in the drug supply chain for prescription drug products must comply with product tracking and tracing requirements and for notify the FDA of counterfeit, diverted, stolen and intentionally adulterated products or products that are otherwise unfit for distribution in the United States.

Section 505(b)(2) NDAs

NDAs for most new drug products are based on two full clinical studies which must contain substantial evidence of the safety and efficacy of the proposed new product for the proposed use. These applications are submitted under Section 505(b)(1) of the FDCA. The FDA is, however, authorized to approve an alternative type of NDA under Section 505(b)(2) of the FDCA. This type of application allows the applicant to rely, in part, on the FDA's previous findings of safety and efficacy or literature for a previously approved drug product, also known as a listed drug. Specifically, Section 505(b)(2) applies to NDAs

for which certain investigations made to show whether or not the drug is safe and effective “were not conducted by or for the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted.”

NDAs filed under Section 505(b)(2) provide an alternate and potentially more expeditious pathway to FDA approval for new or improved formulations or new uses of previously approved products. If the 505(b)(2) applicant can establish that reliance on the FDA’s previous approval is scientifically appropriate, the applicant may eliminate the need to conduct certain preclinical or clinical studies of the new product. The FDA may also require companies to perform additional studies or measurements to support the change from the approved product. The FDA may then approve the new drug candidate for all or some of the label indications for which the listed drug has been approved, subject to any regulatory exclusivities or patents for the listed drug (as further described below), as well as for any new indication or use sought by the Section 505(b)(2) applicant.

Abbreviated New Drug Applications for Generic Drugs

In 1984, with passage of the Hatch-Waxman Amendments to the FDCA, Congress established an abbreviated regulatory scheme authorizing the FDA to approve generic drugs that are shown to contain the same active ingredients as, and to be bioequivalent to, drugs previously approved by the FDA pursuant to NDAs, known as the reference listed drugs, or

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RLDs. Abbreviated new drug applications, or ANDAs, generally do not include preclinical and clinical data to demonstrate safety and effectiveness. Instead, the applicant must provide information and data showing that its proposed generic version is identical to the RLD with respect to the active ingredients, route of administration, dosage form, strength and conditions of use of the drug. The FDA must also determine whether the generic drug is bioequivalent to the RLD. Under the statute, a generic drug is bioequivalent to a RLD if “the rate and extent of absorption of the drug do not show a significant difference from the rate and extent of absorption of the listed drug.” Upon approval of an ANDA, the FDA indicates whether the

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generic product is “therapeutically equivalent” to the RLD in its publication “Approved Drug Products with Therapeutic Equivalence Evaluations,” also referred to as the “Orange Book.” Depending on state laws, generic drugs that are found to be therapeutically equivalent may be automatically substituted for prescriptions for the RLD by the dispensing pharmacist, without the intervention of the prescriber.

Under the Hatch-Waxman Amendments, the FDA may not approve an ANDA until any applicable period of non-patent exclusivity for the RLD has expired. The FDCA provides a period of five years of non-patent data exclusivity for a new drug containing a new chemical entity. For the purposes of this provision, a new chemical entity, or NCE, is a drug that contains no active moiety that has previously been approved by the FDA in any other NDA. An active moiety is the molecule or ion responsible for the physiological or pharmacological action of the drug substance. In cases where such NCE exclusivity has been granted, an ANDA may not be filed with the FDA until the expiration of five years unless the submission is accompanied by a Paragraph IV certification, in which case the applicant may submit its application four years following the original product approval.

Hatch-Waxman Patent Certification and the 30-Month Stay

Upon approval of an NDA or a supplement thereto, NDA sponsors are required to list with the FDA each patent with claims that cover the applicant’s product or an approved method of using the product. Each of the patents listed by the NDA sponsor is published in the Orange Book. When an ANDA applicant files its application with the FDA, the applicant is required to certify to the FDA concerning any patents listed for the reference product in the Orange Book, except for patents covering methods of use for which the ANDA applicant is not seeking approval. To the extent that the Section 505(b)(2) applicant is relying on studies conducted for an already approved product, the applicant is required to certify to the FDA concerning any relevant patents listed for the approved product in the Orange Book in the same manner as an ANDA applicant.

Specifically, the applicant must certify with respect to each patent that:

- the required patent information has not been filed;

- the listed patent has expired;
- the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or
- the listed patent is invalid, unenforceable or will not be infringed by the new product.

A certification that the new product will not infringe the already approved product's listed patents or that such patents are invalid or unenforceable is called a Paragraph IV certification. If the applicant does not challenge the listed patents, the application will not be approved until all the listed patents claiming the referenced product have expired (other than method of use patents involving indications for which the applicant is not seeking approval).

If the ANDA or Section 505(b)(2) NDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the application has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV notice. The filing of a patent infringement lawsuit within 45 days after the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA or 505(b)(2) application until the earlier of 30 months after the receipt of the Paragraph IV notice, the expiration of the patent, or a decision in the infringement case that is favorable to the ANDA applicant.

As a result, approval of a Section 505(b)(2) NDA or ANDA may be delayed until all the listed patents claiming the referenced product have expired, until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired, or, in the case of a Paragraph IV certification and subsequent patent infringement suit, until the earlier of 30 months, settlement of the lawsuit or a decision in the infringement case that is favorable to the applicant.

Pediatric Exclusivity

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of an existing regulatory exclusivity or certain patents. This six-month exclusivity may be granted if an NDA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted.

Orphan Drug Designation and Exclusivity

Under the Orphan Drug Act, the FDA may designate a drug product as an "orphan drug" if it is intended to treat a rare disease or condition, generally meaning that it affects fewer than 200,000 individuals in the United States, or more in cases in which there is no reasonable expectation that the cost of developing and making a product available in the United States for treatment of the disease or condition will be recovered from sales of the product. A company must seek orphan drug designation before submitting an NDA for the candidate product. If the request is granted, the FDA will disclose the identity of the therapeutic agent and its potential use. Orphan drug designation does not shorten the PDUFA goal dates for the regulatory review and approval process, although it does convey certain advantages such as tax benefits and exemption from the PDUFA application fee.

If a product with orphan designation receives the first FDA approval for the disease or condition for which it has such designation or for an indication or use within the rare disease or condition for which it was designated, the product generally will receive orphan drug exclusivity. Orphan drug exclusivity means that the FDA may not approve another sponsor's marketing application for the same drug for the same condition for seven years, except in certain limited circumstances. Orphan exclusivity does not block the approval of a different product for the same rare disease or condition, nor does it block the approval of the same product for different conditions. If a drug designated as an orphan drug ultimately receives marketing approval for an indication broader than what was designated in its orphan drug application, it may not be entitled to exclusivity.

Orphan drug exclusivity also may not bar approval of another product under certain specified circumstances, including if a subsequent product with the same drug for the same condition is shown to be clinically superior to the approved product on the basis of greater efficacy or safety, or providing a major

contribution to patient care, or if the company with orphan drug exclusivity is not able to meet market demand.

Patent Term Restoration and Extension

A patent claiming a new drug product may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent restoration of up to five years for patent term lost during the FDA regulatory review. The restoration period granted on a patent covering a product is typically one-half the time between the effective date of an IND and the submission date of an application, plus the time between the submission date of an application and the ultimate approval date. Patent term restoration cannot be used to extend the remaining term of a patent past a total of 14 years from the product's approval date. Only one patent applicable to an approved product is eligible for the extension, and only those claims covering the approved product, a method for using it, or a method for manufacturing it may be extended. Additionally, the application for the extension must be submitted prior to the expiration of the patent in question. A patent that covers multiple products for which approval is sought can only be extended in connection with one of the approvals. The United States Patent and Trademark Office reviews and approves the application for any patent term extension or restoration in consultation with the FDA.

Health Care Law and Regulation

Health care providers and third-party payors play a primary role in the recommendation and prescription of drug products that are granted marketing approval. Arrangements with providers, consultants, third-party payors and customers are subject to broadly applicable fraud and abuse, anti-kickback, false claims laws, patient privacy laws and regulations and other health care laws and regulations that may constrain business and/or financial arrangements. Restrictions under applicable federal and state health care laws and regulations, include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, paying, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchas order or recommendation of, any good or service, for which payment may be made, in whole or in part, under a federal health care program such as Medicare and Medicaid; Medicaid. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent violate it to have committed a violation;
- the federal civil and criminal false claims laws, including the civil False Claims Act, and civil monetary penalties laws, which prohibit individuals or entities from, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false, fictitious or fraudulent or knowingly making, using or causing to made or used a false record or statement to avoid, decrease or conceal an obligatio to pay money to the federal government; government. Manufacturers can be held liable under the federal False Claims Act even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The federal False Claims Ac also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the federal Fal Claims Act and to share in any monetary recovery;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created additional federal criminal laws that prohibit, among other things, knowingly and willfully executing, or attempting to

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execute, a scheme to defraud any health care benefit program or making false statements relating to health care matters; similar to the 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;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their respective implementing regulations, including the Final Omnibus Rule published in January 2013, which impose obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information; information. HITECH also created new t of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, there may be additional federal, state and non-U.S. laws which govern the privacy a

security of health and other personal information in certain circumstances, many of which differ from each other in significant ways and may not hav the same effect, thus complicating compliance efforts;

- the federal false statements statute, which prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materi false statement in connection with the delivery of or payment for health care benefits, items or services;
- the Foreign Corrupt Practices Act, or FCPA, which prohibits companies and their intermediaries from making, or offering or promising to make improper payments to non-U.S. officials for the purpose of obtaining or retaining business or otherwise seeking favorable treatment;
- the federal transparency requirements known as the federal Physician Payments Sunshine Act, under the Patient Protection and Affordable Care A as amended by the Health Care Education Reconciliation Act, or the ACA, which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services, or CMS, within the United States Department of Health and Human Services, information related to payments and other transfers of value made by that entity to physicians, certain other licensed healthcare practitioners and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members;
- federal government price reporting laws, which require us to calculate and report complex pricing metrics in an accurate and timely manner to government programs;
- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumer and

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- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to health care items or servic that are reimbursed by non-government third-party payors, including private insurers.

Further, some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures. Additionally, some state and local laws require the registration of pharmaceutical sales representatives in the jurisdiction.

State laws also govern the privacy and security of personal information, including health information. Many state laws differ from each other in significant various ways, thus complicating compliance efforts. For example, the California Consumer Protection Act, or CCPA, establishes data privacy rights for individuals located in California and imposes certain requirements on how businesses can collect and use personal information about such individuals. The California Privacy Rights Act, or CPRA, which became effective on January 1, 2023, imposes additional obligations on companies covered by the legislation and significantly modifies the CCPA, including by expanding consumers' rights with respect to certain sensitive personal information, and establishes a state agency vested with the authority to enforce the CCPA. The CCPA (as amended by the CPRA) has prompted catalyzed the enactment of similar, comprehensive privacy and data protection legislation in several other states. For example, in March 2021, Virginia enacted the Consumer Data Protection Act (or CDPA), U.S. states, which became effective on January 1, 2023. In July 2021, in 2023, including in Virginia, Colorado, passed the Colorado Privacy Act (or CPA), which will become effective on July 1, 2023. Additionally, in March 2022, Utah, enacted the Utah Consumer Privacy Act (or UCPA), which will become effective on December 31, 2023. Also, in May 2022, Connecticut signed the Connecticut Data Privacy Act (or CTDPA) into law, which will become effective on July 1, 2023. Furthermore, and Connecticut. More than a number of other dozen U.S. states have either passed or have proposed similar privacy and data protection legislation, legislation. Washington state's My Health My Data Act, which comes into force on March 31, 2024, expands the definition of consumer health data, affords consumers with privacy rights and it is possible that certain creates a private right of these proposals will pass. action, which could generate litigation. Although many of the existing state privacy laws exempt clinical trial information and health information governed by HIPAA, future privacy and data protection laws may be broader in scope. scope and apply to our business. Further, data privacy and security laws and regulations in foreign jurisdictions, such as the EU's General Data Protection Regulation, or EU GDPR, and the United Kingdom's implementation of the same, may impose additional obligations on the collection, use and other processing of personal information, which may be more stringent or different than those in the United States, such as the EU's General Data Protection Regulation, or GDPR, and the United Kingdom's implementation of the same.

States.

Pharmaceutical Insurance Coverage and Health Care Reform

In the United States and markets in other countries, patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated health care costs. Significant uncertainty exists as to the coverage and reimbursement status of products approved by the FDA and other government authorities. Thus, even if a product candidate is approved, sales of the product will depend, in part, on the extent to which third-party payors, including government health programs in the United States such as Medicare and Medicaid, commercial health insurers and managed care organizations, provide coverage and establish adequate reimbursement levels for, the product. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Third-party payors are increasingly challenging the prices charged, examining the medical necessity and reviewing the cost-effectiveness of medical products and services and imposing controls to manage costs. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the approved products for a particular indication.

In order to secure coverage and reimbursement for any product that might be approved for sale, a company may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable marketing approvals. Nonetheless, product candidates may not be considered medically necessary or cost effective. A decision by a third-party payor not to cover a product could reduce physician utilization once the product is approved and have a material adverse effect on sales, results of operations and financial condition. Additionally, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage and reimbursement for the product, and the level of coverage and reimbursement can differ significantly from payor to payor.

The containment of health care costs also has become a priority of federal, state and foreign governments and the prices of products have been a focus in this effort. Governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit a company's revenue generated from the sale of any approved products. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which a company or its collaborators receive marketing approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting coverage and reimbursement for drugs and biologics and other medical products, government control and other changes to the health care system in the United States.

In 2010, the United States Congress enacted the ACA, which, among other things, included changes to the coverage and payment for drug products under government health care programs. Among the provisions of the ACA of importance to our potential product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents, apportioned amc these entities according to their market share in certain government healthcare programs;
- expansion of eligibility criteria for Medicaid programs, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- expanded manufacturers' rebate liability under the Medicaid Drug Rebate Program;
- expanded the types of entities eligible for the 340B drug discount program;
- established the Medicare Part D coverage gap discount program by requiring manufacturers to provide a 70% point-of-sale-discount off the negotia price of applicable brand drugs to eligible beneficiaries during their coverage gap period as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, alor

with funding for such research.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. The Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. This includes aggregate reductions of Medicare payments to providers up to 2% per fiscal year. Subsequent legislation extended the 2% which remains in effect through 2030. 2031. The American Taxpayer Relief Act of 2012 further reduced Medicare payments to

several types of providers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. Due to the Statutory Pay-As-You-Go Act of 2010, estimated budget deficit increases resulting from the American Rescue Plan Act of 2021, and subsequent legislation, Medicare payments to providers will be further reduced starting in 2025 absent further legislation. These laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used.

The Inflation Reduction Act of 2022, or IRA, includes several provisions that may impact our business to varying degrees, including provisions that reduce the out-of-pocket cap for Medicare Part D beneficiaries to $2,000 starting in 2025; impose new manufacturer financial liability on certain drugs under Medicare Part D, allow the U.S. government to negotiate Medicare Part B and Part D price caps for certain high-cost drugs and biologics without generic or biosimilar competition, require companies to pay rebates to Medicare for certain drug prices that increase faster than inflation, and delay the rebate rule that would limit the fees that pharmacy benefit managers can charge. Further, under the IRA, orphan drugs are exempted from the Medicare drug price negotiation program, but only if they have one rare disease orphan designation and for which the only approved indication is for that disease or condition. If a product receives multiple rare disease orphan designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The implementation of the IRA is currently subject to ongoing litigation challenging the constitutionality of the IRA's Medicare drug price negotiation program. The effects of the IRA on our business and the healthcare industry in general is are not yet known.

The costs of prescription pharmaceuticals have also been the subject of considerable discussion in the United States. To date, there have been several recent U.S. congressional inquiries, as well as proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products. At the federal level, President Biden has issued multiple executive orders that have sought to reduce prescription drug costs. In February 2023, HHS also issued a proposal in response to an October 2022 executive order from President Biden that includes a proposed prescription drug pricing model that will test whether targeted Medicare payment adjustments will sufficiently incentivize manufacturers to complete confirmatory trials for drugs approved through FDA's accelerated approval pathway. Although a number of these and other proposed measures may require authorization through additional legislation to become effective, and the Biden administration may reverse or otherwise change these measures, both the Biden administration and Congress have indicated that they will continue to seek new legislative measures to control drug costs.

At the state level, individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological 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. In addition, regional health care authorities 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 health care programs. These measures could reduce the ultimate demand for our products, once approved, or put pressure on our product pricing. We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

Review and Approval of Medicinal Products in the European Union

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA approval for a product, an applicant will need to obtain the necessary approvals by the comparable non-U.S. regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. The approval process ultimately varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others. Specifically, however, the process governing approval of medicinal products in the European Union, or EU, generally follows the same lines as in the United States. It entails satisfactory completion of preclinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication. It also requires the submission to the relevant competent authorities of a marketing authorization application, or MAA, and granting of a marketing authorization by these authorities before the product can be marketed and sold in the EU.

Clinical Trial Approval

In April 2014, the EU adopted the new Clinical Trials Regulation, (EU) No 536/2014, which replaced the Clinical Trials Directive 2001/20/EC on January 31, 2022. The Clinical Trials Regulation is directly applicable in all EU Member States meaning no national implementing legislation in each EU Member State is required. The new Clinical Trials Regulation aims to simplify and streamline the approval of clinical trials in the EU. Under the new coordinated procedure for the approval of clinical trials, the sponsor of a clinical trial is required to submit a single application for approval of a clinical

trial to a reporting EU Member State through an EU Portal. The submission procedure is the same irrespective of whether the clinical trial is to be conducted in a single EU Member State or in more than one EU Member State.

PRIME Designation in the EU

In March 2016, the EMA launched an initiative to facilitate development of product candidates in indications, often rare, for which few or no therapies currently exist. The Priority Medicines, or PRIME, scheme is intended to encourage drug development in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation where the marketing authorization application will be made through the centralized procedure. Eligible products must target conditions for which there is an unmet medical need (there is no satisfactory method of diagnosis, prevention or treatment in the EU or, if there is, the new medicine will bring a major therapeutic advantage) and they must demonstrate the potential to address the unmet medical need. Products from small- and medium-sized enterprises, or SMEs, may qualify for earlier entry into the PRIME scheme than larger companies. Many benefits accrue to sponsors of product candidates with PRIME designation, including but not limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and accelerated MAA assessment once a dossier has been submitted. Importantly, a dedicated EMA contact and rapporteur from the Committee for Human Medicinal Products for Human Use, or CHMP, or Committee for Advanced Therapies, are appointed early in the PRIME scheme facilitating increased understanding of the product at the EMA's Committee level. A kick-off meeting initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies. Where, during the course of development, a medicine no longer meets the eligibility criteria, support under the PRIME scheme may be withdrawn.

Marketing Authorization

To obtain a marketing authorization for a product under EU regulatory systems, an applicant must submit an MAA either under a centralized procedure administered by the EMA, or one of the procedures administered by competent authorities in the EU Member States (decentralized procedure, national procedure or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the EU. Regulation (EC) No 1901/2006 provides that prior to obtaining a marketing authorization in the EU, applicants have to demonstrate compliance with all measures included in an EMA-approved Pediatric investigation plan, or PIP, covering all subsets of the pediatric population, unless the EMA has granted (1) a product-specific waiver, (2) a class waiver or (3) a deferral for one or more of the measures included in the PIP.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid throughout the EU, and in the additional Member States of the European Economic Area Iceland, Liechtenstein and Norway. Pursuant to Regulation (EC) No 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy medicinal products (gene-therapy, somatic cell-therapy or tissue-engineered medicines), and products with a new active substance indicated for the treatment of HIV, AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and other immune dysfunctions, and viral diseases. The centralized procedure is optional for products containing a new active substance not yet authorized in the EU, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU. We anticipate that the centralized procedure will be mandatory for the product candidates we are developing.

Under the centralized procedure, the CHMP is responsible for conducting the initial assessment of a product and for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure in the EU, the maximum timeframe for the evaluation of an MAA by the EMA is 210 days, excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP. Clock stops may extend the timeframe of evaluation of an MAA considerably beyond 210 days. Where the CHMP gives a positive opinion, it provides the opinion together with supporting documentation to the European Commission, who makes the final decision to grant a marketing authorization, which is issued within 67 days of receipt of the EMA's recommendation. Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is expected to be of major interest from the point of view of public health and in particular from the viewpoint of therapeutic innovation. If the CHMP accepts such request, the time limit of 210 days will be reduced to 150 days, excluding clock stops, but it is possible that the CHMP can revert to the standard time limit for the centralized procedure if it considers that it is no longer appropriate to conduct an accelerated assessment.

The European Commission may grant a so-called "marketing authorization under exceptional circumstances". Such authorization is intended for products for which the applicant can demonstrate that it is unable to provide comprehensive data on the efficacy and safety under normal conditions of use, because the indications for which the product in question is intended are encountered so rarely that the applicant cannot reasonably be expected to provide comprehensive evidence, or in the present state of scientific knowledge, comprehensive information cannot be provided, or it would be contrary to generally accepted principles of medical ethics to collect such information. Consequently, a marketing authorization under exceptional circumstances may be granted subject to certain specific obligations, which may include the following:

- the applicant must complete an identified program of studies within a time period specified by the competent authority, the results of which form the basis of a reassessment of the benefit/risk profile;
- the medicinal product in question may be supplied on medical prescription only and may in certain cases be administered only under strict medical supervision, possibly in a hospital and in the case of a radiopharmaceutical, by an authorized person; and
- the package leaflet and any medical information must draw the attention of the medical practitioner to the fact that the particulars available concerni the medicinal product in question are as yet inadequate in certain specified respects.

A marketing authorization under exceptional circumstances is subject to annual review to reassess the risk-benefit balance in an annual reassessment procedure. Continuation of the authorization is linked to the annual reassessment and a negative assessment could potentially result in the marketing

authorization being suspended or revoked. The renewal of a marketing authorization of a medicinal product under exceptional circumstances, however, follows the same rules as a “normal” marketing authorization. Thus, a marketing authorization under exceptional circumstances is granted for an initial five years, after which the authorization will become valid indefinitely, unless the EMA decides that safety grounds merit one additional five-year renewal.

The European Commission may also grant a so-called “conditional marketing authorization” prior to obtaining the comprehensive clinical data required for an application for a full marketing authorization. Such conditional marketing authorizations may be granted for product candidates intended for treating, preventing or diagnosing seriously debilitating or life-threatening diseases (including medicines designated as orphan medicinal products), if (i) the risk-benefit balance of the product candidate is positive, (ii) it is likely that the applicant will be in a position to provide the required comprehensive clinical trial data post-authorization, (iii) the product fulfills an unmet medical need and (iv) the benefit to public health of the immediate availability on the market of the medicinal product concerned outweighs the risk inherent in the fact that additional data are still required. A conditional marketing authorization may contain specific obligations to be fulfilled by the marketing authorization holder, including obligations with respect to the completion of ongoing or new studies, and with respect to the collection of pharmacovigilance data. Conditional marketing authorizations are valid for one year, and may be renewed annually, if the risk-benefit balance remains positive, and after an assessment of the need for additional or modified conditions and/or specific obligations. The timelines for the centralized procedure described above also apply with respect to the review by the CHMP of applications for a conditional marketing authorization. A conditional marketing authorization can be converted into a standard centralized marketing authorization (no longer subject to specific obligations) once the marketing authorization holder fulfils the obligations imposed and the complete data confirm that the medicine’s benefits continue to outweigh its risks.

The EU medicines rules expressly permit the EU Member States to adopt national legislation prohibiting o© or restricting the sale, supply or use of any medicinal product containing, consisting of or derived from a specific type of human or animal cell, such as embryonic stem cells. While the products we have in development do not make use of embryonic stem cells, it is possible that the national laws in certain EU Member States may prohibit or restrict us from commercializing our products, even if they have been granted an EU marketing authorization.

Unlike the centralized authorization procedure, the decentralized marketing authorization procedure requires a separate application to, and leads to separate approval by, the competent authorities of each EU Member State in which the product is to be marketed. This application is identical to the application that would be submitted to the EMA for authorization through the centralized procedure. The reference EU Member State prepares a draft assessment and drafts of the related materials within 120 days after receipt of a valid application. The resulting assessment report is submitted to the concerned EU Member States who, within 90 days of receipt, must decide whether to approve the assessment report and related materials. If a concerned EU Member State cannot approve the assessment report and related materials due to concerns relating to a potential serious risk to public health, disputed elements may be referred to the European Commission, whose decision is binding on all EU Member States.

The mutual recognition procedure similarly is based on the acceptance by the competent authorities of the EU Member States of the marketing authorization of a medicinal product by the competent authorities of other EU Member States. The

holder of a national marketing authorization may submit an application to the competent authority of an EU Member State requesting that this authority recognize the marketing authorization delivered by the competent authority of another EU Member State.

Data and Market Exclusivity

In the EU, innovative medicinal products approved on the basis of a complete and independent data package qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity pursuant to Directive 2001/83/EC. Regulation (EC) No 726/2004 repeats this entitlement for medicinal products authorized in accordance the centralized authorization procedure. Data exclusivity prevents applicants for authorization of generics or biosimilars of these innovative products from referencing the innovator’s pre-clinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar marketing authorization in the EU, during a period of eight years from the date on which the reference

product was first authorized in the EU. During an additional two-year period of market exclusivity, a generic or biosimilar MAA can be submitted and authorized, and the innovator's data may be referenced, but no generic or biosimilar medicinal product can be placed on the EU market until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of 11 years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. There is no guarantee that a product will be considered by the EMA to be an innovative medicinal product, and products may not qualify for data exclusivity. Even if a product is considered to be an innovative medicinal product so that the innovator gains the prescribed period of data exclusivity, another company nevertheless could also market another version of the product if such company obtained marketing authorization based on an MAA with a complete and independent data package of pharmaceutical tests, preclinical tests and clinical trials.

Periods of Authorization and Renewals

A marketing authorization has an initial validity for five years in principle. The marketing authorization may be renewed after five years on the basis of a re-evaluation of the risk-benefit balance by the EMA or by the competent authority of the EU Member State for a nationally authorized product. Once subsequently definitively renewed, the marketing authorization shall be valid for an unlimited period, unless the European Commission or the national competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal period. Any authorization which is not followed by the actual placing of the medicinal product on the EU market (in the case of the centralized procedure) or on the market of the authorizing EU Member State for a nationally authorized product within three years after authorization ceases to be valid (the so-called sunset clause).

Paediatric Studies and Exclusivity

Prior to obtaining a marketing authorization in the EU, applicants must demonstrate compliance with all measures included in an EMA-approved pediatric investigation plan, or PIP, covering all subsets of the pediatric population, unless the EMA has granted a product-specific waiver, a class waiver, or a deferral for one or more of the measures included in the PIP. The respective requirements for all marketing authorization procedures are laid down in Regulation (EC) No 1901/2006, the so-called Pediatric Regulation. This requirement also applies when a company wants to add a new indication, pharmaceutical form or route of administration for a medicine that is already authorized. The Paediatric Committee of the EMA, or PDCO, may grant deferrals for some medicines, allowing a company to delay development of the medicine for children until there is enough information to demonstrate its effectiveness and safety in adults. The PDCO may also grant waivers when development of a medicine for children is not needed or is not appropriate, such as for diseases that only affect the elderly population. Before an MAA can be filed, or an existing marketing authorization can be amended, the EMA determines that companies actually comply with the agreed studies and measures listed in each relevant PIP. If an applicant obtains a marketing authorization in all EU Member States, or a marketing authorization granted in the centralized procedure by the European Commission, and the study results for the peopulationopulation population are included in the product information, even when negative, the medicine is then eligible for an additional six-month period of qualifying patent protection through extension of the term of the Supplementary Protection Certificate or SPC, provided an application for such extension is made at the same time as filing the SPC application for the product, or at any point up to two years before the SPC expires, even where the trial results are negative. In the case of orphan medicinal products, a two year extension of the orphan market exclusivity may be available. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the PIP are developed and submitted.

Orphan Drug Designation and Exclusivity

Products receiving orphan designation in the EU can receive ten years of market exclusivity, during which time no "similar medicinal product" may be placed on the market. A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is

intended for the same therapeutic indication. An orphan product can also obtain an additional two years of market exclusivity in the EU where an agreed pediatric investigation plan for pediatric studies has been complied with. No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications.

Regulation (EC) No. 141/2000, as implemented by Regulation (EC) No. 847/2000 provides that a drug product can be designated as an orphan drug product by the European Commission if its sponsor can establish: (1) that the product is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition; (2) either (a) such condition affects no more than five (5) in ten thousand (10,000) persons in the EU when the application is made, or (b) it is unlikely that the product, without the benefits derived from orphan status, would generate sufficient return in the EU to justify the necessary investment in its development; and (3)there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU or, if such method exists, the product will be of significant benefit to those affected by that condition. Orphan medicinal products are eligible for financial incentives such as reduction of fees or fee waivers. The application for orphan drug designation must be submitted before the application for marketing authorization. The applicant will receive a fee reduction for the MAA if the orphan drug designation has been granted, but not if the designation is still pending at the time the marketing authorization is submitted. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

However, a marketing authorization may be granted to a similar medicinal product with the same orphan indication during the ten-year period with the consent of the marketing authorization holder for the original orphan medicinal product or if the manufacturer of the original orphan medicinal product is unable to supply sufficient quantities. Marketing authorization may also be granted to a similar medicinal product with the same orphan indication if this product is safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity may, in addition, be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan designation, for example, if the product is sufficiently profitable not to justify maintenance of market exclusivity.

Regulatory Requirements After a Marketing Authorization has been Obtained

In case an authorization for a medicinal product in the EU is obtained, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of medicinal products. These include:

- Compliance with the EU's stringent pharmacovigilance or safety reporting rules must be ensured. These rules can impose post-authorization studie and additional monitoring obligations.
- The manufacturing of authorized medicinal products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the applicable EU laws, regulations and guidance, including Directive 2001/83/EC, Directive 2003/94/EC, (EU) 2017/1572, Regulat (EC) No 726/2004 and the European Commission Guidelines for Good Manufacturing Practice. These requirements include compliance with EU cGMP standards when manufacturing medicinal products and active pharmaceutical ingredients, including the manufacture of active pharmaceutica ingredients outside of the EU with the intention to import the active pharmaceutical ingredients into the EU.
- The marketing and promotion of authorized drugs, including industry-sponsored continuing medical education and advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the EU. Direct-to-consumer advertising of prescription medicines is prohibitec across the EU.

The aforementioned EU rules are generally applicable in the European Economic Area, or EEA, which consists of the EU Member States, plus Norway, Liechtenstein and Iceland.

Reform of the Regulatory Framework in the European Union

The European Commission introduced legislative proposals in April 2023 that, if implemented, will replace the current regulatory framework in the EU for all medicines (including those for rare diseases and for children). The European Commission has provided the legislative proposals to the European Parliament and the European Council for their review and approval. In October 2023, the European Parliament published draft reports proposing amendments to the legislative proposals, which will be debated by the European Parliament. Once the European Commission's legislative proposals are approved (with or without amendment), they will be adopted into EU law.

General Data Protection Regulation

The collection, use, disclosure, transfer, or other processing of personal data regarding individuals in the EU, including personal health data, is subject to the EU GDPR, which became effective on May 25, 2018. Following the United Kingdom's, or UK's, withdrawal from the EU, or Brexit, the EU GDPR has been incorporated into UK laws, or UK GDPR (together with the EU GDPR, GDPR). The GDPR is wide-ranging in scope and imposes numerous

requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates, providing information to individuals regarding data processing

activities, implementing safeguards to protect the security and confidentiality of personal data, providing notification of data breaches, ensuring certain accountability measures are in place and taking certain measures when engaging third-party processors. The GDPR also imposes strict rules on the transfer of personal data to countries outside the EU and the UK, including the United States, and permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million (£17.5 million) or 4% of annual global revenues, whichever is greater. The

GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies, and obtain compensation for damages resulting from violations of the GDPR. Compliance with the GDPR is a rigorous and time-intensive process that may increase the cost of doing business or require companies to change their business practices to ensure full compliance.

Brexit and the Regulatory Framework in the United Kingdom

The United Kingdom formally left the EU on January 31, 2020, and the EU and the United Kingdom have concluded a trade and cooperation agreement, or TCA, which was provisionally applicable since January 1, 2021 and has been formally applicable since May 1, 2021. The TCA includes specific provisions concerning pharmaceuticals, which include the mutual recognition of GMP, inspections of manufacturing facilities for medicinal products and GMP documents issued, but does not provide for wholesale mutual recognition of UK and EU pharmaceutical regulations. At present, Great Britain has implemented EU legislation on the marketing, promotion and sale of medicinal products through the Human Medicines Regulations 2012 (as amended) (under the Northern Ireland Protocol, the EU regulatory framework currently continues to apply in Northern Ireland). Except in respect of the new EU Clinical Trials Regulation, the regulatory regime in Great Britain therefore currently largely aligns with EU regulations, however it is possible that these regimes will diverge more significantly in future now that Great Britain's regulatory system is independent from the EU and the TCA does not provide for mutual recognition of UK and EU pharmaceutical legislation. However, notwithstanding that there is no wholesale recognition of EU pharmaceutical legislation under the TCA, under a new international recognition procedure that was put in place by the Medicines and Healthcare products Regulatory Agency, or MHRA, on January 1, 2024, the MHRA may take into account decisions on the approval of a marketing authorization from the EMA (and certain other regulators) when considering an application for a Great Britain marketing authorization.

On February 27, 2023, the UK government and the European Commission announced a political agreement in principle to replace the Northern Ireland Protocol with a new set of arrangements, known as the "Windsor Framework". This new framework fundamentally changes the existing system under the Northern Ireland Protocol, including with respect to the regulation of medicinal products in the UK. In particular, the MHRA will be responsible for approving all medicinal products destined for the UK market (i.e., Great Britain and Northern Ireland), and the EMA will no longer have any role in approving medicinal products destined for Northern Ireland. A single UK-wide marketing authorization will be granted by the MHRA for all medicinal products to be sold in the UK, enabling products to be sold in a single pack and under a single authorization throughout the UK. The Windsor Framework was approved by the EU-UK Joint Committee on March 24, 2023, so the UK government and the EU will enact legislative measures to bring it into law. On June 9, 2023, the MHRA announced that the medicines aspects of the Windsor Framework will apply from January 1, 2025.

Despite Brexit, the EU and UK GDPR remain largely aligned. Currently, the most impactful point of divergence relates to transfer mechanisms (i.e., the ability for EU/UK companies to transfer personal information to third countries, including the United States), because it requires us to implement a variety of different contractual clauses approved by EU or UK regulators. There may be further divergence in the future, including with regard to administrative burdens. The UK has announced plans to reform the country's data protection legal framework in its Data Reform Bill, which will introduce significant changes from the EU GDPR.

Pricing Decisions for Approved Products

In the EU, pricing and reimbursement schemes vary widely from country to country. Some countries provide that products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies or so-called health technology assessments, in order to obtain reimbursement or pricing approval. For example, EU Member States have the option to restrict the range of products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. EU Member States may approve a specific price for a product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the product on the market. Other EU Member States allow companies to fix their own prices for products, but monitor and control prescription volumes and issue guidance to physicians to limit prescriptions. Recently, many countries in the EU have increased the amount of discounts required on pharmaceuticals and these efforts could continue as countries attempt to manage health care expenditures, especially in light of the severe fiscal and debt crises experienced by many countries in the EU. The downward pressure on health care costs in general, particularly prescription products, has become intense.

As a result, increasingly high barriers are being erected to the entry of new products. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various EU Member States, and parallel trade, *i.e.*, arbitrage between low-priced and high-priced EU Member States, can further reduce prices. Special pricing and reimbursement rules may apply to orphan drugs. products. Inclusion of orphan drugs products in reimbursement systems tend to focus on the medical usefulness, need, quality and economic benefits to patients and the healthcare system as for any drug. Acceptance of any medicinal product for reimbursement may come with cost, use and often volume restrictions, which again can vary by country. In addition, results-based rules of reimbursement may apply. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any products, if approved in those countries.

The delivery of healthcare in the EU, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than EU, law and policy. National governments and health service providers have different priorities and approaches to the delivery of healthcare and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most EU Member States have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers.

Human Capital Management

Our Mission & Our Employees

We launched with a bold vision to change the course of genetically defined diseases by treating developing small molecules to treat them at their root cause. Our approach to drug discovery generates significant insights into disease biology and allows us to think creatively about the best way to modulate and balance gene expression. Our patient-focused product engine, FulcrumSeek, discovery approach is designed to systematically identify and validate cellular drug targets that can modulate gene expression to treat the known root cause of genetically defined diseases. We take great pride in being purposeful patient partners who do this work, not just for patients, but with patients.

We view our employees as one of our most valuable assets in serving our mission. We believe that our future success is dependent on attracting, motivating and retaining talented employees. We value the health and wellness of our employees and their families. We aim to create an equitable, inclusive and empowering work environment in which our employees can grow and advance their careers, with the overall goal of developing, expanding and retaining our workforce to support our current pipeline and future business goals. Our success also depends on our ability to attract, engage and retain a diverse group of employees.

Our Behaviors Support Our Mission

We believe success comes when we and our employees align with our mission to improve the lives of patients with genetically-defined rare diseases in areas of high unmet medical need. We are the FULcrew united around these Pillars:

- We take great pride in being Purposeful Patient Partners
- We have a culture of Trust and Transparency
- We are Invested in our People
- We have a Playful spirit and have fun together at work

- We launched Fulcrum with a Bold Scientific Vision and remain committed to this journey

Our Management of Human Capital

To effectively leverage and manage our peoples, we ensure our hiring needs are directly aligned with our strategy, we invest in our people focused on their development and journey while at Fulcrum and most importantly we identify our key talent to ensure we are focused on their retention. We track and report internally on key talent metrics including a focus on overall headcount and by function, hiring metrics, career development (promotions, etc.), turnover trends, and employee demographics (including race, gender, ethnicity). Our senior executives use these metrics to make thoughtful decisions around our people including resource planning, recruitment and retention initiatives and design of compensation and benefits programs. We share these metrics quarterly with the senior executives and board of directors to assist it in fulfilling its duties to (a) establish our enterprise compensation philosophy, (b) administer our compensation plans, (c) evaluate the performance of our executive officers and key employees and (d) review and monitor management development and succession plans.

As of March 2, 2023 February 20, 2024, we had 89 76 full-time employees, including a total of 36 26 employees with M.D. or Ph.D. degrees. Of these full-time employees, 52 47 employees are engaged in research and development. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Our Commitment to Diversity, Equity & Inclusion

We strongly believe in a diverse workplace where all our employees can thrive in an inclusive environment free from discrimination, harassment, bias and prejudice. We aim to treat all individuals with respect and dignity and to provide all our employees with equal opportunity and fair treatment based on merit. By embracing diversity and inclusion, we create an organization committed to working together to develop innovative solutions in support of our mission consistent with our values. We cultivate a culture and environment where different backgrounds and perspectives are not only respected and heard, but embraced and celebrated. Not only is a diverse, equitable and inclusive mindset and culture critical to an engaged and committed workplace, but it is also imperative to understanding and meeting the needs of the patients we seek to help with our medicines.

As we grow and mature, we look forward to establishing programs/metrics that support diversity, equity, inclusion, and belonging. We will focus on continuing to bring more diversity talent to Fulcrum, creating an inclusive environment by creating awareness (speakers, etc.) and ensuring our underrepresent employees are provided the right career opportunities.

As of March 2, 2023 February 20, 2024, women accounted for approximately 60% 55% of our full-time employees. As of March 2, 2023, our employee records indicate that approximately 38% 29% of our full-time U.S. employees identify as non-white.

Our Compensation & Benefits

Given the highly competitive nature of our industry and the importance of recruitment and retention to our success, we strive to furnish our employees with what we believe is a very competitive and comprehensive total rewards package of compensation, benefits and services. This package includes competitive compensation, including equity compensation, and comprehensive benefits program that provides resources to help employees manage their

health and well-being, finances, and life outside of work (promoting flexibility), including health insurance and dental care, vision insurance, disability insurance, paid sick leave, paid family leave, matching contributions to a 401(k) plan, employee stock purchase plan, paid time off (inclusive of vacation, holidays, focus days) and employee assistance services.

Our Efforts to Address the COVID-19 Pandemic

Employee safety and wellbeing is of paramount importance to us in any year and was of particular focus in 2021 in light of the ongoing COVID-19 pandemic. In response to the pandemic, we have supported our employees to curb the COVID-19 pandemic through safety and communication efforts and investments, which include:

- Creating a COVID-19 task force responsible for establishing COVID-19, safety protocols and regularly communicating updates to all employees;
- Decreasing density and increasing physical distancing in our facilities for employees working onsite using scheduling adjustments and flexibility;
- Adhering to robust cleaning protocols;
- Providing on site testing;
- Requiring and providing masks to all onsite employees;
- Proactively creating rigorous procedures to address actual and suspected COVID-19 cases and potential exposure; and
- Being nimble reacting real time with a sense of urgency to anything that came our way to support our employees

Additionally, from time to time we have instituted additional programs during the pandemic to support our employees. We leveraged our weekly company meeting to keep our employees connected on what was happening during the pandemic (managing expectations and listening to their needs) as well as making employee connections (fun breakouts in the spirit of building relationships/connections). We also provided a subsidy for home office set-up, flexibility to figure out work location/hours, and enhanced our employee assistance services (comprehensive mental health, work-life and management services).

Corporate Information

Our principal executive office is located at 26 Landsdowne Street, Cambridge, MA 02139, and our telephone number is 617-651-8851. Our internet website address is www.fulcrumtx.com. The information contained on, or that can be accessed through, our website is not a part of this Annual Report on Form 10-K.

Item 1A. Risk Factors.

Our future operating results could differ materially from the results described in this Annual Report on Form 10-K due to the risks and uncertainties described below. You should consider carefully the following information about risks below in evaluating our business. If any of the following risks actually occur, our business, financial conditions, results of operations and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock would likely decline. In addition, we cannot assure investors that our assumptions and expectations will prove to be correct. Important factors could cause our actual results to differ materially from those indicated or implied by forward-looking statements. See "Cautionary Note Regarding Forward-Looking Statements" on page i of this Annual Report on Form 10-K for a discussion of some of the forward-looking statements that are qualified by these risk factors. Factors that could cause or contribute to such differences include those factors discussed below.

Risks Related to our Financial Position and Need for Additional Capital

We have incurred significant losses since our inception. We expect to incur losses over the next several years and may never achieve or maintain profitability.

Since inception, we have incurred significant operating losses. Our net loss was $97.3 million for the year ended December 31, 2023 and $109.9 million for the year ended December 31, 2022 and $80.8 million for the year ended December 31, 2021. As of December 31, 2022 December 31, 2023, we had an accumulated deficit of $412.3 million $509.7 million. To date, we have funded our operations primarily from the sale of shares of our capital stock and from upfront payments received under our collaboration and license agreements. We have devoted substantially all of our financial resources and efforts to research and development, including clinical trials and preclinical studies. We are still in the early stages of development of our product candidates, and we have not completed development of any product candidates. We expect to continue to incur significant expenses and operating losses over the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase substantially as we:

- continue our clinical development of losmapimod and seek to resolve the clinical hold on FTX-6058; pociredir;
- continue our ongoing preclinical studies;
- advance clinical-stage product candidates through later stage trials, such as REACH, the Phase 3 clinical trial of losmapimod for the treatment of FSHD;
- pursue the discovery of drug targets for other genetically-defined rare diseases and the subsequent development of any resulting product candidates; candidates, including for Diamond Blackfan Anemia under our recent license agreement with CAMP4;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- scale up our manufacturing processes and capabilities, or arrange for a third party to do so on our behalf, to support our clinical trials of our product candidates and commercialization of any of our product candidates for which we may obtain marketing approval;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval;
- acquire or in-license products, product candidates, technologies and/or data referencing rights; rights, such as our recent agreement with CAMP4;
- make any milestone payments to affiliates of GlaxoSmithKline plc, or GSK, under our right of reference and license agreement with GSK upon the achievement of specified clinical or regulatory milestones; milestones, or to CAMP4 under our license agreement with CAMP4;
- maintain, expand, enforce, defend and protect our intellectual property;
- hire additional clinical, quality control and scientific personnel; and
- add operational, financial and management information systems and personnel, including personnel to support our product development and planne future commercialization efforts and our operations as a public company.

To become and remain profitable, we must succeed in developing, and eventually commercializing, a product or products that generate significant revenue. The ability to achieve this success will require us to be effective in a range of challenging activities, including completing preclinical testing and clinical trials of our product candidates, discovering additional product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling any products for which we may obtain regulatory approval. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability. Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Our expenses will increase if, among other things:

- we are required by the FDA, the EMA, or other regulatory authorities to perform trials or studies in addition to, or different than, those expected (including as may be required to address the recent clinical hold on FTX-6058); expected;
- there are any delays in completing our clinical trials or the development of any of our product candidates, such as the recent clinical hold imposed b the FDA on the FTX-6058 IND; Investigational New Drug, or IND, application for pociredir in SCD, which was lifted in August 2023; or
- there are any third-party challenges to our intellectual property or we need to defend against any intellectual property-related claim.

Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our pipeline of product candidates or even continue our operations. A decline in the value of our company could also cause our stockholders to lose all or part of their investment.

We will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

We expect to devote substantial financial resources to our ongoing and planned activities, particularly as we continue our ongoing and planned clinical trials of losmapimod and FTX-6058, pociredir, continue research and development and initiate additional clinical trials of, and seek regulatory approval for, these and other product candidates. We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we advance our preclinical activities and clinical trials. In addition, if we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. Given current uncertainty in the capital markets and other factors, such funding may not be available on terms favorable to us or at all. If we are unable to raise capital when needed or on acceptable terms, we could be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts.

Our future capital requirements will depend on many factors, including:

- the progress, costs and results of our ongoing clinical trials of losmapimod, including REACH, the Phase 3 clinical trial of losmapimod for the treatm of FSHD, which enrolled its first patient completed enrollment in June 2022, September 2023, and our ability to resolve the clinical hold on the Phas 1b clinical trial of FTX-6058; pociredir in SCD;
- additional planned clinical trials;
- the scope, progress, costs and results of discovery research, preclinical development, laboratory testing and clinical trials for our current product candidates in additional indications or for any future product candidates that we may pursue;
- the number of and development requirements for other product candidates that we pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- our ability to enter into contract manufacturing arrangements for supply of active pharmaceutical ingredient, or API, and manufacture of our product candidates and the terms of such arrangements;
- the success of our collaboration with MyoKardia; MyoKardia or under our recent license agreement with CAMP4;
- our ability to establish and maintain additional strategic collaborations, licensing or other arrangements and the financial terms of such arrangement
- the payment or receipt of milestones, royalties and other collaboration-based revenues, if any;
- the costs and timing of future commercialization activities, including product manufacturing, sales, marketing and distribution, for any of our product candidates for which we may receive marketing approval;
- the amount and timing of revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;

- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property and proprietary right and defending any intellectual property-related claims;
- the impact of the ongoing COVID-19 pandemic on our business and operations; and
- the extent to which we acquire or in-license other products, product candidates, technologies or data referencing rights.

As of December 31, 2022 December 31, 2023, we had cash, cash equivalents, and marketable securities of approximately $202.9 million $236.2 million. We believe that our cash, cash equivalents, and marketable securities as of December 31, 2022, together with the net proceeds from our public offering completed in January 2023, December 31, 2023 will enable us to fund our operating expenses and capital expenditure requirements into mid-2025. 2026. However, we have based this estimate on assumptions that may prove to be wrong, and our operating plan may change as a result of many factors currently unknown to us. As a result, we could deplete our capital resources sooner than we currently expect.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Commercial revenues, if any, will not be derived unless and until we can achieve sales of products, which we do not anticipate for many several years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all, and may become even more difficult to obtain due to rising interest rates and the current downturn in the U.S. capital markets and the biotechnology sector in general. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. If adequate funds are not available to us on a timely basis, we may be required to delay, limit, reduce or terminate preclinical studies, clinical trials or other development activities for one or more of our product candidates or discovery stage programs or delay, limit, reduce or terminate our establishment of sales and marketing capabilities or other activities that may be necessary to commercialize our product candidates. We may also choose to further realign our operations to achieve additional operational efficiencies beyond our recently announced the strategic realignment. realignment commenced in August 2022.

Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements. We do not have any committed external source of funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, our stockholders' ownership interests will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights as common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, selling or licensing our assets, making capital expenditures or declaring dividends.

If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

We have in the past relied, and in the future anticipate we will rely, in part on sales of our common stock through an at-the-market, or ATM, offering program. programs. Increased volatility and decreases in market prices of equity securities generally and of our common stock in particular may have an adverse impact on our willingness and/or ability to continue to sell our common stock through our an ATM offering program. Decreases in these sales could affect the cost or availability of equity capital, which could in turn have an adverse effect on our business, including current operations, future growth, revenues, net income and the market prices of our common stock.

In May 2022, we established a new an ATM offering program to sell shares of our common stock having an aggregate offering price of up to $50.0 million from time to time. In We suspended this program in January 2023 immediately prior to commencing our underwritten public offering of common stock, we suspended our use of and then terminated the prospectus supplement related to the this ATM offering program. program in February 2024 in anticipation of entering into a new ATM offering program to sell shares of our common stock having an aggregate offering price of up to $100.0 million from time to time promptly after filing this annual report on Form 10-K. We may not make any sales of securities pursuant to the any ATM offering program unless and until we file a new prospectus supplement. registration statement with respect to the shares being offered thereunder becomes effective. However, given the overall volatility in the capital markets, even if a new prospectus supplement

is filed, ATM offering program becomes available to us, we may not be willing or able to continue to raise equity capital through our an ATM

offering program. We may, therefore, need to turn to other sources of funding that may have terms that are not favorable to us, or reduce our business operations given capital constraints.

Alternative financing arrangements could involve issuances of one or more types of securities, including common stock, preferred stock, convertible debt, warrants to acquire common stock or other securities. These securities could be issued at or below the then prevailing market price for our common stock. In addition, if we issue debt securities, the holders of the debt would have a claim to our assets that would be superior to the rights of stockholders until the principal, accrued and unpaid interest and any premium or make-whole has been paid. In addition, if we borrow funds and/or issue debt securities through a subsidiary, the lenders and/or holders of those debt securities would have a right to payment that would be effectively senior to our equity ownership in the subsidiary, which would adversely affect the rights of holders of both our equity securities and, if any, our debt and debt securities.

Interest on any newly-issued debt securities and/or newly-incurred borrowings would increase our operating costs and reduce our net income, and these impacts may be material. If the issuance of new securities results in diminished rights to holders of our common stock, the market price of our common stock could be materially and adversely affected. Should the financing we require to sustain our working capital needs be unavailable or prohibitively expensive when we require it, the consequences could result in a material adverse effect on our business, operating results, financial condition and prospects.

Our limited operating history may make it difficult for stockholders to evaluate the success of our business to date and to assess our future viability.

We commenced activities in 2015 and are a clinical-stage biotechnology company. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, establishing our intellectual property, building our discovery platform, identifying drug targets and potential product candidates, in-licensing assets, producing drug substance and drug product material for use in clinical trials and conducting preclinical studies and clinical trials. We have not yet demonstrated our ability to successfully develop any product candidate, obtain regulatory approvals, manufacture a commercial scale product or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, any predictions stockholders make about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing products.

In addition, as our business grows, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. We will need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We expect our financial condition and operating results to fluctuate significantly from quarter-to-quarter and year-to-year due to a variety of factors, many of which are beyond our control. Accordingly, stockholders should not rely upon the results of any quarterly or annual periods as indications of future operating performance.

Our business was negatively impacted by the ongoing COVID-19 pandemic and may in the future be impacted by any future pandemics. In addition, this pandemic may continue to, and the effects of any future pandemics may, adversely impact economies worldwide, which could result in adverse effects on our business and operations.

We experienced enrollment delays in our ReDUX4 clinical trial due to the COVID-19 pandemic as the clinical trial sites for our ReDUX4 clinical trial temporarily postponed trial-related activities. We also saw temporary disruptions in other business activities due to a temporary reduction in workforce presence at our Cambridge research facility. Although our employees have returned to work, there are facility, and COVID-19 had a number of vaccines available, and many restrictions have been lifted, there is still uncertainty about the overall impact of COVID-19 on our business, as well as its continuing significant impact on economies worldwide. Future pandemics may arise, and they, like COVID-19, could impact our company, our CMOs and contract research organizations, or CROs, creating disruptions that affect our ability to initiate and complete preclinical studies or clinical trials, disrupt our supply chain for our research and development activities, and disrupt any then planned or ongoing clinical trials for any number of reasons. Any future pandemics could similarly impact patient recruitment or retention for clinical trials, or result in resources being redirected in a way that adversely impacts our

ability to progress regulatory approvals and protect our intellectual property. In addition, as with COVID-19 pandemic, we may face impediments to regulatory meetings and approvals due to recommended safety measures intended to limit in-person interactions in any future pandemic.

The ongoing COVID-19 pandemic already caused significant disruptions in the financial markets and it may continue to, and any future pandemic could similarly cause such disruptions, which could impact our ability to raise additional funds

through public offerings and may also impact the volatility of our stock price and trading in our stock. We cannot be certain what the overall impact of the ongoing COVID-19 pandemic or any future pandemic will be on our business. The extent of the impact of COVID-19 and any future pandemic on our business, financial condition, results of operations and prospects will depend on future developments that are uncertain.

Changes in tax laws or in their implementation or interpretation may adversely affect our business and financial condition.

The rules dealing with U.S. federal, state, and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application), including with respect to net operating losses and research and development tax credits, could adversely affect us or holders of our common stock. In recent years, many such changes have been made and changes are likely to continue to occur in the future. For example, under Section 174 of the U.S. Internal Revenue Code of 1986, as amended, or the Code, in taxable years beginning after December 31, 2021, expenses that are incurred for research and development in the United States will be capitalized and amortized, which may have an adverse effect on our cash flow. Future changes in tax laws could have a material adverse effect on our business, cash flow, financial condition or results of operations. We urge investors to consult with their legal and tax advisers regarding the implications of potential changes in tax laws on an investment in our common stock.

Our ability to use our net operating losses and research and development tax credit carryforwards to offset future taxable income may be subject to certain limitations.

As of December 31, 2022 December 31, 2023, we had federal and state net operating loss carryforwards of $275.1 million $312.3 million and $272.6 million $317.1 million, respectively, which begin to expire in 2036. Approximately $251.5 million $288.7 million of the federal net operating losses can be carried forward indefinitely. As of December 31, 2022 December 31, 2023, we also had federal orphan drug credits of $14.6 million $23.8 million, which begin to expire in 2040. As of December 31, 2022 December 31, 2023, we also had federal and state research and development tax credit carryforwards of $6.9 million $7.6 million and $4.0 million $4.9 million, respectively, which begin to expire in 2035 and 2030, respectively. These net operating loss and tax credit carryforwards could expire unused and be unavailable to offset future income tax liabilities.

In general, under Section 382 of the U.S. Internal Revenue Code of 1986, as amended, or the Code, and corresponding provisions of state law, a corporation that undergoes an “ownership change,” which is generally defined as a greater than 50% change, by value, in its equity ownership by certain stockholders over a three-year period, is subject to limitations on its ability to utilize its pre-change net operating losses and research and development tax credit carryforwards to offset future taxable income. We conducted an analysis under Section 382 of the Code to determine if historical changes in ownership through December 31, 2021 would limit or otherwise restrict our ability to utilize our pre-change net operating losses and research and development tax credit carryforwards to offset future taxable income. As a result of the analysis, we do not believe that there are any significant limitations on our ability to utilize our net operating losses and research and development tax credit carryforwards to offset future taxable income. However, we may experience such ownership changes in the future (which may be outside our control). As a result, if, and to the extent that, we earn net taxable income, our ability to use our pre-change net operating losses and research and development tax credit carryforwards to offset such taxable income may be subject to limitations. Our net operating losses or credits may also be impaired under state law.

We have a history of cumulative losses and anticipate that we will continue to incur significant losses in the foreseeable future; thus, we do not know whether or when we will generate taxable income necessary to utilize our net operating losses or research and development tax credit carryforwards.

Adverse developments affecting the financial services industry, such as actual events or concerns involving liquidity, defaults or non-performance by financial institutions or transactional counterparties, could adversely affect our current and projected business operations and financial condition and results of operations.

Events involving limited liquidity, defaults, non-performance or other adverse developments that affect financial institutions, transactional counterparties or other companies in the financial services industry or the financial services industry generally, or concerns or rumors about any events of these kinds or other similar risks, have in the past and may in the future lead to market-wide liquidity problems. In March 2023, a number of banks (e.g., Silicon Valley Bank, Signature Bank and Silvergate Capital Corp.) were placed into receivership, followed by First Republic Bank in May 2023. Although the Federal Deposit Insurance Corporation, or FDIC, and others have taken steps to reduce risk to uninsured depositors, borrowers under credit agreements, letters of credit and certain other financial instruments with such banks or any other financial institution that is placed into receivership by the FDIC may be unable to access undrawn amounts thereunder. Even though we assess our banking relationships as we believe necessary or appropriate, our access to funding sources and other credit arrangements in amounts adequate to finance or capitalize our current and projected future business operations could be significantly impaired by factors affecting the financial services industry or economy in general, such as these recent bank failures. These factors could also include, among others, liquidity constraints or failures, the ability to perform obligations under various types of financial, credit or liquidity agreements or arrangements, disruptions or instability in the financial services industry or financial markets, or concerns or negative expectations about the prospects for companies in the financial services industry and the supervision thereof. In addition, investor concerns regarding the United States or international

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financial systems could result in less favorable commercial financing terms, including higher interest rates or costs and tighter financial and operating covenants, or systemic limitations on access to credit and liquidity sources, thereby making it more difficult for us to acquire financing on acceptable terms or at all. Any decline in available funding or access to our cash and liquidity resources could, among other risks, adversely impact our ability to meet our operating expenses, financial obligations or fulfill our other obligations, result in breaches of our contractual obligations or result in violations of federal or state wage and hour laws, which could have material adverse effect on our liquidity and on our business, financial condition or results of operations.

Risks Related to the Discovery and Development of our Product Candidates

We are early in our development efforts, and we only have two clinical-stage product candidates. If we are unable to commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.

We are early in our development efforts, and we have advanced only two product candidates into clinical trials, losmapimod for the treatment of FSHD, and FTX-6058 pociredir for the treatment of SCD although the latter program is currently (which was on clinical hold. hold between February and August 2023). We have invested substantially all of our efforts and financial resources in our proprietary product engine to identify identifying and validate validating and conducting clinical trials on cellular drug targets that can potentially modulate gene expression to address the root cause of genetically-defined rare diseases. Our ability to generate product revenues, which we do not expect will occur for many several years, if ever, will depend heavily on the successful development, regulatory approval and eventual commercialization of our product candidates. The success of our product candidates will depend on several factors, including the following:

- successfully completing preclinical studies and clinical trials;
- allowance by the FDA or other regulatory agencies of the INDs, clinical trial applications, or CTAs, or other regulatory filings for losmapimod, FTX-6058 pociredir and future product candidates, including our ability to resolve the current clinical hold on FTX-6058 for SCD; candidates;

- expanding and maintaining a workforce of experienced scientists and others to continue to develop our product candidates;

- applying for and receiving marketing approvals from applicable regulatory authorities;
- obtaining and maintaining intellectual property protection and regulatory exclusivity for our product candidates;
- making arrangements with third-party manufacturers for, or establishing, commercial manufacturing capabilities;
- establishing sales, marketing and distribution capabilities and successfully launching commercial sales of the products, if and when approved, whet alone or in collaboration with others;
- acceptance of the products, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other therapies;
- obtaining and maintaining coverage, adequate pricing and adequate reimbursement from third-party payors, including government payors;
- maintaining, enforcing, defending and protecting our rights in our intellectual property portfolio;
- not infringing, misappropriating or otherwise violating others' intellectual property or proprietary rights; and
- maintaining a continued acceptable safety profile of the products following receipt of any regulatory approvals.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully develop and commercialize our product candidates, which would materially harm our business.

We may not be successful in our efforts to use our product engine to build a pipeline of product candidates.

A key element of our Our current strategy is to use our proprietary product engine to identify and validate cellular drug targets that can potentially modulate gene expression to address the root cause of genetically-defined rare diseases, with an initial focus focused on identifying developing small molecules specific to improve the identified cellular target. lives of patients with genetically defined rare diseases. Even if we are successful in identifying drug targets and potential product candidates, such candidates that we identify may not be suitable for clinical development, including as a result of being shown to have harmful side effects or other characteristics that indicate that they are unlikely to receive marketing approval and achieve market acceptance. Identifying, developing, obtaining regulatory approval for and commercializing additional product candidates will require substantial additional funding and is prone to the risks of failure inherent in product development. We cannot provide stockholders any assurance that we will be able to successfully identify additional product candidates, with our product engine, including as a result of our collaboration with MyoKardia, advance any additional product candidates through the development process or successfully commercialize any such additional product candidates. Regulatory authorities have substantial discretion in the approval process and may cause delays in the approval or rejection of an application. As a result of these factors, it is difficult for us to predict the time and cost of product candidate development. There can be no assurance that any development

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problems we experience in the future related to our proprietary product engine discovery technologies or any of our research or development programs will not cause significant delays or unanticipated costs, or that such development problems can be solved. If we do not successfully identify, develop, obtain regulatory approval for and commercialize product candidates, based upon our technological approach, we will not be able to generate product revenues.

Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. The results of preclinical studies and early clinical trials may not be predictive of future results. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

We have two product candidates in clinical development. The risk of failure for each of our product candidates is high. It is impossible to predict when or if any of our product candidates will prove effective or safe in humans or will receive regulatory approval. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical development and then conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates in humans. We have not yet completed a pivotal clinical trial of any product candidate. Clinical trials may fail to demonstrate that our product candidates are safe for humans and effective for indicated uses. For example, FTX-6058, pociredir, our clinical trial stage candidate to treat SCD, is an EEDi. embryonic ectoderm development, or EED, inhibitor. EED is a member of the PRC2 complex, which also

includes EZH2. There are approved products in the EZH2 class of medications and their approved labeling outlines safety risks, including an increased risk of malignancies. In the event that FTX-6058 pociredir has similar safety risks as other PRC2 medications, this could impact its acceptance. Even if the clinical trials are successful, changes in marketing approval policies during the development period, changes in or the enactment or promulgation of additional statutes, regulations or guidance or changes in regulatory review for each submitted product application may cause delays in the approval or rejection of an application.

Before we can commence clinical trials for a product candidate, we must complete extensive preclinical testing and studies that support our planned INDs and other regulatory filings in the United States and abroad. We cannot be certain of

the timely completion or outcome of our preclinical testing and studies and cannot predict if the FDA or other regulatory agencies will accept our proposed clinical programs or if the outcome of our preclinical testing and studies will ultimately support the further development of our current or future product candidates. As a result, we cannot be sure that we will be able to submit INDs or similar applications for our preclinical programs on the timelines we expect, if at all, and we cannot be sure that submission of INDs or similar applications will result in the FDA or other regulatory authorities allowing clinical trials to begin or continue. On February 23, 2023, For example, in February 2023, the FDA imposed a clinical hold on our IND for FTX-6058 pociredir in SCD. While we intend to work We worked diligently to resolve the hold as soon as possible, there is no guarantee that and in August 2023, the FDA will allow lifted the trial to resume in a timely manner or at all. Furthermore, product clinical hold. Product candidates are subject to continued preclinical safety studies, which may be conducted concurrent with our clinical testing. The outcomes of these safety studies may delay the launch of or enrollment in future clinical trials and could impact our ability to continue to conduct our clinical trials.

Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, or at all. For example, we revised the inclusion and exclusion criteria of our clinical trial of FTX-6058 is currently on pociredir in SCD to address the clinical hold imposed by the FDA, and there can be no certainty as to when it whether we will resume, if at all. be successful in completing the clinical trial with its revised design. A failure of one or more clinical trials can occur at any stage of testing, which may result from a multitude of factors, including, but not limited to, flaws in study design, dose selection issues, placebo effects, patient enrollment criteria and failure to demonstrate favorable safety or efficacy traits. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and preliminary or interim results of a clinical trial do not necessarily predict final results. For example, our product candidates may fail to show the desired safety and efficacy in clinical development despite positive results in preclinical studies or having successfully advanced through initial clinical trials. A lack of clinical benefit may be due to insufficient dosing or for other reasons. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in preclinical testing and earlier-stage clinical trials, and we cannot be certain that we will not face similar setbacks. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their products. Furthermore, the failure of any of our product candidates to demonstrate safety and efficacy in any clinical trial could negatively impact the perception of our other product candidates and/or cause the FDA or other regulatory authorities to require additional testing before approving any of our product candidates.

As described in Item 1 “Business—Licenses and Collaborations- Collaboration--Right of Reference and License Agreement with GlaxoSmithKline” in our Annual Report on Form 10-K for the year ended December 31, 2023, or this Annual Report on Form 10-K, we have entered into a right of reference and license agreement, as amended, with affiliates of GSK. Although losmapimod was originally evaluated by GSK in nearly 3,600 subjects, GSK did not evaluate losmapimod in FSHD or in any other muscular dystrophy, and most of the subjects in these trials were given a dose that was lower than our planned dosage

of 15 mg of losmapimod twice per day. Accordingly, the safety data generated from GSK’s clinical trials of losmapimod may not be predictive or indicative of the results of our clinical trials. Similarly, while we believe the safety data from GSK’s clinical trials may, in part, support the safety database for losmapimod, GSK evaluated a limited number of subjects at a dose of 15 mg twice daily.

We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- regulators or institutional review boards, or IRBs, may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we may experience delays in reaching, or fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;
- regulators may decide the design of our clinical trials is flawed, for example if our trial protocol does not evaluate treatment effects in trial subjects fo sufficient length of time;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- we may be unable to establish clinical endpoints that applicable regulatory authorities would consider clinically meaningful, or, if we seek accelerate approval, biomarker efficacy endpoints that applicable regulatory authorities would consider likely to predict clinical benefit;
- preclinical testing may produce results based on which we may decide, or regulators may require us, to conduct additional preclinical studies before proceed with certain clinical trials, limit the scope of our clinical trials, halt ongoing clinical trials or abandon product development programs;

- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may b slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- we may decide, or regulators or IRBs may require us, to suspend or terminate clinical trials of our product candidates for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- regulators or IRBs may require us to perform additional or unanticipated clinical trials to obtain approval or we may be subject to additional post-marketing testing requirements to maintain regulatory approval;
- regulators may revise the requirements for approving our product candidates, or such requirements may not be as we anticipate;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate;
- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or IRBs to suspend or terminate the trials;
- unforeseen global instability, including political instability, such as the Russian invasion of Ukraine or recent hostilities in Israel and Gaza Strip, or instability from an outbreak of pandemic or contagious disease such as the ongoing COVID-19 pandemic, in or around the countries in which we conduct our clinical trials, could delay the commencement or rate of completion of our clinical trials; and
- regulators may withdraw their approval of a product or impose restrictions on its distribution, such as in the form of a risk evaluation and mitigation strategy, or REMS.

For example, in response to the ongoing COVID-19 pandemic, the clinical trial sites for our ReDUX4 trial temporarily postponed trial-related activities, impacting our clinical trial execution plans, and we cannot be certain that we will not face other postponements or similar difficulties in the future. In addition, on February 23, 2023, Further, in February 2023, the FDA imposed a clinical hold on our IND for FTX-6058 pociredir in SCD. SCD, which halted our clinical trial until the FDA lifted the clinical hold in August 2023.

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

- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling or a REMS that includes significant use or distribution restrictions or safety warnings;
- be subject to additional post-marketing testing requirements; or
- have the product removed from the market after obtaining marketing approval.

Our product development costs will also increase if we experience delays in testing or in obtaining marketing approvals. We do not know whether any of our preclinical studies or clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. We may also determine to change the design or protocol of one or more of our clinical trials, including to add additional patients or arms, which could result in increased costs and expenses and/or delays. Significant preclinical study or clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do and impair our ability to successfully commercialize our product candidates and may harm our business and results of operations.

Because we are developing some of our product candidates for the treatment of diseases in which there is limited clinical experience and, in some cases, using new endpoints or methodologies, the FDA or other regulatory authorities may not consider the endpoints of our clinical trials to predict or provide clinically meaningful results.

There are currently no therapies approved to treat FSHD, and there may be no therapies approved to treat the underlying causes of diseases that we attempt to address or may address in the future. As a result, the design and conduct of a clinical trial or trials of the product candidates for the treatment of these diseases may take longer, be more costly or be less effective as part of the novelty of development in these diseases. In some cases, we may use new or novel endpoints or methodologies, such as RWS, which has not been proven for registration to our knowledge. The FDA and other regulatory authorities have indicated support for RWS as a primary endpoint with additional and appropriate supportive data from secondary endpoints. However, such regulatory authorities may not consider the endpoints of our clinical trial(s) to provide clinically meaningful results, even where we believe such results are clinically meaningful. For example, while we have met with regulators to discuss the REACH trial design and registration strategy for losmapimod for FSHD, including our proposed endpoints for REACH, regulators may require additional data to support the RWS functional primary endpoint for approval of losmapimod for FSHD.

Even if the FDA does find our primary endpoint to be sufficiently validated and clinically meaningful, we may not achieve the pre-specified endpoint to a magnitude, duration or degree of statistical significance in any pivotal or other clinical trials we may conduct for our product candidates. Even if we do meet the primary endpoint, our trials may produce results that are unpredictable or inconsistent with the results of the other, more traditional efficacy endpoints in the trials. The FDA also could ascribe substantial weight to other efficacy endpoints when interpreting the clinical trial data, such that even if we achieve statistically significant results on our primary endpoint, the FDA may regard the failure to show a statistically significant effect on our secondary efficacy endpoints as raising questions about the efficacy of the drug. The FDA also weighs the benefits of a product against its risks and the FDA may view the efficacy results in the context of safety as not being supportive of approval. Other regulatory authorities in Europe and other countries may make similar findings with respect to these endpoints.

If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

Identifying and qualifying patients to participate in and complete clinical trials for our product candidates is critical to our success. Successful and timely completion of clinical trials will require that we enroll a sufficient number of patients who remain in the trial until its conclusion. For example, in our Phase 1b trial of FTX-6058 (which is currently on clinical hold), pociredir, although we enrolled six subjects in the initial cohort, only three subjects remained evaluable as of the initial data cutoff date. Subsequently, we modified the study protocol to monitor subject adherence. However, if such protocols do not improve adherence and improve compliance, once the trial resumes (if at all), we may not be able to generate meaningful data. Furthermore, we may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside of the United States. We revised the design of our clinical trial of pociredir in SCD to address the clinical hold imposed by the FDA, and there can be no certainty as to whether we will be successful in completing the clinical trial with its revised design, which include updated inclusion and exclusion criteria and thus a narrower set of eligible patients. Because of our primary focus on genetically-defined rare diseases, we may have difficulty enrolling a sufficient number of eligible patients.

Patient enrollment is affected by a variety of other factors, including:

- the prevalence and severity of the disease under investigation;
- the eligibility criteria for the trial in question;
- the perceived risks and benefits of the product candidate under trial;
- the requirements of the trial protocols, including invasive procedures such as muscle biopsies or medical resonance imaging (MRI), which requires t use of specialized equipment;

- the availability of existing treatments for the indications for which we are conducting clinical trials;
- the ability to recruit clinical trial investigators with the appropriate competencies and experience;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment;
- the proximity and availability of clinical trial sites for prospective patients;
- the conduct of clinical trials by competitors for product candidates that treat the same indications as our product candidates;
- the ability to identify specific patient populations for biomarker-defined trial cohort(s); and
- the cost to, or lack of adequate compensation for, prospective patients.

Our inability to locate and enroll a sufficient number of patients for our clinical trials would result in significant delays, could require us to abandon one or more clinical trials altogether and could delay or prevent our receipt of necessary regulatory approvals.

Enrollment delays in our clinical trials may result in increased development costs for our product candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing.

If serious adverse events or unacceptable side effects are identified during the development of our product candidates, we may need to abandon or limit our development of some of our product candidates.

If our product candidates are associated with serious adverse events or undesirable side effects in clinical trials or have characteristics that are unexpected in clinical trials or preclinical testing, we may need to abandon their development or limit development to more narrow uses or subpopulations in which the serious adverse events, undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective.

For example, on February 23, 2023, in February 2023, the FDA placed our IND for FTX-6058 pociredir on clinical hold based on hematological malignancies observed in nonclinical toxicology studies. While we intend to address We addressed the FDA's concerns concern as diligently as possible, including FDA's request for information about an SCD patient population with an appropriate benefit-risk profile for further clinical development of FTX-6058, pociredir, and FDA's request for information to define the potential risk in any further studies that may be conducted in healthy volunteers, there is no guarantee that volunteers. Although the FDA will allow us to resume clinical development of FTX-6058. Even if the FDA lifts lifted the clinical hold and allows clinical studies of FTX-6058 to resume, in August 2023, we cannot make

assurances that patients treated with FTX-6058 pociredir will not develop hematological malignancies or other adverse events in the future. We also cannot make assurances that additional observations in preclinical studies of hematological malignancies or other adverse events will not occur. If such additional adverse events were to emerge, further advancement of our clinical studies could be halted or delayed and we may not receive regulatory approval for FTX-6058. pociredir. Even if we receive regulatory approval for FTX-6058, pociredir, our labeling may be restricted and/or market acceptance for our product may be diminished, and the commercial potential of our FTX-6058 pociredir program may be materially and negatively impacted.

In pharmaceutical development, many compounds that initially show promise in early-stage or clinical testing are later found to cause side effects that delay or prevent further development of the compound.

Additionally, if results of our clinical trials reveal unacceptable side effects, we, the FDA or the IRBs at the institutions in which our studies are conducted could suspend or terminate our clinical trials or the FDA or comparable foreign regulatory authorities could order us to cease clinical trials or deny approval of our product candidates for any or all targeted indications. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete any of our clinical trials. If we elect or are forced to suspend or terminate any clinical trial of our product candidates, the commercial prospects of such product candidate will be harmed, and our ability to generate product revenue from such product candidate will be delayed or eliminated. Any of these occurrences could materially harm our business.

If any of our product candidates receives marketing approval and we, or others, later discover that the drug is less effective than previously believed or causes undesirable side effects that were not previously identified, our ability to market the drug could be compromised.

Clinical trials of our product candidates are conducted in carefully defined subsets of patients who have agreed to enter into clinical trials. Consequently, it is possible that our clinical trials may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any, or alternatively fail to identify undesirable side effects. If one or more of our product candidates receives regulatory approval, and we, or others, later discover that they are less effective than previously believed, or cause undesirable side effects, a number of potentially significant negative consequences could result, including:

- withdrawal or limitation by regulatory authorities of approvals of such product;
- seizure of the product by regulatory authorities;
- recall of the product;
- restrictions on the marketing of the product or the manufacturing process for any component thereof;
- requirement by regulatory authorities of additional warnings on the label, such as a “black box” warning or contraindication;
- requirement that we implement a REMS or create a medication guide outlining the risks of such side effects for distribution to patients;
- commitment to expensive post-marketing studies as a prerequisite of approval by regulatory authorities of such product;
- the product may become less competitive;
- initiation of regulatory investigations and government enforcement actions;
- initiation of legal action against us to hold us liable for harm caused to patients; and
- harm to our reputation and resulting harm to physician or patient acceptance of our products.

Any of these events could prevent us from achieving or maintaining market acceptance of a particular product candidate, if approved, and could significantly harm our business, financial condition, and results of operations.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we are focusing our research and development efforts on rare neuromuscular, muscular, hematologic and central nervous system disorders. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through

collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. Failure to allocate resources or capitalize on strategies in a successful manner will have an adverse impact on our business.

We are conducting clinical trials of losmapimod in patients with FSHD in Europe, the United Kingdom, and Canada and currently plan to conduct additional clinical trials for our product candidates at sites outside the United States, and the FDA may not accept data from trials conducted in such locations.

We are currently conducting a Phase 3 clinical trial, an open label extension of our Phase 2b clinical trial, and an open label extension of our Phase 2 open label clinical trial of losmapimod in patients with FSHD in Europe, the United Kingdom, and Canada. We may also conduct additional clinical trials outside the United States. Although the FDA may accept data from clinical trials conducted outside the United States, acceptance of these data is subject to conditions imposed by the FDA. For example, the clinical trial must be well designed and conducted and be performed by qualified investigators in accordance with ethical principles. The trial population must also adequately represent the U.S. population, and the data must be applicable to the U.S. population and U.S. medical practice in ways that the FDA deems clinically meaningful. In addition, while these clinical trials are subject to the applicable local laws, FDA acceptance of the data will depend on its determination that the trials also complied with all applicable U.S. laws and regulations, including good clinical practices, and FDA's ability to validate the data. If the FDA does not accept the data from any trial that we conduct outside the United

States, it would likely result in the need for additional trials, which would be costly and time-consuming and could delay or permanently halt our development of the applicable product candidates.

Risks Related to the Commercialization of our Product Candidates

Even if any of our product candidates receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success, and the market opportunity for any of our product candidates, if approved, may be smaller than we estimate.

If any of our product candidates receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. Efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may not be successful. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant product revenues and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the efficacy and potential advantages of our product candidates compared to the advantages and relative risks of alternative treatments;
- the effectiveness of sales and marketing efforts;
- the cost of treatment in relation to alternative treatments, including any similar generic treatments;
- our ability to offer our products, if approved, for sale at competitive prices;

- the clinical indications for which the product is approved;
- the convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support;
- the timing of market introduction of competitive products;
- the availability of third-party coverage and adequate reimbursement, and patients' willingness to pay out of pocket for required co-payments or in th absence of third-party coverage or adequate reimbursement;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our products, if approved, together with other medications.

Our assessment of the potential market opportunity for our product candidates is based on industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties, one of which we commissioned. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data. Our estimates of the potential market opportunities for our product candidates include

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several key assumptions based on our industry knowledge, industry publications and third-party research, surveys and studies, which may be based on a small sample size and fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions. If any of our assumptions or estimates, or these publications, research, surveys or studies prove to be inaccurate, then the actual market for any of our product candidates may be smaller than we expect, and as a result our product revenue may be limited and it may be more difficult for us to achieve or maintain profitability.

If we are unable to establish sales, marketing and distribution capabilities or enter into sales, marketing and distribution agreements with third parties, we may not be successful in commercializing our product candidates if and when they are approved.

We do not have a sales or marketing infrastructure and have no experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any product for which we have obtained marketing approval, we will need to establish a sales, marketing and distribution organization, either ourselves or through collaborations or other arrangements with third parties.

In the future, we expect to build a focused, specialty sales and marketing infrastructure to market some of our product candidates in the United States, if and when they are approved. There are risks involved with establishing our own sales, marketing and distribution capabilities. For example, recruiting and training a sales force is expensive and time-consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. These efforts may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our products on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales, marketing, coverage or reimbursement, customer service, medical affair and other support personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future products;
- the inability of reimbursement professionals to negotiate arrangements for formulary access, reimbursement and other acceptance by payors;

- the inability to price our products at a sufficient price point to ensure an adequate and attractive level of profitability;
- restricted or closed distribution channels that make it difficult to distribute our products to segments of the patient population;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with m extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we are unable to establish our own sales, marketing and distribution capabilities and we enter into arrangements with third parties to perform these services, our product revenues and our profitability, if any, are likely to be lower than if we were to market, sell and distribute any products that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell, market and distribute our product candidates or may be unable to do so on terms that are acceptable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish sales, marketing and distribution capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

The development and commercialization of new drug products is highly competitive. We face competition with respect to our current product candidates, and will face competition with respect to any product candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. There are a number of large pharmaceutical and biotechnology companies that

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currently market and sell products or are pursuing the development of products for the treatment of many of the disease indications for which we are developing our product candidates. Some of these competitive products and therapies are based on scientific approaches that are the same as or similar to our approach, and others are based on entirely different approaches. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

For example, we are aware of several product candidates in clinical development that could be competitive with product candidates that we may successfully develop and commercialize. See Item 1 “Business—Competition” in this Annual Report on Form 10-K.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. For example, on December 8, 2023, the FDA approved CASGEVY (exagamglogene autotemcel) and LYFGENIA (lovotibeglogene autotemcel), the first ex vivo cell-based gene therapies for the treatment of SCD. CASGEVY has also been FDA-approved for the treatment of transfusion-dependent beta-thalassemia. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic products. If our product candidates achieve marketing approval, we expect that they will be priced at a significant premium over competitive generic products.

Many of the companies against which we are competing or against which we may compete in the future have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

If the market opportunities for our product candidates are smaller than we believe they are, our revenue may be adversely affected, and our business may suffer. Because certain of the target patient populations of our product candidates are small, and the addressable patient population even smaller, we must be able to successfully identify patients and capture a significant market share to achieve profitability and growth.

We primarily focus our research and product development on treatments for genetically-defined rare diseases. Given the small number of patients who have the rare diseases that we are targeting, it is critical to our ability to grow and become profitable that we continue to successfully identify patients with these rare diseases. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, surveys of clinics, patient foundations or market research that we conducted, and may prove to be incorrect or contain errors. New studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn out to be lower than expected. The effort to identify patients with diseases we seek to treat is in early stages, and we cannot accurately predict the number of patients for whom treatment might be possible. Additionally, the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business. Further, even if we obtain significant market share for our product candidates, because the potential target populations for many of the indications we are evaluating are very small, we may never achieve profitability despite obtaining such significant market share.

The target patient populations for some of the indications we are evaluating are relatively small, and there is currently no standard of care treatment directed at some of our target indications, such as FSHD. As a result, the pricing and reimbursement of our product candidates, if approved, is uncertain, but must be adequate to support commercial infrastructure. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell our product candidates will be adversely affected.

We rely, and expect to continue to rely, on CMOs to manufacture our product candidates. If we are unable to enter into such arrangements as expected or if such organizations do not meet our supply requirements, development and/or commercialization of our product candidates may be delayed.

We do not have any manufacturing facilities and rely, and expect to continue to rely, on third parties to manufacture clinical supplies of our product candidates and we expect to rely on third parties to manufacture commercial supplies of our products, if and when approved for marketing by applicable regulatory authorities, as well as for packaging, sterilization, storage, distribution and other production logistics. If we are unable to enter into such arrangements on the terms or timeline we expect, development and/or commercialization of our product candidates may be delayed.

If these third parties do not successfully carry out their contractual duties, meet expected deadlines or manufacture our product candidates in accordance with regulatory requirements, if there are disagreements between us and such parties or if such parties are unable to expand capacities to support commercialization of any of our product candidates for which we obtain marketing approval, we may not be able to fulfill, or may be delayed in producing sufficient product candidates to meet, our supply requirements, or we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different manufacturer, which we may not be able to do on reasonable terms, if at all. In either scenario, our clinical trial supply could be delayed significantly as we establish alternative

supply sources. In some cases, the technical skills required to manufacture our products or product candidates may be unique or proprietary to the original manufacturer and we may have difficulty, or there may be contractual restrictions prohibiting us from, transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all.

In addition, 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. We will also need to verify, such as through a manufacturing comparability study, that any new manufacturing process will produce our product candidate according to the specifications previously submitted to the FDA or another regulatory authority. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates or commercialize our products in a timely manner or within budget. Furthermore, a manufacturer may possess technology related to the manufacture of our product candidate that such manufacturer owns independently. This would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another manufacturer manufacture our product candidates. In addition, changes in manufacturers often involve changes in manufacturing procedures and processes, which could require that we conduct bridging studies between our prior clinical supply used in our clinical trials and that of any new manufacturer. We may be unsuccessful in demonstrating the comparability of clinical supplies which could require the conduct of additional clinical trials. These facilities may also be affected by natural disasters, such as floods or fire, as well as public health issues (for example, an outbreak of a contagious disease such as COVID-19), or such facilities could face manufacturing issues, such as contamination or regulatory concerns following a regulatory inspection of such facility.

Our third-party manufacturers will be subject to inspection and approval by the FDA before we can commence the manufacture and sale of any of our product candidates, and thereafter subject to FDA inspection from time to time. Failure by our third-party manufacturers to pass such inspections and otherwise satisfactorily complete the FDA approval regimen with respect to our product candidates may result in regulatory actions such as the issuance of FDA Form 483 notices of observations, warning letters or injunctions or the loss of operating licenses.

We or our third-party manufacturers may also encounter shortages in the raw materials or API necessary to produce our product candidates in the quantities needed for our clinical trials or, if our product candidates are approved, in sufficient quantities for commercialization or to meet an increase in demand, as a result of capacity constraints or delays or disruptions in the market for the raw materials or API, including shortages caused by the purchase of such raw materials or API by our competitors or others. The failure of us or our third-party manufacturers to obtain the raw materials or API necessary to manufacture sufficient quantities of our product candidates, may have a material adverse effect on our business.

Our reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

We do not have any manufacturing facilities. Although we believe we have obtained sufficient losmapimod tablets from GSK to complete our ongoing clinical trials of losmapimod for the treatment of FSHD, we cannot be sure we have correctly estimated our drug product and API requirements or that such drug product or API will not expire before we want to use it. We have also engaged CMOs to prepare our own API and to manufacture losmapimod tablets. Although we believe we have produced sufficient losmapimod tablets to complete our planned Phase 3 registrational trial, we cannot be sure we have correctly estimated our drug product and API requirements or that such drug product or API will not expire before we want to use it. In addition, although we believe we have obtained sufficient quantities of FTX-6058 pociredir from a CMO for the completion of our Phase 1b clinical trial for SCD, if we are able to resolve the clinical hold, we cannot be sure we have correctly estimated our drug product requirements, which could delay, prevent or impair our development efforts.

We expect to rely on third parties for the manufacture of FTX-6058 pociredir for any future clinical trials and for the manufacture of any future product candidates for preclinical and clinical testing.We also expect to rely on third-party manufacturers or

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third-party collaborators for the manufacture of commercial supply of any other product candidates for which we or our collaborators obtain marketing approval. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

Our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us.

Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval. We do not currently have arrangements in place for redundant supply or a source for bulk drug substance. If any of our future contract manufacturers cannot perform as agreed, we may be required to replace such manufacturers. Although we believe that there are several potential alternative manufacturers who could manufacture our product candidates, we may incur added costs and delays in identifying and qualifying any such replacement.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

Even if we are able to commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third-party coverage or reimbursement practices or healthcare reform initiatives, which could harm our business.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval. See Item 1 “Business — Government Regulation and Product Approval—Pharmaceutical Insurance Coverage and Health Care Reform” in this Annual Report on Form 10-K.

Our ability to commercialize any product candidates successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Coverage and reimbursement may not be available for any product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Reimbursement may affect the demand for, or the price of, any product candidate for which we obtain marketing approval. Obtaining and maintaining adequate reimbursement for our products may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor’s determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or similar regulatory authorities outside of the United States. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all

cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

There can be no assurance that our product candidates, even if they are approved for sale in the United States or in other countries, will be considered medically reasonable and necessary for a specific indication or cost-effective by third-party payors, or that coverage and an adequate level of reimbursement will be available or that third-party payors' reimbursement policies will not adversely affect our ability to sell our product candidates profitably.

Our future growth depends, in part, on our ability to penetrate foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties that, if they materialize, could harm our business.

Our future profitability will depend, in part, on our ability to commercialize our product candidates in markets outside of the United States and the European Union. If we commercialize our product candidates in foreign markets, we will be subject to additional risks and uncertainties, including:

- economic weakness, including inflation, or political instability in particular economies and markets, which could include localized disputes that have broader regional or global impact (such as the Russian invasion of Ukraine) Ukraine or recent hostilities in Israel and Gaza Strip);
- the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements, many of which vary between countri
- different medical practices and customs in foreign countries affecting acceptance in the marketplace;
- tariffs and trade barriers, as well as other governmental controls and trade restrictions;
- other trade protection measures, import or export licensing requirements or other restrictive actions by U.S. or foreign governments;
- longer accounts receivable collection times;
- longer lead times for shipping;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- workforce uncertainty in countries where labor unrest is common;
- language barriers for technical training;
- reduced protection of intellectual property rights in some foreign countries, and related prevalence of generic alternatives to therapeutics;
- foreign currency exchange rate fluctuations and currency controls;
- differing foreign reimbursement landscapes;
- uncertain and potentially inadequate reimbursement of our products; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

If risks related to any of these uncertainties materializes, it could have a material adverse effect on our business.

Clinical trial and product liability lawsuits against us could divert our resources and could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop.

We face an inherent risk of clinical trial and product liability exposure related to the testing of our product candidates in human clinical trials, and we will face an even greater risk if we commercially sell any products that we may develop. While we currently have no products that have been approved for commercial sale, the current and future use of product

candidates by us in clinical trials, and the sale of any approved products in the future, may expose us to liability claims. These claims might be made by patients that use the product, healthcare providers, pharmaceutical companies or others selling such products. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend any related litigation;
- substantial monetary awards to trial participants or patients;

- loss of revenue;
- reduced resources of our management to pursue our business strategy; and
- the inability to commercialize any products that we may develop.

We currently hold $10 million in clinical trial liability insurance coverage in the aggregate, with a per incident limit of $10 million, which may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we expand our clinical trials or if we commence commercialization of our product candidates. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise. If a successful clinical trial or product liability claim or series of claims is brought against us for uninsured liabilities or in excess of insured liabilities, our assets may not be sufficient to cover such claims and our business operations could be impaired.

Risks Related to our Dependence on Third Parties

We rely, and expect to continue to rely, on third parties to conduct our clinical trials, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, which may harm our business.

We currently rely on third-party contract CROs to conduct our clinical trials. We plan to rely on third-party CROs or third-party research collaboratives to conduct any future clinical trials. We do not plan to independently conduct clinical trials of our other product candidates. We expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators, to conduct our clinical trials. These agreements might terminate for a variety of reasons, including a failure to perform by the third parties. If we need to enter into alternative arrangements, our product development activities might be delayed.

Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities.

If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully develop and commercialize our product candidates. Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors.

We also rely, and expect to continue to rely on other third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our products, producing additional losses and depriving us of potential product revenue.

We have entered into, and may in the future enter into, collaborations with third parties for the discovery, development or commercialization of our product candidates. If our collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates and our business could be adversely affected.

We have a collaboration and license agreement with MyoKardia (for certain genetically defined cardiomyopathies). See Item 1 “Business—License Agreements and Collaborations” in this Annual Report on Form 10-K. While we have retained all rights to and are developing on our own our current product candidates, we may in the future enter into development, distribution or marketing arrangements with third parties with respect to our other existing or future product candidates. Our likely collaborators for any such sales, marketing, distribution, development, licensing or broader collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical

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companies and biotechnology companies. If we enter into any such arrangements with any third parties in the future, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenues from these arrangements will depend on our collaborators’ abilities and efforts to successfully perform the functions assigned to them in these arrangements.

Collaborations that we enter into, including our collaboration with MyoKardia, may not be successful, and any success will depend heavily on the efforts and activities of such collaborators. Collaborations pose a number of risks, including the following:

- collaborators have significant discretion in determining the amount and timing of efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development of our product candidates or may elect not to continue or renew development programs based on results clinical trials or other studies, changes in the collaborators’ strategic focus or available funding, or external factors, such as an acquisition, that diver resources or create competing priorities;
- collaborators may not pursue commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew commercialization programs based on results of clinical trials or other studies, changes in the collaborators’ strategic focus or available funding, or external factors, such as an acquisition, that may divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, rep or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- we may not have access to, or may be restricted from disclosing, certain information regarding product candidates being developed or commercializ under a collaboration and, consequently, may have limited ability to inform our stockholders about the status of such product candidates on a discretionary basis;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates and products if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under tern that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator may fail to comply with applicable regulatory requirements regarding the development, manufacture, distribution or marketing of a product candidate or product;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over intellectual property or proprietary rights, contract interpretation or the preferred cou of development, might cause delays or terminations of the research, development or commercialization of product candidates, might lead to additio responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;

- collaborators may not properly obtain, maintain, enforce, defend or protect our intellectual property or proprietary rights or may use our proprietary information in such a way as to potentially lead to disputes or legal proceedings that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- disputes may arise with respect to the ownership of intellectual property developed pursuant to our collaborations;
- collaborators may infringe, misappropriate or otherwise violate the intellectual property or proprietary rights of third parties, which may expose us to litigation and potential liability; and
- collaborations may be terminated for the convenience of the collaborator (e.g., termination of our collaboration with Acceleron Pharma, Inc., or Acceleron, following its acquisition by Merck & Co., or Merck), and, if

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terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates

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Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner, or at all. If any collaborations that we enter into do not result in the successful development and commercialization of products or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our product candidates could be delayed and we may need additional resources to develop our product candidates. All of the risks relating to product development, regulatory approval and commercialization described herein also apply to the activities of our collaborators.

Additionally, subject to its contractual obligations to us, if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product candidate licensed to it by us. For example, in November 2020, subsequent to our entering into the MyoKardia collaboration agreement, MyoKardia was acquired by Bristol-Myers Squibb Company. Bristol-Myers Squibb Company could determine to reprioritize MyoKardia's development programs such that it ceases to diligently pursue the development of our programs and/or cause the agreement between MyoKardia and us to terminate. If our collaborator terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

If we are not able to establish or maintain collaborations, we may have to alter our development and commercialization plans and our business could be adversely affected.

For some of our product candidates, we may decide to collaborate with pharmaceutical or biotechnology companies for the development and potential commercialization of those product candidates. For example, in July 2020, we entered into a collaboration and license agreement with MyoKardia to identify and validate potential biological targets for the potential treatment of certain genetically defined cardiomyopathies. We face significant competition in seeking appropriate collaborators, and a number of more established companies may also be pursuing strategies to license or acquire third-party intellectual property rights that we consider attractive. These established companies may have a competitive advantage over us due to their size, financial resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate.

We may also be restricted under existing or future license agreements from entering into agreements on certain terms with potential collaborators. For example, we are restricted by GSK's right of first negotiation under our current license agreement with them, and we had restrictions under our collaboration with Acceleron. Under our collaboration with MyoKardia, we are restricted from researching, developing, manufacturing, commercializing, using, or otherwise exploiting any compound or product (a) that is a compound or product under the agreement that is directed against certain targets identified by us in the performance of the research activities for the treatment, prophylaxis, or diagnosis of any indication or (b) for the treatment of any genetically defined cardiomyopathies shown to be related to certain specified genes of interest that are modulated by the targets chosen by MyoKardia under our collaboration, in each case , while we are performing the research activities pursuant to the research plan and for a specified period thereafter.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical and biotechnology companies that have resulted in a reduced number of potential future collaborators.

If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms or at all, we may have to curtail the development of a product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to fund and undertake development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we fail to enter into collaborations and do

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not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to further develop our product candidates or bring them to market or continue to develop our product engine.

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market.

Risks Related to our Intellectual Property

If we are unable to obtain, maintain, enforce and protect patent protection for our technology and product candidates or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and products similar or identical to ours, and our ability to successfully develop and commercialize our technology and product candidates may be adversely affected.

Our success depends in large part on our ability to obtain and maintain protection of the intellectual property we may own solely and jointly with others or may license from others, particularly patents, in the United States and other countries with respect to any proprietary technology and product candidates we develop. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our product candidates that are important to our business and by in-licensing intellectual property related to our technologies and product candidates. If we are unable to obtain or maintain patent protection with respect to any proprietary technology or product candidate, our business, financial condition, results of operations and prospects could be materially harmed.

The patent prosecution process is expensive, time-consuming and complex, and we may not be able to file, prosecute, maintain, defend or license all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we do not have the right to control the preparation, filing and prosecution of patent applications, or to maintain, enforce and defend the patents, covering technology that we license from third parties. Therefore, these in-licensed patents and applications may not be prepared, filed, prosecuted, maintained, defended and enforced in a manner consistent with the best interests of our business.

The patent position of pharmaceutical and biotechnology companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. In addition, the scope of patent protection outside of the United States is uncertain and laws of foreign countries may not protect our rights to the same extent as the laws of the United States or vice versa. For example, European patent law restricts the

patentability of methods of treatment of the human body more than United States law does. With respect to both owned and in-licensed patent rights, we cannot predict whether the patent applications we and our licensors are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection from competitors. Further, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates. In addition, publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not published at all. Therefore, neither we nor our licensors can know with certainty whether either we or our licensors were the first to make the inventions claimed in the patents and patent applications we own or in-license now or in the future, or that either we or our licensors were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability and commercial value of our owned and in-licensed patent rights are highly uncertain. Moreover, our owned and in-licensed pending and future patent applications may not result in patents being issued which protect our technology and product candidates, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents and our ability to obtain, protect, maintain, defend and enforce our patent rights, narrow the scope of our patent protection and, more generally, could affect the value or narrow the scope of our patent rights. For information relating to our patent portfolio, see Item 1 “Business—Intellectual Property” in this Annual Report on Form 10-K.

Moreover, we or our licensors may be subject to a third-party preissuance submission of prior art to the United States Patent and Trademark Office, or USPTO, or become involved in opposition, derivation, revocation, reexamination, inter partes review, post-grant review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or product candidates and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize drugs without infringing third-party patent rights. If the breadth or strength of protection provided by our patents and patent applications is threatened, regardless of the outcome, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates. For example, while we believe that the specific and generic claims contained in our U.S. patent provide protection for the method of using losmapimod for the treatment of FSHD and while we also believe that the specific and generic claims contained in our issued and pending U.S. non-provisional and provisional applications provide protection for the pharmaceutical compositions and methods of use for FTX-6058, pociredir, third parties may nevertheless challenge such claims. If

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any such claims are invalidated or rendered unenforceable for any reason, we will lose valuable intellectual property rights and our ability to prevent others from competing with us would be impaired.

Additionally, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if our owned and in-licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our owned and in-licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and product candidates. Such proceedings also may result in substantial cost and require significant time from our management and employees, even if the eventual outcome is favorable to us. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Furthermore, our competitors may be able to circumvent our owned or in-licensed patents by developing similar or alternative technologies or products in a non-infringing manner. As a result, our owned and in-licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing technology and products similar or identical to any of our technology and product candidates.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including generics or biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. For example, the composition of matter patents covering losmapimod, licensed from GSK have expired and are no longer a barrier to entry for any new uses not covered by our other patents and patent applications.

If we are unable to obtain licenses from third parties on commercially reasonable terms or fail to comply with our obligations under such agreements, our business could be harmed.

It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our products, in which case we would be required to obtain a license from these third parties. If we are unable to license such technology, or if we are forced to license such technology on unfavorable terms, our business could be materially harmed. If we are unable to obtain a necessary license, we may be unable to develop or commercialize the affected product candidates, which could materially harm our business and the third parties owning such intellectual property rights could seek either an injunction prohibiting our sales or an obligation on our part to pay royalties and/or other forms of compensation. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us.

If we are unable to obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be unable to develop or commercialize the affected technology and product candidates, which could harm our business, financial condition, results of operations and prospects significantly.

Additionally, if we fail to comply with our obligations under license agreements, our counterparties may have the right to terminate these agreements, in which event we might not be able to develop, manufacture or market, or may be forced to cease developing, manufacturing or marketing, any product that is covered by these agreements or may face other penalties under such agreements. Such an occurrence could materially adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements, or restrictions on our ability to freely assign or sublicense our rights under such agreements when it is in the interest of our business to do so, may result in our having to negotiate new or reinstated agreements with less favorable terms, cause us to lose our rights under these agreements, including our rights to important intellectual property or technology or

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impede, or delay or prohibit the further development or commercialization of one or more product candidates that rely on such agreements.

Under our current license agreements, we may not have the final or sole decision on whether we are able to opt out certain of our in-licensed European patents and patent applications from the recently created Unified Patent Court, or the UPC, for the European Union, that is expected to be fully ratified in 2023. Our licensors may decide to not opt out the of the UPC, which would subject our in-licensed European patents and patent applications to the jurisdiction of the UPC. Furthermore, even if Union. While our licensors decide have decided to opt out of the UPC, we cannot guarantee that our in-licensed European patents and patent applications will be challenged for non-compliance during the opt-out procedure and if successful, brought under the jurisdiction of the UPC nor can we guarantee that our licensors will comply with decide to opt back into the legal formalities and requirements for properly opting out of the UPC. UPC

at a later time. Thus, we cannot be certain that our in-licensed European patents and patent applications will not fall under the jurisdiction of the UPC. Under the UPC, a single European patent would be valid and enforceable in numerous European countries. A challenge to the validity of a European patent under the UPC, if successful, could result in a loss of patent protection in numerous European countries which could have a material adverse impact on our business and our ability to commercialize or license our technology and product candidates.

If we do not obtain patent term extension in the United States under the Hatch-Waxman Act and in foreign countries under similar legislation, our business may be materially harmed.

In the United States, the patent term of a patent that covers an FDA-approved drug may be eligible for limited patent term extension of up to five years beyond the expiration of the patent. The length of the patent term extension is related to, among other factors, the length of time the drug is under regulatory review, but such patent extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, and only one eligible patent may be extended. Similar provisions are available in Europe and certain other jurisdictions outside the United States. If and when our product candidates receive FDA approval, we expect to apply for patent term extensions where applicable, but there is no guarantee that the applicable governmental authorities will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions. We may not be granted patent term extension either in the United States or in any foreign country because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. If we are unable to obtain any patent term extension or the term of any such extension is less than we request, our competitors may obtain approval of competing products following the expiration of our patent rights, and our business, financial condition, results of operations and prospects could be materially harmed.

Further, for our licensed patents, we may not have the right to control prosecution, including filing with the USPTO a petition for patent term extension thus if one of our licensed patents is eligible for patent term extension, we may not be able to control whether a petition to obtain a patent term extension is filed, or obtained, from the USPTO.

There are detailed rules and requirements regarding the patents that may be submitted to the FDA for listing in the Orange Book. We may be unable to obtain patents covering our product candidates that contain one or more claims that satisfy the requirements for listing in the Orange Book. Even if we submit a patent for listing in the Orange Book, the FDA may decline to list the patent, or a manufacturer of generic drugs may challenge the listing. If one of our product candidates is approved and a patent covering that product candidate is not listed in the Orange Book, an ANDA applicant would not have to provide notice to us with respect to that patent. See Item 1 “Business—Intellectual Property” in this Annual Report on Form 10-K for additional information regarding patent laws and patent protection.

Issued Our issued European patents covering our product candidates could be found invalid or unenforceable if challenged in court or subject to the USPTO.
jurisdiction of the UPC.

Our European patents and patent applications could be challenged in the UPC that is expected UPC. We decided to be fully ratified in 2023. We may decide to remove, i.e., opt out, our European patents and patent applications from the jurisdiction of the UPC. However, if certain formalities and requirements are not met, our European patents and patent applications could be challenged for non-compliance and brought under the jurisdiction of the UPC. We cannot be certain that our European patents and patent applications will avoid falling under the jurisdiction of the UPC, if we decide to opt out of the UPC. Under the UPC, a granted European patent would be valid and enforceable in numerous European countries. Although such patent rights would apply to numerous European countries, a successful challenge to a European patent under the UPC could result in loss of patent protection in numerous European countries. Accordingly, a single proceeding under the UPC addressing the validity and infringement of the European patent could result in loss of patent protection in numerous European countries rather than in each validated country separately as such patents always have been adjudicated. Such a loss of patent protection could have a material adverse impact on our business and our ability to commercialize or license our technology and product candidates.

Changes to patent laws in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.

Changes in either the patent laws or interpretation of patent laws in the United States, including patent reform legislation such as the Leahy-Smith America Invents Act, or the Leahy-Smith Act, could increase the uncertainties and costs surrounding the prosecution of our owned and in-licensed patent applications and the maintenance, enforcement or defense of our owned and in-licensed issued patents. The Leahy-Smith Act includes a number of significant changes to United States patent law. These changes include provisions that affect the way patent applications are prosecuted, redefine prior art, provide more efficient and cost-effective avenues for competitors to challenge the validity of patents, and enable third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent at USPTO-administered post-grant proceedings, including post-grant review, *inter partes* review, and derivation proceedings. Assuming that other requirements for patentability are met, prior to March 2013, in the United States, the first to invent the claimed invention was entitled to the patent, while outside the United States, the first to file a patent application was entitled to the patent. After March 2013, under the Leahy-Smith Act, the United States transitioned to a first-to-file system in which, assuming that the other statutory requirements for patentability are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. As such, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, the patent positions of companies in the development and commercialization of biologics and pharmaceuticals are particularly uncertain. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the validity and enforceability of patents once obtained. Depending on future actions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could have a material adverse effect on our patent rights and our ability to protect, defend and enforce our patent rights in the future.

Although we or our licensors are not currently involved in any litigation we may become involved in lawsuits to protect or enforce our patent or other intellectual property rights, we may become involved in such lawsuits, which could be expensive, time-consuming and unsuccessful.

Competitors and other third parties may infringe, misappropriate or otherwise violate our or our licensor's issued patents or other intellectual property. As a result, we or our licensors may need to file infringement, misappropriation or other intellectual property related claims, which can be expensive and time-consuming. Any claims we assert against perceived infringers could provoke such parties to assert counterclaims against us alleging that we infringe, misappropriate or otherwise violate their intellectual property. In addition, in a patent infringement proceeding, such parties could counterclaim that the patents we or our licensors have asserted are invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties may institute such claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (*e.g.*, opposition proceedings). The outcome following legal assertions of invalidity and unenforceability is unpredictable.

An adverse result in any such proceeding could put one or more of our owned or in-licensed patents at risk of being invalidated or interpreted narrowly, and could put any of our owned or in-licensed patent applications at risk of not yielding an issued patent. A court may also refuse to stop the third party from using the technology at issue in a proceeding on the grounds that our owned or in-licensed patents do not cover such technology. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information or trade secrets could be compromised by disclosure during this type of litigation. Any of the foregoing could allow such third parties to develop and commercialize competing technologies and products and have a material adverse impact on our business, financial condition, results of operations and prospects.

Interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable

terms or at all, or if a non-exclusive license is offered and our competitors gain access to the same technology. Our defense of litigation or interference or derivation proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with litigation could have a material adverse

effect on our ability to raise the funds necessary to continue our clinical trials, continue our research programs, license necessary technology from third parties, or enter into development partnerships that would help us bring our product candidates to market.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions, or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock.

Third parties may initiate legal proceedings alleging that we are infringing, misappropriating or otherwise violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market and sell our product candidates and use our proprietary technologies without infringing, misappropriating or otherwise violating the intellectual property and proprietary rights of third parties. There is considerable patent and other intellectual property litigation in the pharmaceutical and biotechnology industries. We may become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our technology and product candidates, including interference proceedings, post grant review, *inter partes* review, and derivation proceedings before the USPTO and similar proceedings in foreign jurisdictions such as oppositions before the European Patent Office. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are pursuing development candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our technologies or product candidates that we may identify may be subject to claims of infringement of the patent rights of third parties.

The legal threshold for initiating litigation or contested proceedings is low, so that even lawsuits or proceedings with a low probability of success might be initiated and require significant resources to defend. Litigation and contested proceedings can also be expensive and time-consuming, and our adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we can. The risks of being involved in such litigation and proceedings may increase if and as our product candidates near commercialization and as we gain the greater visibility associated with being a public company. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of merit. We may not be aware of all such intellectual property rights potentially relating to our technology and product candidates and their uses, or we may incorrectly conclude that third party intellectual property is invalid or that our activities and product candidates do not infringe such intellectual property. Thus, we do not know with certainty that our technology and product candidates, or our development and commercialization thereof, do not and will not infringe, misappropriate or otherwise violate any third party's intellectual property.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to materials, formulations or methods, such as methods of manufacture or methods for treatment, related to the discovery, use or manufacture of the product candidates that we may identify or related to our technologies. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that the product candidates that we may identify may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Moreover, as noted above, there may be existing patents that we are not aware of or that we have incorrectly concluded are invalid or not infringed by our activities. If any third-party patents

were held by a court of competent jurisdiction to cover, for example, the manufacturing process of the product candidates that we may identify, any molecules formed during the manufacturing process or any final product itself, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize the product candidates that we may identify. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign our infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

We may choose to take a license or, if we are found to infringe, misappropriate or otherwise violate a third party's intellectual property rights, we could also be required to obtain a license from such third party to continue developing, manufacturing and marketing our technology and product candidates. However, we may not be able to obtain any required

license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive,

thereby giving our competitors and other third parties access to the same technologies licensed to us and could require us to make substantial licensing and royalty payments. We could be forced, including by court order, to cease developing, manufacturing and commercializing the infringing technology or product. In addition, we could be found liable for significant monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right and could be forced to indemnify our customers or collaborators. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. In addition, we may be forced to redesign our product candidates, seek new regulatory approvals and indemnify third parties pursuant to contractual agreements. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar material adverse effect on our business, financial condition, results of operations and prospects.

Intellectual property litigation or other legal proceedings relating to intellectual property could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims 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 operating losses and reduce the resources available for development activities or any future sales, marketing or distribution 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 and may also have an advantage in such proceedings due to their more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of intellectual property litigation or other proceedings could compromise our ability to compete in the marketplace.

Obtaining and maintaining patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance, renewal and annuity fees and various other government fees on any issued patent and pending patent application must be paid to the USPTO and foreign patent agencies in several stages or annually over the lifetime of our owned and in-licensed patents and patent applications. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. In certain circumstances, we rely on our licensing partners to pay these fees to, or comply with the procedural and documentary rules of, the relevant patent agency. With respect to our patents, we rely on an annuity service, outside firms and outside counsel to remind us of the due dates and to make payment after we instruct them to do so. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, potential competitors might be able to enter the market with similar or identical products or technology. If we or our licensors fail to maintain the patents and patent applications covering our product candidates, it would have a material adverse effect on our business, financial condition, results of operations and prospects.

If we fail to comply with our obligations in our intellectual property licenses and funding arrangements with third parties, or otherwise experience disruptions to our business relationships with our licensors, we could lose intellectual property rights that are important to our business.

We are party to license and funding agreements, such as our agreement with GSK and our recent license agreement with CAMP4, and we may enter into additional licensing and funding arrangements with third parties that impose or may impose diligence, development and commercialization timelines, milestone payment, royalty, insurance and other obligations on us. Under our existing licensing and funding agreements, we are obligated to pay royalties on net product sales of product candidates or related technologies to the extent they are covered by the agreements. If we fail to comply with such obligations under current or future license and funding agreements, our counterparties may have the right to terminate these agreements or require us to grant them certain rights. Such an occurrence could materially adversely affect the value of any product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements may

result in our having to negotiate new or reinstated agreements with less favorable terms,

or cause us to lose our rights under these agreements, including our rights to important intellectual property or technology, which would have a material adverse effect on our business, financial condition, results of operations and prospects. We also have licenses and agreements to certain technologies used that we use in our product engine, discovery efforts, all of which are non-exclusive. While we still face all of the risks described herein with respect to those agreements, we cannot prevent third parties from also accessing those technologies. In addition, our licenses may place restrictions on our future business opportunities. For example, under our license with GSK, GSK has certain rights of first negotiation if we wish to sublicense any of the patent or data rights licensed by GSK to us to a third party for use outside the United States. This may prevent or delay certain transactions, which could have an adverse effect on the development and commercialization of losmapimod and on our business.

Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us a our partners; and

- the priority of invention of patented technology.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected technology and product candidates, which could have a material adverse effect on our business, financial conditions, results of operations and prospects.

Our current or future licensors may have relied on third-party consultants or collaborators or on funds from third parties such that our licensors are not the sole and exclusive owners of the patents and patent applications we in-license. If other third parties have ownership rights to patents or patent applications we in-license, they may be able to license such patents to our competitors, and our competitors could market competing products and technology. This could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

In spite of our best efforts, our licensors might conclude that we have materially breached our license agreements and might therefore terminate the license agreements, thereby removing our ability to develop and commercialize product candidates and technology covered by these license agreements. If these in-licenses are terminated, or if the underlying intellectual property fails to provide the intended exclusivity, competitors would have the freedom to seek regulatory approval of, and to market, products and technologies identical to ours. This could have a material adverse effect on our competitive position, business, financial condition, results of operations and prospects.

We may not be able to protect our intellectual property and proprietary rights throughout the world.

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States, and even where such protection is nominally available, judicial and governmental enforcement of such intellectual property rights may be lacking. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection or licenses but enforcement is not as strong as that in the United

States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries and in Russia, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. In addition, certain jurisdictions do not protect to the same extent or at all inventions that constitute new methods of treatment.

Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other

remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors is forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected.

We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We or our licensors may be subject to claims that former employees, collaborators or other third parties have an interest in our owned or in-licensed patents, trade secrets or other intellectual property as an inventor or co-inventor. For example, we or our licensors may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our product candidates. Litigation may be necessary to defend against these and other claims challenging inventorship or our or our licensors' ownership of our owned or in-licensed patents, trade secrets or other intellectual property. If we or our licensors fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, intellectual property that is important to our product candidates. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may be subject to claims by third parties asserting that our employees, consultants or contractors have wrongfully used or disclosed confidential information of third parties, or we have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.

Many of our employees, consultants and contractors were previously employed at universities or other pharmaceutical or biotechnology companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and contractors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims.

In addition, while it is our policy to require our employees, consultants and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our intellectual property assignment agreements with them may not be self-executing or may be breached, and we may be forced to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial conditions, results of operations and prospects.

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could have a material adverse effect on our competitive business position and prospects. Such intellectual property rights could be awarded to a third party, and we could be required to obtain a license from such third party to commercialize our technology or products, which license may not be available on commercially

reasonable terms, or at all, or such license may be non-exclusive. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to our management and employees.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patents for our product candidates, we also rely on trade secrets and confidentiality agreements to protect our unpatented know-how, technology and other proprietary information, to maintain our competitive position, including certain aspects of our proprietary product engine. discovery technology. We seek to protect our trade secrets and other proprietary technology, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, CROs, CMOs, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants, but we cannot guarantee that we have entered into such agreements with each party that may have or has had access to our trade secrets or proprietary technology. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Detecting the disclosure or misappropriation of a trade secret and enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside of the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third party, we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor or other third party, our competitive position would be materially and adversely harmed.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- portions of our product engine are protected by trade secrets, but much of our product engine is not protected by intellectual property, including patents, trade secrets and know-how, and we may not be able to develop, acquire or in-license any patentable technologies or other intellectual property related to the unprotected portions of our product engine;
- others may be able to make product candidates that are similar to ours but that are not covered by the claims of the patents that we own;

- we, or our license partners or current or future collaborators, might not have been the first to make the inventions covered by the issued patent or pending patent applications that we license or may own in the future;
- we, or our license partners or current or future collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or in-licensed intellectual property rights;
- it is possible that our owned and in-licensed pending patent applications or those we may own or in-license in the future will not lead to issued pater
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we cannot ensure that any of our patents, or any of our pending patent applications, if issued, or those of our licensors, will include claims having a scope sufficient to protect our product candidates;
- we cannot ensure that any patents issued to us or our licensors will provide a basis for an exclusive market for our commercially viable product candidates or will provide us with any competitive advantages;
- we cannot ensure that our commercial activities or product candidates will not infringe upon the patents of others;
- we cannot ensure that we will be able to successfully commercialize our product candidates on a substantial scale, if approved, before the relevant patents that we own or license expire;
- portions of our discovery technology are protected by trade secrets, but much is not protected by intellectual property, including patents, trade secre and know-how, and we may not be able to develop, acquire or in-license

any patentable technologies or other intellectual property related to the unprotected portions of our discovery portfolio;

- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Regulatory Approval of our Product Candidates and Other Legal Compliance Matters

Even if we complete the necessary preclinical studies and clinical trials, the marketing approval process is expensive, time-consuming and uncertain, and we may not obtain approvals for the commercialization of some or all of our product candidates. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize our product candidates, and our ability to generate revenue will be materially impaired.

Marketing approval of drugs in the United States requires the submission of a new drug application, or NDA, to the FDA and we are not permitted to market any drug candidate in the United States until we obtain approval of the NDA. An NDA must be supported by extensive clinical and preclinical data, as well as extensive information regarding pharmacology, chemistry, manufacturing and controls. We have not submitted an application for or received marketing approval for any of our product candidates in the United States or in any other jurisdiction.

We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third-party clinical research organizations or other third-party consultants or vendors to assist us in this process. Securing marketing approval requires the submission of extensive preclinical and clinical data and supporting information, including manufacturing information, to regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Our product candidates may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use. If any of our product candidates receives marketing approval, the accompanying label may limit the approved use of our drug, which could limit sales of the product.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data is insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent marketing approval of a product candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

Disruptions at the FDA and other agencies may prolong the time necessary for regulatory submissions to be reviewed and/or new drugs to be approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical employees and stop critical activities. If a prolonged government shutdown were to occur, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

In addition, since March 2020 when foreign and domestic inspections of facilities were largely placed on hold due to the COVID-19 pandemic, the FDA has been working to resume routine surveillance, bioresearch monitoring and pre-approval inspections. Should the FDA determine that an inspection is necessary for approval and an inspection cannot be completed during the review cycle due to restrictions on travel, and the FDA does not determine a remote

interactive evaluation to be adequate, the agency has stated that it generally intends to issue, depending on the circumstances, a complete response letter or defer action on the application until an inspection can be completed. During the COVID-19 public health emergency, a number of companies announced receipt of complete response letters due to the FDA's inability to complete required inspections for their applications. Regulatory authorities outside the U.S. may adopt similar restrictions or other policy measures in response to the ongoing COVID-19 pandemic and may experience delays in their regulatory activities.

If we experience delays in obtaining approval or if we fail to obtain approval of our product candidates, the commercial prospects for our product candidates may be harmed and our ability to generate revenues will be materially impaired.

We may not be able to obtain or maintain orphan drug designation or exclusivity for our product candidates and, even if we do, that exclusivity may not prevent the FDA or the EMA from approving other competing products.

Regulatory authorities in some jurisdictions, including the United States and Europe, European Union, may designate drugs for relatively small patient populations as orphan drugs. The FDA and EMA have granted orphan drug designation to losmapimod for the treatment of FSHD. We may seek orphan drug designation for our other current and future product candidates.

Generally, if a product with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the product is entitled to a period of marketing market exclusivity, which precludes the FDA or the EMA from approving another marketing authorization application for the same drug for a certain time period. The applicable period is seven years in the United States and ten years in the European Union. The exclusivity period in the European Union can be reduced to six years at the end of the fifth year if it is determined that a drug no longer meets the criteria for orphan drug designation, including if the drug is sufficiently profitable so that market exclusivity is no longer justified. Proposed amendments to European Union regulations regarding orphan medicines are under consideration that could reduce the ten-year marketing exclusivity period to eight to nine years (or even as little as three to five years for well-established medicines). The European Union's April 2023 draft legislative proposal is under review, including by the European Parliament and European Council but, if implemented in due course, may mean that orphan medicines have reduced marketing exclusivity.

Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because competing drugs containing a different active ingredient can be approved for the same condition. In addition, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is clinically superior to the first drug to obtain orphan drug exclusivity because it is shown to be safer, more effective or makes a major contribution to patient care. Moreover, if we pursue and obtain approval for the same product for another indication for which we are not entitled to or do not have orphan drug exclusivity, our period of orphan exclusivity will not prevent third parties from obtaining approval for a competing drug containing the same active ingredient for use in this other, non-orphan indication. If that were to occur, the protection we derive from orphan exclusivity may be adversely affected.

Special designation Designation by the FDA, such as fast track or breakthrough therapy, may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

The FDA granted fast track designation to losmapimod for the treatment of FSHD and to FTX-6058 pociredir for the treatment of SCD, and we may seek fast track designation for some of our other product candidates as well as breakthrough therapy designation, including for losmapimod. If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition,

the drug sponsor may apply for FDA fast track designation. The FDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation, we cannot assure stockholders that the FDA would decide to grant it. Even with fast track designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program.

A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. Even if we receive breakthrough therapy designation, the receipt of such designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, the FDA may later decide that the products no longer meet the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Even if the FDA agrees that we may pursue an accelerated approval NDA submission, approval of the NDA is not assured, nor does submission of an accelerated approval NDA ensure that the product candidate will have a faster development or regulatory review process.

We may seek approval, as applicable, of our product candidates using the FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it treats a serious condition, generally provides a meaningful advantage over available therapies, and demonstrates an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, or IMM, that is reasonably likely to predict an effect on IMM or other clinical benefit (*i.e.*, an intermediate clinical endpoint).

Prior to seeking such accelerated approval, we will seek feedback from the FDA and otherwise evaluate our ability to seek and receive such accelerated approval.

There can be no assurance that, after feedback from FDA, we will continue to pursue or apply for accelerated approval or any other form of expedited development, review or approval, even if we initially decide to do so. Furthermore, if we decide to submit an application for accelerated approval or under another expedited regulatory designation, there can be no assurance that such submission or application will be accepted or that any expedited review or approval will be granted on a timely basis, or at all.

Moreover, as a condition of accelerated approval, the FDA likely would require that we perform adequate and well-controlled post-marketing clinical trials to confirm the product's clinical benefit. These confirmatory trials must be completed with due diligence. Under the Food and Drug Omnibus Reform Act of 2022, or FDORA, the FDA is permitted to require, as appropriate, that a post-approval confirmatory study or studies be underway prior to approval or within a specified time period after the date of approval for a product granted accelerated approval. FDORA also requires sponsors to send updates to the FDA every 180 days on the status of such studies, including progress toward enrollment targets, and the FDA must promptly post this information publicly. FDORA also gives the FDA increased authority to withdraw approval of a drug or biologic granted accelerated approval on an expedited basis if the sponsor fails to conduct such studies in a timely manner, send the necessary updates to the FDA, or if such post-approval studies fail to verify the drug's predicted clinical benefit. Under FDORA, the FDA is empowered to take action, such as issuing fines, against companies that fail to conduct with due diligence any post-approval confirmatory study or submit timely reports to the agency on their progress. In addition, the FDA generally requires pre-approval of promotional materials for products under consideration for accelerated approval, which could adversely impact the timing of the commercial launch of the product. Thus, even if we seek to utilize the accelerated approval pathway for a product candidate, we may not experience a faster development or regulatory review or approval

process for that product. In addition, receiving accelerated approval does not assure that the product's accelerated approval will ultimately be converted to a traditional approval.

Failure to obtain marketing approval in foreign jurisdictions would prevent our product candidates from being marketed abroad.

In order to market and sell our products in the European Union and many other foreign jurisdictions, we or our potential third-party collaborators must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside of the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside of the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We or our potential third-party collaborators may not obtain approvals, including conditional authorization, from regulatory authorities outside of the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside of the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. However, a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in other countries. We may not be able to file for marketing approvals and may not receive the necessary approvals to commercialize our products in any market.

Additionally, now that the United Kingdom is no longer part of the European Union, separate applications and procedures will be required to obtain regulatory approval for our products in the United Kingdom and the European Union. Any delay in obtaining, or an inability to obtain, any marketing approvals could prevent us from commercializing any product candidates in the United Kingdom and/or the European Union and restrict our ability to generate revenue and achieve and sustain profitability.

Any product candidate for which we obtain marketing approval could be subject to post-marketing restrictions or withdrawal from the market and we may be subject to substantial penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, when and if any of them are approved.

Any product candidate for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising and promotional activities for such product, will be subject to continual requirements of and review by the FDA and other regulatory authorities. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a REMS. If any of our product candidates receives marketing approval, the accompanying label may limit the approved use of our drug, which could limit sales of the product.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of the product, including the adoption and implementation of REMS. The FDA and other agencies, including the Department of Justice, or the DOJ, closely regulate and monitor the post-approval marketing and promotion of drugs to ensure they are marketed and distributed only for the approved indications and in accordance with the provisions of the approved labeling. Violations of the FDCA and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations and enforcement actions alleging violations of federal and state healthcare fraud and abuse laws, as well as state consumer protection laws.

In addition, later discovery of previously unknown adverse events or other problems with our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may have various consequences, including:

- suspension of or restrictions on such products, manufacturers or manufacturing processes;
- restrictions and warnings on the labeling or marketing of a product;
- restrictions on product distribution or use;
- requirements to conduct post-marketing studies or clinical trials;

- warning letters or untitled letters;

- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution or disgorgement of profits or revenues;
- suspension of any ongoing clinical trials;
- suspension or withdrawal of marketing approvals;
- damage to relationships with any potential collaborators;
- unfavorable press coverage and damage to our reputation;
- refusal to permit the import or export of our products;
- product seizure or detention;
- injunctions or the imposition of civil or criminal penalties; or
- litigation involving patients using our products.

Non-compliance with European Union requirements regarding safety monitoring or pharmacovigilance, and with requirements related to the development of products for the pediatric population, can also result in significant financial penalties. Similarly, failure to comply with the European Union's or United Kingdom's requirements regarding the protection of personal information can also lead to significant penalties and sanctions.

In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements, including ensuring that quality control and manufacturing procedures conform to cGMPs applicable to drug manufacturers. Additionally, under FDORA, sponsors of approved drugs and biologics must provide six months' notice to the FDA of any changes in marketing status, such as the withdrawal of a drug, and failure to do so could result in the FDA placing the product on a list of discontinued products, which would revoke the product's ability to be marketed. We will also be subject to other regulatory requirements, including submissions of safety and other post-marketing information and reports, registration and listing requirements, requirements regarding the distribution of samples to clinicians, and recordkeeping.

Our relationships with healthcare providers, physicians and third-party payors will be subject to applicable anti-kickback, fraud and abuse, false claims, transparency, health information privacy and security, and other healthcare laws and regulations, which, in the event of a violation, could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens and diminished profits and future earnings.

If we obtain regulatory approval and commercialize any products, healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our future arrangements with healthcare providers, physicians and third-party payors may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute any products for which we obtain marketing approval. In addition, we may be subject to transparency laws and patient privacy regulation by U.S. federal and state governments and by governments in foreign jurisdictions in which we conduct our business. See Item 1 "Business—Government Regulation and Product Approvals—Health Care Law and Regulation" in this Annual Report on Form 10-K.

The distribution of pharmaceutical products is subject to additional requirements and regulations, including extensive record-keeping, licensing, storage and security requirements intended to prevent the unauthorized sale of pharmaceutical products.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations, including anticipated activities that would be conducted by our sales team, are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion of products from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any of the physicians or other

healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from participation in government funded healthcare programs.

Compliance with global privacy and data security requirements could result in additional costs and liabilities to us or inhibit our ability to collect and process data globally, and the failure to comply with such requirements could subject us to significant fines and penalties, which may have a material adverse effect on our business, financial condition or results of operations.

The legislative and regulatory framework for the collection, use, safeguarding, sharing, transfer and other processing of information worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. Globally, virtually every jurisdiction in which we operate has established its own data security and privacy frameworks with which we must comply. For example, the collection, use, disclosure, transfer, or other processing of personal data regarding individuals in the European Union, Economic Area, or EEA, including personal health data, is subject to the European Union's General Data Protection Regulation, or EU GDPR, which took effect across all Member States of the European Economic Area, or EEA, in May 2018. GDPR. Following the withdrawal of the United Kingdom from the European Union, or Brexit, the EU GDPR has been incorporated into United Kingdom's laws, or UK GDPR, alongside the UK Data Protection Act 2018, and together with the EU GDPR, is referred to as GDPR.

Despite Brexit, the EU and UK GDPR remain largely aligned. Currently, the most impactful point of divergence relates to transfer mechanisms (i.e., the ability for companies in the European Union or the United Kingdom to transfer personal information to third countries, including the United States), because it requires us to implement a variety of different contractual clauses approved by European Union's or United Kingdom's regulators. regulators, and carry out transfer impact assessments to establish whether the third country can ensure essential equivalency. This complexity and the additional contractual burden increases our overall risk exposure. exposure, and may result in us needing to make strategic considerations around where EEA and UK personal data is stored and which service providers we can utilize for the processing of EEA and UK personal data.

There may be further divergence in the future, including with regard to administrative burdens. The United Kingdom UK Government has announced plans also now introduced a Data Protection and Digital Information Bill, or the UK Bill, into the UK legislative process. The aim of the UK Bill is to reform the country's UK's data protection legal framework in its Data Reform regime following Brexit. If passed, the final version of the UK Bill which will introduce significant changes from may have the EU GDPR. effect of further altering the similarities between the UK and EEA data protection regime. This may lead to additional compliance costs and could increase our overall risk exposure as we may no longer be able to take a unified approach across the European Union and the United Kingdom, and we will need to amend our processes and procedures to align with the new framework.

Similar data protection laws are either in place or under way in the United States. There are a broad variety of privacy and data protection and security laws and regulations that may be applicable to our activities governing the collection, use, disclosure, and protection of health-related and other personal information (including, for example, state data breach notification laws, health information and/or genetic privacy laws and federal and state consumer protection laws including Section 5 of the FTC Act, HIPAA, and the California Consumer Protection Privacy Act, or CCPA). A wide range of enforcement agencies at both the state and federal levels that can review companies for privacy and data security concerns based on general consumer protection laws.

The Federal Trade Commission and state Attorneys General all are aggressive in reviewing privacy and data security protections for consumers. New laws also are being considered at both the state and federal levels. For example, in California, the CCPA which went into effect in January 2020, as amended by the California Privacy Rights Act, has created certain requirements for data use, sharing and transparency, and provides California residents certain rights concerning their personal information, such as access, correction, deletion and many opt out of or selling or sharing such data. Several other states have introduced implemented privacy legislation similar to the CCPA or are considering similar legislation. For more information regarding preparing to implement their own regulatory frameworks. A wide range of enforcement agencies at both the GDPR, state and federal levels, such as the CCPA Federal Trade Commission and other regulations, see state Attorneys General have been increasingly aggressive in reviewing and enforcing privacy and data security-related consumer protection laws. See Item 1 “Business –Government Regulation and Product Approvals” in this Annual Report on Form 10-K.

Given the breadth and depth of changes in privacy, data protection and consumer protection obligations, preparing for and complying with these requirements is rigorous and time intensive and requires significant resources and a ongoing review of our technologies, systems and practices, as well as those of any third-party collaborators, service providers, contractors or consultants that store, process or transfer personal data on our behalf. Many of these laws differ from each other in significant ways and may be interpreted and applied in a manner that is inconsistent from one jurisdiction to another, thus complicating compliance efforts. Compliance with the GDPR and other similar laws or regulations associated with the enhanced protection of certain types of sensitive data, such as healthcare data or other personal information from our clinical trials, could require us to change our business practices and put in place additional compliance mechanisms, may interrupt or delay our development, regulatory and commercialization activities and increase our cost of doing business. Any failure or perceived failure by us to comply with such laws and regulations could lead to government enforcement actions, private litigation and significant fines and penalties against us and could have a material adverse effect on our business, financial condition or results of operations. There is also the threat of consumer class actions related to these laws and the overall protection of personal data. Even if we are not determined to have violated these laws, government investigations into these issues typically require the expenditure of significant resources and generate negative publicity, which could harm our reputation and our business.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates and affect the prices we may obtain for any products that are approved in the United States or foreign jurisdictions.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any product candidates for which we obtain marketing approval. The pharmaceutical industry has been a particular focus of these efforts and has been significantly

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affected by legislative initiatives. Current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any FDA approved product. If reimbursement of our products is unavailable or limited in scope, our business could be materially harmed. See Item 1 “Business—Government Regulation and Product Approval—Pharmaceutical Insurance Coverage and Health Care Reform” in this Annual Report on Form 10-K.

In August 2022 the Inflation Reduction Act of 2022 was passed, which among other things, allows for Centers for Medicare & Medicaid Services to negotiate prices for certain single-source drugs and biologics reimbursed under Medicare Part B and Part D, beginning with select high-cost drugs in 2026. The legislation subjects drug manufacturers to civil monetary penalties and a potential excise tax for offering a price that is not equal to or less than the price negotiated under the law or for taking price increases that exceed inflation. The legislation also requires manufacturers to pay rebates for drugs in Medicare Part D whose price increases exceed inflation. Further, the legislation caps Medicare beneficiaries’ annual out-of-pocket drug expenses at $2,000. The implementation of the IRA is currently subject to ongoing litigation challenging the constitutionality of the IRA's Medicare drug price negotiation program. The effect of Inflation Reduction Act of 2022 on our business and the healthcare industry in general is not yet known.

We expect that these healthcare reforms, as well as 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 and/or the level of reimbursement physicians receive for administering any approved product we might bring to market. Reductions in reimbursement levels may negatively impact the prices we receive or the frequency with which our products are prescribed or administered. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

Governments outside of the United States tend to impose strict price controls, which may adversely affect our revenues, if any.

In countries outside of the United States, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

If we or any third-party manufacturers we engage now or in the future fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs or liabilities that could harm our business.

We and third-party manufacturers we engage now are, and any third-party manufacturers we may engage in the future will be, subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. Liability under certain environmental laws governing the release and cleanup of hazardous materials is joint and several and could be imposed without regard to fault. We also could incur significant costs associated with civil or criminal fines and penalties or become subject to injunctions limiting or prohibiting our activities for failure to comply with such laws and regulations.

Although we maintain general liability insurance as well as workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Further, with respect to the operations of our current and any future third-party contract manufacturers, it is possible that if they fail to operate in compliance with applicable environmental, health and safety laws and regulations or properly dispose of wastes associated with our products, we could be held liable for any resulting damages, suffer reputational harm or experience a disruption in the manufacture and supply of our product candidates or products. In addition, our supply chain may be adversely impacted if any of our third-party contract manufacturers become subject to injunctions or other sanctions as a result of their non-compliance with environmental, health and safety laws and regulations.

We are subject to anti-corruption laws, as well as export control laws, customs laws, sanctions laws and other laws governing our operations. If we fail to comply with these laws, we could be subject to civil or criminal penalties, other remedial measures and legal expenses, be precluded from developing manufacturing and selling certain products outside the United States or be required to develop and implement costly compliance programs, which could adversely affect our business, results of operations and financial condition.

Our operations are subject to anti-corruption laws, including the U.K. Bribery Act 2010, or Bribery Act, the U.S. Foreign Corrupt Practices Act, or FCPA, and other anti-corruption laws that apply in countries where we do business and may do business in the future. The Bribery Act, FCPA and these other laws generally prohibit us, our officers, and our employees and intermediaries from bribing, being bribed or making other prohibited payments to government officials or other persons to obtain or retain business or gain some other business advantage. Compliance with the FCPA, in particular, is expensive and difficult, particularly in countries in which corruption is a recognized problem. In addition, the FCPA presents particular challenges in the pharmaceutical industry, because, in many countries, hospitals are operated by the government, and doctors and other hospital employees are considered foreign officials. Certain payments to hospitals in connection with clinical trials and other work have been deemed to be improper payments to government officials and have led to FCPA enforcement actions.

We may in the future operate in jurisdictions that pose a high risk of potential Bribery Act or FCPA violations, and we may participate in collaborations and relationships with third parties whose actions could potentially subject us to liability under the Bribery Act, FCPA or local anti-corruption laws. In addition, we cannot predict the nature, scope or effect of future regulatory requirements to which our international operations might be subject or the manner in which existing laws might be administered or interpreted. If we expand our operations outside of the United States, we will need to dedicate additional resources to comply with numerous laws and regulations in each jurisdiction in which we plan to operate.

We are also subject to other laws and regulations governing our international operations, including regulations administered by the governments of the United Kingdom and the United States, and authorities in the European Union, including applicable export control regulations, economic sanctions on countries and persons, customs requirements and currency exchange regulations, collectively referred to as the Trade Control laws. In addition, various laws, regulations and executive orders also restrict the use and dissemination outside of the United States, or the sharing with certain non-U.S. nationals, of information classified for national security purposes, as well as certain products and technical data relating to those products. If we expand our presence outside of the United States, it will require us to dedicate additional resources to comply with these laws, and these laws may preclude us from developing, manufacturing, or selling certain products and product candidates outside of the United States, which could limit our growth potential and increase our development costs.

There is no assurance that we will be completely effective in ensuring our compliance with all applicable anti-corruption laws, including the Bribery Act, the FCPA or other legal requirements, including Trade Control laws. If we are not in compliance with the Bribery Act, the FCPA and other anti-corruption laws or Trade Control laws, we may be subject to criminal and civil penalties, disgorgement and other sanctions and remedial measures, and legal expenses, which could have an adverse impact on our business, financial condition, results of operations and liquidity. The SEC also may suspend or bar issuers from trading securities on U.S. exchanges for violations of the FCPA's accounting provisions. Any investigation of any potential violations of the Bribery Act, the FCPA, other anti-corruption laws or Trade Control laws by United Kingdom, U.S. United States or other authorities could also have an adverse impact on our reputation, our business, results of operations and financial condition.

Our employees, independent contractors, consultants and vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading, which could cause significant liability for us and harm our reputation.

We are exposed to the risk of fraud or other misconduct by our employees, independent contractors, consultants and vendors. Misconduct by these partners could include intentional failures to comply with FDA regulations or similar regulations of comparable foreign regulatory authorities, provide accurate information to the FDA or comparable foreign regulatory authorities, comply with manufacturing standards, comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable foreign regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. Employee misconduct could also involve the improper use of information obtained in

the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. This could include violations of HIPAA, other U.S. federal and state law, and requirements of non-U.S. jurisdictions, including the EU GDPR. We are also exposed to risks in connection with any insider trading violations by employees or others affiliated with us. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws, standards, regulations, guidance or codes of conduct. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

Our internal computer and information technology systems and infrastructure, or those of our collaborators or other contractors or consultants, may fail or suffer security compromises or breaches, which could result in a material disruption of our product development programs.

Our internal computer and information technology systems and infrastructure and those of our CROs, collaborators, and other contractors or consultants upon which our business relies, are vulnerable to breakdown or damage or interruption or otherwise may sustain damage from computer viruses, unauthorized access, data breaches, phishing attacks, cybercriminals, system malfunction, natural disasters (including hurricanes and earthquakes), terrorism, war and telecommunication and electrical failures. Such systems and infrastructure are also vulnerable to service interruptions or to security compromises or breaches from inadvertent or intentional actions by our employees, CROs or other third-party vendors, contractors, consultants and/or business partners or other third parties, or from cyber-attacks by malicious third parties. Cyber-attacks are increasing in their frequency, sophistication and intensity, and have become increasingly difficult to detect. Cyber-attacks could include wrongful conduct by insider employees or vendors, hostile foreign governments, industrial espionage, wire fraud and other forms of cyber fraud or cyber-attacks, including the deployment of harmful malware, ransomware, denial-of-service attacks, unauthorized access to or deletion of files, phishing attacks and social engineering, business email compromise, and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. Accordingly, if We have experienced cyber incidents in the past, and we cannot guarantee that the measures we take to prevent, detect, and respond to cyber-attacks will be effective to prevent or remediate future incidents. If our cybersecurity measures or those of our service providers fail to protect against unauthorized access, attacks, compromise or the mishandling of data by our employees or contractors, then our reputation, customer trust, business, results of operations and financial condition could be adversely affected. Because the techniques used by threat actors who may attempt to penetrate and sabotage our computer systems or those of our collaborators or other contractors or consultants change frequently and may not be recognized until launched against a target, we may be unable to anticipate these techniques. For example, we make extensive use of cloud-based storage systems, and in October 2018, we experienced a breach of one such system. While this breach did not result in the permanent loss or theft of any of our critical information or any other material consequences, it could have, and while we took steps to remediate this breach, such as establishing multi-factor authentication and implementing improvements to our data securities protocols, we cannot guarantee that the measures we have taken to date, and actions we may take in the future, will be sufficient to remediate any future breaches.

While we have not experienced any material system failure, accident, cyber-attack or security breach to date, 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 of our trade secrets or other proprietary information or other similar disruptions. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security compromise or breach were to result in a loss of, damage to, unauthorized access, or misuse of our data, systems, infrastructure or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability (including in connection with or resulting from litigation or governmental investigations and enforcement actions), our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed and our business could be otherwise adversely affected.

Risks Related to Employee Matters and Managing Growth

Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on the research and development, clinical, financial, operational and other business expertise of our executive officers, as well as the other principal members of our management, scientific and clinical teams. Although we have entered into employment offer letters with our executive officers, each of them may terminate their employment with us at any time. We do not maintain “key person” insurance for any of our executives or other employees. Recruiting and

retaining qualified scientific, clinical, manufacturing, accounting, legal and sales and marketing personnel will also be critical to our success.

We have had recent executive transitions, including of our chief executive officer, chief financial officer, president of research and development, chief scientific officer, and chief medical officer. We cannot predict the likelihood, timing or effect of future transitions among our executive leadership. The loss of the services of our executive officers or other key employees could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. For example, our employees have taken on increased responsibilities in light of this turnover, which could divert attention from key business areas. Additionally, the number of recent departures has created some uncertainty. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize products. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. Even if we are successful in our efforts to replace our executive leadership, we cannot guarantee that we will not face similar turnover in the future. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. In August 2022, we announced a workforce reduction in our research and development function, which may make us a less attractive employer to future candidates. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. Our success as a public company also depends on implementing and maintaining internal controls and the accuracy and timeliness of our financial reporting. If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

We expect to expand our development and regulatory capabilities and potentially implement sales, marketing and distribution capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of drug development, clinical, regulatory affairs and, if any of our product candidates receives marketing approval, sales, marketing and distribution. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

Risks Related to our Common Stock

Our executive officers, directors and principal stockholders, if they choose to act together, have the ability to control or significantly influence all matters submitted to stockholders for approval.

As of March 2, 2023 February 20, 2023, our executive officers and directors and our stockholders who owned more than 5% of our outstanding common stock in the aggregate beneficially owned shares representing approximately 57.1% 48.6% of our capital stock. As a result, if these stockholders were to choose to act together, they would be able to control or significantly influence all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they choose to act together, would control the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets.

This concentration of ownership control may:

- delay, defer or prevent a change in control;
- entrench our management and board of directors; or
- delay or prevent a merger, consolidation, takeover or other business combination involving us that other stockholders may desire.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of our company, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current directors and members of management.

Provisions in our certificate of incorporation and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control of our company that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may 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. Among other things, these provisions:

- establish a classified board of directors such that only one of three classes of directors is elected each year;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from our board of directors;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a “poison pill” that would worl dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; a
- require the approval of the holders of at least 75% of the votes that all our stockholders would be entitled to cast to amend or repeal specified provisions of our certificate of incorporation or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, or the DGCL, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

If securities analysts do not publish or cease publishing research or reports or publish misleading, inaccurate or unfavorable research about our business or if they publish negative evaluations of our stock, the price and trading volume of our stock could decline.

The trading market for our common stock relies, in part, on the research and reports that industry or financial analysts publish about us or our business. There can be no assurance that existing analysts will continue to cover us or that new analysts will begin to cover us. There is also no assurance that any covering analyst will provide favorable coverage. Although we have obtained analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock or publish inaccurate or unfavorable research about our business, or provides more favorable relative recommendations about our competitors, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price and trading volume to decline.

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for our stockholders.

The trading price of our common stock has been, and is likely to continue to be volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. The stock market in general and the market for smaller biopharmaceutical companies in particular have

experienced extreme volatility that has often been unrelated to

the operating performance of particular companies. The market price for our common stock may be influenced by many factors, including:

- results of or developments in preclinical studies and clinical trials of our product candidates or those of our competitors or potential collaborators, including the recent clinical hold on FTX-6058 (and whether or not we are able to resolve such hold); collaborators;
- our success in commercializing our product candidates, if and when approved;
- the success of competitive products or technologies;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other intellectual property or proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to discover, develop, acquire or in-license products, product candidates, technologies or data referencing rights, the costs o commercializing any such products and the costs of development of any such product candidates or technologies;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or the financial results of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this “Risk Factors” section.

In the past, following periods of volatility in the market price of a company’s securities, securities class-action litigation has often been instituted against that company. Any lawsuit to which we are a party, with or without merit, may result in an unfavorable judgment. We also may decide to settle lawsuits on unfavorable terms. Any such negative outcome could result in payments of substantial damages or fines, damage to our reputation or adverse changes to our offerings or business practices. Such litigation may also cause us to incur other substantial costs to defend such claims and divert management’s attention and resources. Furthermore, negative public announcements of the results of hearings, motions or other interim proceedings or developments could have a negative effect on the market price of our common stock.

A significant portion of our total outstanding shares are eligible to be sold into the market, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. Persons who were our stockholders prior to our initial public offering continue to hold a substantial number of shares of our common stock. If such persons sell, or indicate an intention to sell, substantial amounts of our common stock in the public market, the trading price of our common stock could decline.

In addition, we have filed or intend to file universal shelf registration statements (which allows us to offer and sell securities from time to time pursuant to one or more offerings at prices and terms to be determined at the time of sale) subject to an aggregate offering amount stated therein, as well as registration statements registering all shares of common stock that we may issue under our equity compensation plans or pursuant to equity awards made to newly hired employees outside of equity compensation plans. Such registered shares can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates.

We are an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company," or EGC, as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We may remain an EGC until December 31, 2024, although if the market value of our common stock that is held by non-affiliates exceeds $700 million as of any June 30 before that time or if we have annual gross revenues of $1.235 billion or more in any fiscal year, we would cease to be an EGC as of December 31 of the applicable year. We also would cease to be an EGC if we issue more than $1 billion of non-convertible debt over a three-year period. For so long as we remain an EGC, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not EGCs. These exemptions include:

- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory a firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden paracl payments not previously approved.

We may choose to take advantage of some or all of the available exemptions. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, the JOBS Act permits an EGC to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have elected not to "opt out" of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that we either (i) irrevocably elect to "opt out" of such extended transition period or (ii) no longer qualify as an EGC.

We have incurred and will continue to incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company we have incurred, and particularly after we are no longer an EGC, we will continue to incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The Nasdaq Global Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs, particularly as we hire additional financial and accounting employees to meet public company internal control and financial reporting requirements, and will make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance, which in turn could make it more difficult for us to attract and retain qualified members of our board of directors.

We are evaluating these rules and regulations, and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in

practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, we are required to furnish a report by our management on our internal control over financial reporting. However, while we remain an EGC or a smaller reporting company with less than $100 million in revenue, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we conduct a process each year to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, including through hiring additional financial and accounting personnel, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. If we identify one or more material weaknesses in our internal control over financial reporting, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be our stockholders' sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. As a result, capital appreciation, if any, of our common stock will be our stockholders' sole source of gain for the foreseeable future.

Our certificate of incorporation designates the state courts in the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could discourage lawsuits against the company and our directors, officers and employees.

Our certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery of the State of Delaware does not have jurisdiction, the federal district court for the District of Delaware) will be the sole and exclusive forum for (1) any derivative action or proceeding brought on our behalf, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or stockholders to our company or our stockholders, (3) any action asserting a claim arising pursuant to any provision of the DGCL or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware or (4) any action asserting a claim arising pursuant to any provision of our certificate of incorporation or bylaws (in each case, as they may be amended from time to time) or governed by the internal affairs doctrine. This exclusive forum provision will not apply to actions arising under the Securities Act or the Securities Exchange Act of 1934, as amended.

This exclusive forum provision may limit the ability of our stockholders to bring a claim in a judicial forum that such stockholders find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find the choice of forum provision contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could materially adversely affect our business, financial condition and operating results.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 1C. Cybersecurity

Cyber Risk Management and Strategy

At Fulcrum Therapeutics, we recognize the importance of assessing, identifying, and managing risks from cybersecurity threats. We have implemented a cybersecurity risk management process in accordance with our risk profile and business that is informed by industry standards and is integrated into our enterprise risk management process.

We leverage the support of third-party information technology and security providers, including for periodic security testing and risk assessments, as part of our risk management process, designed to identify, assess, and manage cybersecurity risks. We conduct employee cybersecurity training and maintain an incident response and notification plan designed to assist us in identifying, responding to, and recovering from cybersecurity incidents. Further, we intend to evaluate and update our existing cybersecurity policies and procedures as appropriate to continue to align them to our risk profile.

We have a process to assess the security practices of certain third-party vendors, including through the use of vendor security questionnaires, as appropriate.

Although risks from cybersecurity threats have to date not materially affected us, our business strategy, results of operations or financial condition, we have, from time to time, experienced threats to and breaches of our and our third party vendors' data and systems. For more information about these risks, please refer to the section entitled "Risk Factors" in this Annual Report on Form 10-K.

Governance Related to Cybersecurity Risks

Our Executive Director, IT & Operations, or Executive Director, who reports to the Chief Financial Officer, is responsible for the strategic leadership and direction of our cybersecurity program. With over 15 years of experience in information technology, the Executive Director works alongside individuals across other functions, such as legal and engineering, to establish and implement our cybersecurity strategy.

The Executive Director and our Chief Legal Officer participate in periodic discussions with other members of our management, including executive leadership, regarding implementation of our cybersecurity program, program enhancements, and relevant cyber risks or threats. Our Chief Legal Officer has received the National Association of Corporate Directors CERT Certificate in Cyber-Risk Oversight.

Our audit committee has oversight over cybersecurity risks. With the input of the executive team, the Executive Director provides annual presentations to the audit committee on our cyber program, including updates on security testing and assessments, cyber risks, and related cyber strategy as applicable. The management team will also update the full board of directors on matters related to cybersecurity as needed.

Additionally, we have implemented an enterprise risk management process, which addresses cyber risks. This process is led by our Chief Legal Officer and includes participation by the board of directors, as appropriate. Our Chief Legal Officer reports regularly on the enterprise risk management process to executive leadership and the audit committee.

Item 2. Properties.

Our principal facilities consist of office and laboratory space. We occupy approximately 28,731 square feet of office space in Cambridge, Massachusetts under a lease that currently expires in June 2028.

Item 3. Legal Proceedings.

On April 28, 2023, a class action complaint was filed in the United States District Court for the District of New Jersey against our company and current and former officers, or the Securities Action. On May 19, 2023, the Securities Action was transferred to the United States District Court for the District of

Massachusetts, captioned *Celano v. Fulcrum Therapeutics, Inc., et al*., Case No. 1:23-cv-11125-IT. On July 31, 2023, the court appointed a lead plaintiff, who filed an amended complaint on September 29, 2023. The Securities Action alleges violations of Section 10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder against all defendants and control person violations of Section 20(a) against the individuals, related to our February 2023 announcementthat the FDA issued a clinical hold regarding the IND application for pociredir for the potential treatment of SCD. The Securities Action alleges that the defendants made misleading statements and omitted to disclose material information related to the clinical hold and seeks, among other things, compensatory damages in connection with an allegedly inflated stock price between March 3, 2022, and March 8, 2023, as well as attorneys' fees and costs. On November 28, 2023, all defendants filed a motion to dismiss the Securities Action, which motion is currently pending. We are not currently a party intend to any material legal proceedings. defend vigorously against this litigation.

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 trades under the symbol "FULC" on the Nasdaq Global Market and has been publicly traded since July 18, 2019. Prior to this time, there was no public market for our common stock.

Holders of Our Common Stock

As of March 2, 2023 February 20, 2024, there were approximately 17 14 holders of record of shares of our common stock. This number does not include stockholders for whom shares are held in "nominee" or "street" name.

Dividends

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings for use in the operation of our business and do not anticipate paying any dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Unregistered Sales of Equity Securities

None.

Item 6. Reserved.

Not applicable.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read together with our consolidated financial statements and related notes appearing at the end of this Annual Report on Form 10-K. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report on Form 10-K, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this Annual Report on Form 10-K, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage biopharmaceutical company focused on improving developing small molecules to improve the lives of patients with genetically defined rare diseases in areas of high unmet medical need. Our most advanced clinical clinical-stage product candidate, losmapimod, is being developed for the potential treatment of FSHD. Our other clinical product candidate is FTX-6058, pociredir, which is being developed for the potential treatment of certain hemoglobinopathies, including SCD. Weinitiated REACH, a randomized, double-blind, placebo-controlled, multi-national Phase 3 clinical trial of losmapimod in the second quarter of 2022 and plan we completed enrollment during September 2023. The trial enrolled 260 patients. We expect to complete enrollment report topline data from REACH in the second half fourth quarter of 2023. 2024.

In January 2023, we announced Phase 1b interim data from our Phase 1b clinical trial of FTX-6058 pociredir in SCD. We have completed enrollment in the 6 mg and 2 mg dose cohorts, and we do not plan to enroll additional subjects in these cohorts. Although we commenced enrollment in the 12 mg dose cohort, on February 23, 2023, in February 2023 the FDA placed a full clinical hold on the IND application for FTX-6058 pociredir for SCD. We have suspended enrollment SCD, which was lifted in August 2023. The Phase 1b clinical trial is being re-initiated at the 12 mg once daily dose level, with that cohort expected to enroll approximately 10 patients, and dosing in will be followed by an additional cohort of approximately 10 patients at the 20 mg once daily dose level. Following the clinical hold, we amended the protocol to revise the inclusion and exclusion criteria for the Phase 1b clinical trial of FTX-6058, withdrew our separate IND for FTX-6058 for beta thalassemia and intend to work diligently target patients with FDA to resolve the hold as soon as possible. higher disease severity.

We In addition to product candidate development, we have developed a proprietary product engine, FulcrumSeek, discovery approach that we employ to systematically identify and validate cellular drug targets that can potentially modulate gene expression to treat known root causes of genetically defined rare diseases. Our product engine integrates patient-derived tissue- and disease-relevant cell models that we interrogate using our pharmacologically diverse and highly annotated small-molecule compound library and customized CRISPR and RNAi libraries. These screens generate tens of millions of data points and high-content imaging. We then apply computational biology and analytics to identify targets with specificity and selectivity accompanied by a comprehensive data set that significantly accelerates development. This discovery approach led to the identification of both losmapimod for FSHD and FTX-6058 pociredir for hemoglobinopathies, SCD, as well as a robust discovery pipeline. With our priorities focused on the development and potential commercialization of our two clinical-stage assets, losmapimod and pociredir, and ongoing work on our preclinical programs in hematology and muscle diseases, we are realigning our strategy and resources accordingly and will be winding down certain exploratory activities from our discovery efforts.

Since inception, our operations have focused on organizing and staffing our company, business planning, raising capital, establishing our intellectual property, building our discovery platform, including our proprietary compound library and product engine, technologies, identifying drug targets and potential

product candidates, in-licensing assets, producing drug substance and drug product material for use in clinical trials and conducting preclinical studies and clinical trials. To date, we have funded our operations primarily from the sale of shares of our capital stock and from upfront payments received under our collaboration and license agreements.

In August 2022, we issued and sold 11,029,410 shares of our common stock in a public offering at a public offering price of $7.82 per share, which includes 1,438,618 shares issued upon the exercise in full by the underwriters of their option to purchase additional shares at the public offering price, less underwriting discounts and commissions. The net proceeds of the offering were $80.8 million, after deducting underwriting discounts and commissions and offering expenses.

In January 2023, we issued and sold 9,615,384 shares of our common stock in a public offering at a public offering price of $13.00 per share, less underwriting discounts and commissions. The net proceeds of the offering were $117.3 million, after deducting underwriting discounts and commissions and offering expenses.

We have incurred significant operating losses since our inception and we expect to continue to incur significant operating losses for the foreseeable future. Our ability to generate product revenue sufficient to achieve profitability, if ever, will depend heavily on the successful development and eventual commercialization of one or more of our product candidates. Our net losses were $109.9 million $97.3 million and $80.8 million $109.9 million for the years ended December 31, 2022 December 31, 2023 and 2021, 2022, respectively. As of December 31, 2022 December 31, 2023, we had an accumulated deficit of $412.3 million $509.7 million. We expect our expenses and operating losses will increase substantially over the next several years in connection with our ongoing activities, as we:

- continue our clinical development of losmapimod and FTX-6058, including efforts to resolve the clinical hold on FTX-6058; pociredir;
- continue our ongoing preclinical studies;
- advance clinical-stage product candidates into later stage trials; trials such as REACH, the Phase 3 clinical trial of losmapimod for the treatment of FSHD;
- pursue the discovery of drug targets for other genetically-defined rare diseases and the subsequent development of any resulting product candidates; candidates, including for Diamond Blackfan Anemia under our recent license agreement with CAMP4;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- scale up our manufacturing processes and capabilities, or arrange for a third party to do so on our behalf, to support our clinical trials of our product candidates and commercialization of any of our product candidates for which we obtain marketing approval;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval;
- acquire or in-license products, product candidates, technologies and/or data referencing rights; rights, such as our recent agreement with CAMP4;
- make any milestone payments to affiliates of GSK under our right of reference and license agreement with GSK upon the achievement of specified clinical or regulatory milestones; milestones, or to CAMP4 under our license agreement with CAMP4;
- maintain, expand, enforce, defend and protect our intellectual property;
- hire additional clinical, quality control and scientific personnel; and
- add operational, financial and management information systems and personnel, including personnel to support our product development and planne future commercialization efforts and our operations as a public company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements. We may be unable to raise additional funds or enter into such other

agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back or discontinue the development and commercialization of one or more of our product candidates, or grant rights to develop and market our product candidates even if we would otherwise prefer to develop and market such product candidates ourselves.

Because of the numerous risks and uncertainties associated with drug development, we are unable to predict the timing or amount of increased expenses or the timing of when or if we will be able to achieve or maintain profitability. Even if we are able to generate product sales, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

As of December 31, 2022 December 31, 2023, we had $202.9 million $236.2 million in cash, cash equivalents, and marketable securities. We believe that our existing cash, cash equivalents, and marketable securities together with the net proceeds from the sale as of our shares of common stock in the public offering in January 2023, December 31, 2023 will enable us to fund our operating expenses and capital expenditure requirements into mid-2025. 2026. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See "—Liquidity and Capital Resources."

Components of Results of Operations

Revenue

We have not generated any revenue from product sales and do not expect to generate revenue from the sale of products for several years, if at all. If our development efforts for our current or future product candidates are successful and result in marketing approval, we may generate revenue in the future from product sales. We cannot predict if, when or to what extent we will generate revenue from the commercialization and sale of our product candidates. We may never succeed in obtaining regulatory approval for any of our product candidates.

In December 2019, we entered into a collaboration and license agreement with Acceleron to identify biological targets to modulate specific pathways associated with a targeted indication within the pulmonary disease space. The agreement terminated effective October 1, 2022, following notification from Acceleron in June 2022 of its decision to terminate the agreement for convenience.

For the years ended December 31, 2022 December 31, 2023 and 2021, 2022, we recognized $1.0 million zero and $9.6 million $1.0 million, respectively of collaboration revenue under the Acceleron collaboration agreement. As of December 31, 2022, we have recorded no deferred revenue associated with the Acceleron collaboration agreement. As of December 31, 2021, we have recorded $0.6 million of deferred revenue associated with the Acceleron collaboration agreement, which is classified as either current or net of current portion in our consolidated balance sheets based on the period over which the revenue was expected to be recognized. As of December 31, 2022, we had received $4.9 million of cost reimbursement payments and $2.0 million of milestone payments under the Acceleron collaboration agreement. As of December 31, 2022, we recorded no unbilled accounts receivable related to reimbursable research and development costs under the Acceleron collaboration agreement.

On July 20, 2020, In July 2020, we entered into a collaboration and license agreement with MyoKardia, which we amended in April 2023, pursuant to which we granted to MyoKardia an exclusive worldwide license under certain intellectual property rights to research, develop, make, have made, use, have used, sell, have sold, offer for sale, have offered for sale, import, have imported, export, have exported, distribute, have distributed, market, have marketed, promote, have promoted, or otherwise exploit products directed against certain biological targets identified by us that are capable of modulating up to a certain number of genes of interest with relevance to certain genetically defined cardiomyopathies. MyoKardia was subsequently acquired by Bristol-Myers Squibb Company in November 2020. The primary goal of the collaboration is to identify and validate potential biological targets for further research, in order to

support the development, manufacture and commercialization of product candidates by MyoKardia for the potential treatment of certain genetically defined cardiomyopathies.

Under the terms of the MyoKardia collaboration agreement, we received a $10.0 million upfront payment and a $2.5 million payment as prepaid research funding in July 2020. MyoKardia will also reimburse us for the costs of the research activities not covered by the prepaid research funding, up to a maximum amount of total research funding (including the prepaid research funding). Upon the achievement of specified preclinical, development and sales milestones, we will be entitled to preclinical milestone payments, development milestone payments and sales milestone payments of up to $298.5 million in the aggregate per target for certain potential cardiomyopathy gene targets, and of up to $150.0 million in the aggregate per target for certain other potential cardiomyopathy gene targets. To date, we have achieved a $2.5 million specified preclinical milestone. MyoKardia will also pay us tiered royalties ranging from a mid single-digit percentage to a low double-digit percentage based on MyoKardia's, and any of its affiliates' and sublicensees', annual worldwide net sales of products under the MyoKardia collaboration agreement directed against any identified target. The royalties are payable on a product-by-product basis during a specified royalty term, and may be reduced in specified circumstances.

For the years ended December 31, 2022 December 31, 2023 and 2021 2022 we recognized $5.3 million $2.8 million and $9.6 million $5.3 million, respectively, of collaboration revenue under the MyoKardia collaboration agreement. As of December 31, 2022 and 2021, December 31, 2023, we have recorded no deferred revenue associated with the MyoKardia collaboration agreement. As of December 31, 2022 we have recorded $0.9 million and $4.1 million, respectively, of deferred revenue associated with the MyoKardia collaboration agreement, which is classified as either current or noncurrent, net of current portion in our consolidated balance sheets based on the period over which the revenue is expected to be recognized. As of December 31, 2022 December 31, 2023, we had received $5.6 million $7.2 million of cost reimbursement payments and $2.5 million of milestone payments under the MyoKardia collaboration agreement. As of December 31, 2022 December 31, 2023, we recorded unbilled accounts receivable of $0.2 million $0.5 million related to reimbursable research and development costs under the MyoKardia collaboration agreement for activities performed during the three months ended December 31, 2022 December 31, 2023.

In the future, we will recognize additional may generate revenue associated with the $10.0 million upfront payment and the $2.5 million preclinical milestone achieved in December 2021 as we satisfy our performance obligation, and from reimbursement of costs incurred under the MyoKardia collaboration agreement. In the future, we may also generate additional revenue from

milestones and royalty payments under the MyoKardia collaboration agreement. We expect that our revenue will may fluctuate from quarter-to-quarter and year-to-year based upon our pattern of performance under the MyoKardia collaboration agreement and as a result of the timing, amount, and achievement of milestones and reimbursement of costs incurred under the MyoKardia collaboration agreement.

We may also in the future enter into additional license or collaboration agreements for our product candidates or intellectual property, and we may generate revenue in the future from payments as a result of such license or collaboration agreements.

Operating Expenses

Research and Development Expenses

Research and development expenses represent costs incurred by us for the discovery, development, and manufacture of our product candidates and include:

- external research and development expenses incurred under agreements with contract research organizations, contract manufacturing organizatior and consultants;

- salaries, payroll taxes, employee benefits and stock-based compensation expenses for individuals involved in research and development efforts;
- laboratory supplies;
- costs related to compliance with regulatory requirements;
- facilities, depreciation and other allocated expenses, which include direct and allocated expenses for rent, maintenance of facilities, insurance and other operating costs; and
- milestone expenses associated with our right of reference and license agreement with GSK.

We expense research and development costs as incurred. We recognize expenses for certain development activities, such as clinical trials and manufacturing, based on an evaluation of the progress to completion of specific tasks using data such as patient enrollment or other information provided to us by our vendors. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of expenses incurred. Non-refundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. These amounts are recognized as an expense as the goods are delivered or the related services are performed, or until it is no longer expected that the goods will be delivered or the services rendered.

External costs represent a significant portion of our research and development expenses, which we track on a program-by-program basis following the nomination of a development candidate. Our internal research and development expenses consist primarily of personnel-related expenses, including stock-based compensation expense. We do not track our internal research and development expenses on a program-by-program basis as the resources are deployed across multiple projects.

The following table summarizes our external research and development expenses by program following nomination as a development candidate for the years ended December 31, 2022 December 31, 2023 and 2021. 2022. Pre-development candidate expenses, unallocated expenses and internal research and development expenses are classified separately. Losmapimod external expenses during the year ended December 31, 2022 include includes a $5.0 million milestone achieved under our right of reference and license agreement with GSK upon initiation of the REACH trial during the second quarter of 2022.

	Year Ended December 31,	
(in thousands)	**2022**	**2021**
Losmapimod external expenses	$ 26,260	$ 19,128
FTX-6058 external expenses	15,133	14,041
Pre-development candidate expenses and unallocated expenses	14,964	16,100
Internal research and development expenses	20,425	20,432
Total research and development expenses	$ 76,782	$ 69,701

	Year Ended December 31,	
(in thousands)	**2023**	**2022**
Losmapimod external expenses	$ 29,069	$ 26,260
Pociredir external expenses	7,442	15,133
Pre-development candidate expenses and unallocated expenses	14,536	14,964
Internal research and development expenses	20,754	20,425
Total research and development expenses	$ 71,801	$ 76,782

The successful development of our product candidates is highly uncertain. At this time, we cannot reasonably estimate or know the nature, timing, and estimated costs of the efforts that will be necessary to complete the remainder of the development of our product candidates. We are also unable to predict when, if ever, material net cash inflows will commence from our product candidates, if approved. This is due to the numerous risks and uncertainties associated with developing our product candidates, including the uncertainty related to:

- the timing and progress of preclinical and clinical development activities, including in light of the ongoing COVID-19 pandemic as well as our efforts resolve the clinical hold on FTX-6058; activities;
- the number and scope of preclinical and clinical programs we decide to pursue;
- our ability to raise additional funds necessary to complete clinical development of and commercialize our product candidates;

- our ability to maintain our current research and development programs and to establish new ones;
- our ability to establish new licensing or collaboration arrangements;
- the progress of the development efforts of parties with whom we may enter into collaboration arrangements;
- the successful initiation and completion of clinical trials with safety, tolerability and efficacy profiles that are satisfactory to the FDA or any comparab foreign regulatory authority;
- the receipt and related terms of regulatory approvals from applicable regulatory authorities;
- the availability of raw materials and active pharmaceutical ingredient, or API, for use in production of our product candidates;
- our ability to establish and operate a manufacturing facility, or secure manufacturing supply through relationships with third parties;
- our ability to consistently manufacture our product candidates in quantities sufficient for use in clinical trials;
- our ability to obtain and maintain intellectual property protection and regulatory exclusivity, both in the United States and internationally;
- our ability to maintain, enforce, defend and protect our rights in our intellectual property portfolio;
- the commercialization of our product candidates, if and when approved;
- our ability to obtain and maintain third-party coverage and adequate reimbursement for our product candidates, if approved;
- the acceptance of our product candidates, if approved, by patients, the medical community and third-party payors;
- competition with other products; and
- a continued acceptable safety profile of our products following receipt of any regulatory approvals.

A change in the outcome of any of these variables with respect to the development of any of our product candidates would significantly change the costs and timing associated with the development of that product candidate, and potentially other candidates.

Research and development activities account for a significant portion of our operating expenses. We expect our research and development expenses to increase significantly in future periods as we continue to implement our business strategy, which includes advancing losmapimod for the treatment of FSHD, advancing FTX-6058 pociredir for the treatment of certain hemoglobinopathies, including SCD, if we are able to resolve the current clinical hold, expanding our research and development efforts, including hiring additional personnel to support our research and development efforts, and seeking regulatory approvals for our product candidates that successfully complete clinical trials. In addition, product candidates in later stages of clinical development generally incur higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. As a result, we expect our research and development expenses to increase as our product candidates advance into later stages of clinical development. However, we do not believe that it is possible at this time to accurately project total program-specific expenses through commercialization. There are numerous factors associated with the successful commercialization of any of our product candidates, including future trial design and various regulatory requirements, many of which cannot be determined with accuracy at this time based on our stage of development.

General and Administrative Expenses

General and administrative expenses consist of personnel-related costs, including salaries, benefits and stock-based compensation expense, for our personnel in executive, finance and accounting, human resources, business operations and other administrative functions, legal fees related to patent,

intellectual property and corporate matters, fees paid for accounting and tax services, consulting fees and facility-related costs not otherwise included in research and development expenses.

We expect that our general and administrative expenses will increase for in the foreseeable future to support our expanded continued research and development activities and planned commercialization activities, including establishing a sales, marketing and distribution infrastructure and increased costs of expanding our operations and operating as a public company. to commercialize any medicines for which we may obtain marketing approval. These increases will likely include increased expenses costs related to accounting, the hiring of additional personnel, legal, audit, legal, regulatory filing fees, and tax-related services associated with maintaining general compliance with exchange listing and SEC requirements, director and officer insurance premiums, and investor relations costs associated with operating as a public company.consulting expenses, among other expenses.

Restructuring Expenses

In August 2022, we announced the implementation of a strategic plan to realign internal investments and operations to prioritize our two clinical programs. In connection with this decision, we announced a workforce reduction of 25% of our planned headcount, which was completed in August 2022. Restructuring expenses consist of severance and other employee-related costs.

Other Income, Net

Other income, net consists primarily of interest income related to our investments in cash equivalents and marketable securities.

Results of Operations

Comparison of the Years Ended December 31, 2022 December 31, 2023 and 2021 2022

The following summarizes our results of operations for the years ended December 31, 2022 December 31, 2023 and 2021, 2022, along with the changes in those items in dollars:

	Year Ended December 31,		Change
(in thousands)	2022	2021	$
Collaboration revenue	$ 6,342	$ 19,163	$ (12,821)
Operating expenses:			
Research and development	76,782	69,701	7,081
General and administrative	41,694	30,516	11,178
Restructuring expenses	427	—	427
Total operating expenses	118,903	100,217	18,686
Loss from operations	(112,561)	(81,054)	(31,507)
Other income, net	2,690	207	2,483
Net loss	$ (109,871)	$ (80,847)	$ (29,024)

	Year Ended December 31,		Change
(in thousands)	2023	2022	$
Collaboration revenue	$ 2,805	$ 6,342	$ (3,537)
Operating expenses:			

Research and development	71,801	76,782	(4,981)
General and administrative	41,668	41,694	(26)
Restructuring expenses	—	427	(427)
Total operating expenses	113,469	118,903	(5,434)
Loss from operations	(110,664)	(112,561)	1,897
Other income, net	13,329	2,690	10,639
Net loss	$ (97,335)	$ (109,871)	$ 12,536

Collaboration Revenue

Collaboration revenue decreased by $12.8 million $3.5 million from $19.2 million for the year ended December 31, 2021 to $6.3 million for the year ended December 31, 2022 to $2.8 million for the year ended December 31, 2023. We recognize revenue under each of the Acceleron and MyoKardia collaboration agreements based on our pattern of performance related to the respective identified performance obligation, which is the period over which we will perform research services under each of the agreements. respective agreement. For the years ended December 31, 2022 December 31, 2023 and 2021, 2022, we recognized $1.0 million zero and $9.6 million $1.0 million, respectively, of collaboration revenue under the Acceleron collaboration agreement, which terminated in October 2022, and $2.8 million and $5.3 million and $9.6 million of collaboration revenue, respectively, under the MyoKardia collaboration agreement.

Research and Development Expenses

The following table summarizes our research and development expenses for the years ended December 31, 2022 December 31, 2023 and 2021: 2022:

	Year Ended December 31,		Change	Year Ended December 31,		Change
(in thousands)	2022	2021	$	2023	2022	$
External research and development	$ 44,944	$ 36,934	$ 8,010	$ 41,179	$ 44,944	$ (3,765)
Employee compensation	20,425	20,432	(7)	20,754	20,425	329
Laboratory supplies	4,242	5,115	(873)	3,501	4,242	(741)
Facility costs	5,593	5,552	41	4,834	5,593	(759)
Other	1,578	1,668	(90)	1,533	1,578	(45)
Total research and development expenses	$ 76,782	$ 69,701	$ 7,081	$ 71,801	$ 76,782	$ (4,981)

Research and development expense increased decreased by $7.1 million $5.0 million from $69.7 million for the year ended December 31, 2021 to $76.8 million for the year ended December 31, 2022 to $71.8 million for the year ended December 31, 2023. The increase decrease in research and development expense was primarily attributable to the following:

- $8.0 3.8 million in increased of decreased external research and development costs, primarily associated with decreased costs for pociredir as a r of the clinical hold from February 2023 to support the advancement August 2023, and achievement of our lead programs, including a $5.0 million

milestone achieved during due to GSK upon initiation of REACH in the second quarter of 2022, under partially offset by increased costs associated the right of reference and license agreement with GSK upon the initiation advancement of REACH during the second quarter as we completed enrollment in September 2023;

- $0.8 million of 2022, decreased facilities costs;
- $0.7 million of decreased laboratory costs;

- partially offset by a $0.9 million decrease in laboratory supplies $0.3 million of increased employee compensation costs.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the years ended December 31, 2022 December 31, 2023 and 2021: 2022:

(in thousands)	Year Ended December 31, 2022	2021	Change $	Year Ended December 31, 2023	2022	Change $
Employee compensation	$ 23,488	$ 14,801	$ 8,687	$ 24,809	$ 23,488	$ 1,321
Professional services	13,278	12,488	790	11,023	13,278	(2,255)
Facility costs	2,206	960	1,246	2,516	2,206	310
Other	2,722	2,267	455	3,320	2,722	598
Total general and administrative expenses	$ 41,694	$ 30,516	$ 11,178	$ 41,668	$ 41,694	$ (26)

General and administrative expenses increased decreased by $11.2 million less than $0.1 million from $30.5 million $41.7 million for the year ended December 31, 2021 December 31, 2022 to $41.7 million for the year ended December 31, 2022 December 31, 2023. The increase decrease in general and administrative expenses was primarily attributable to the following:

- $8.7 2.3 million in decreased professional services costs, primarily due to decreased consulting and insurance costs;
- partially offset by $1.3 million of increased employee compensation costs, including a $3.0 million $1.4 million increase in stock-based compensatio expense, primarily due to increased general and administrative headcount; expense;
- $1.2 0.3 million in increased facility-related costs, primarily including increased costs associated with our lease agreement for additional office space Cambridge, Massachusetts, which commenced in November 2021, leases as well as depreciation and other utility and maintenance costs;
- $0.8 million in increased professional services, primarily due to increased use of consulting services; and
- $0.5 0.6 million in increased other costs.

Restructuring Expenses

Restructuring charges were $0.4 million for the year ended December 31, 2022, compared to zero for the year ended December 31, 2021. In August 2022, we announced the implementation of a strategic plan to realign internal investments and operations to prioritize our two clinical programs. In connection with this decision, we announced a workforce reduction of 25% of our planned headcount, which was completed in August 2022.

Other Income, Net

Other income, net increased by $2.5 million $10.6 million from $0.2 million for the year ended December 31, 2021 to $2.7 million for the year ended December 31, 2022 to $13.3 million for the year ended December 31, 2023. The increase in other income, net was primarily attributable to an increased rate of return. return on our cash, cash equivalents, and marketable securities and an increase in our average cash, cash equivalents, and marketable securities balance.

Liquidity and Capital Resources

Sources of Liquidity

We have incurred significant operating losses since our inception and expect to continue to incur significant operating losses for the foreseeable future and may never become profitable. We have not yet commercialized any of our product candidates, which are in various phases of preclinical and clinical development, and we do not expect to generate revenue from sales of any products for several years, if at all. As of December 31, 2022 December 31, 2023, we have funded our operations primarily with aggregate gross proceeds of $587.5 million $712.5 million from the sale of shares of our capital stock and from upfront payments received under our collaboration and license agreements. As of December 31, 2022 December 31, 2023, we had cash, cash equivalents, and marketable securities of $202.9 million $236.2 million.

In August 2022, we completed a public offering of our common stock and issued and sold 11,029,410 shares of common stock at a public offering price of $7.82 per share, resulting in net proceeds of $80.8 million after deducting underwriting discounts and commissions and offering expenses.

In January 2023, we completed a public offering of our common stock and issued and sold 9,615,384 shares of common stock at a public offering price of $13.00 per share, resulting in net proceeds of $117.3 million after deducting underwriting discounts and commissions and offering expenses.

Cash Flows

The following table provides information regarding our cash flows for the years ended December 31, 2022 December 31, 2023 and 2021:2022:

(in thousands)	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2023	Year Ended December 31, 2022
Net cash used in operating activities	$ (97,050)	$ (78,478)	$ (90,965)	$ (97,050)
Net cash provided by (used in) investing activities	12,413	(129,669)		
Net cash (used in) provided by investing activities			(36,692)	12,413
Net cash provided by financing activities	84,323	186,507	118,122	84,323
Net decrease in cash, cash equivalents, and restricted cash	$ (314)	$ (21,640)	$ (9,535)	$ (314)

Net Cash Used in Operating Activities

Net cash used in operating activities was $97.1 million $91.0 million during the year ended December 31, 2022 December 31, 2023 compared to net cash used in operating activities of $78.5 million $97.1 million during the year ended December 31, 2021 December 31, 2022. The decrease in net cash used in operating activities of $6.1 million was primarily due to a decrease in net loss, including as a result of decreased external research and development costs as a result of the clinical hold for pociredir, which was lifted in August 2023, and increased interest income.

Net Cash (Used in) Provided by Investing Activities

Net cash used in investing activities was $36.7 million during the year ended December 31, 2023 compared to net cash provided by investing activities of $12.4 million during the year ended December 31, 2022. The increase in net cash used in operating investing activities of $18.6 million $49.1 million was primarily due to increased external research and development costs as we continue to advance our lead programs, increased employee compensation costs, and increased general and administrative costs to support the growth net purchases of our organization.

Net Cash Provided by (Used in) Investing Activities

Net cash provided by investing activities was $12.4 million marketable securities during the year ended December 31, 2022 December 31, 2023, as compared to net cash used in investing activities of $129.7 million during the year ended December 31, 2021. The increase in net cash provided by investing activities of $142.0 million was primarily due to net maturities of marketable securities during the year ended December 31, 2022, as compared to net purchases of marketable securities during the year ended December 31, 2021.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $84.3 million $118.1 million during the year ended December 31, 2022 December 31, 2023 compared to net cash provided by financing activities of $186.5 million $84.3 million during the year ended December 31, 2021 December 31, 2022. Net cash provided by financing activities during the year ended December 31, 2023 primarily consisted of net proceeds of $117.3 million from the January 2023 public offering of our common stock. Net cash provided by financing activities during the year ended December 31, 2022 primarily consisted of net proceeds of $80.8 million from the August 2022 completion of the public offering of our common stock in August 2022. Net cash provided by financing activities during the year ended December 31, 2021 primarily consisted of net proceeds of $182.9 million from the completion of the public offerings of our common stock in January 2021 and August 2021. stock.

Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing research and development activities, particularly as we continue the research and development of, initiate clinical trials of, and seek marketing approval for, our product candidates. In addition, we expect to incur additional costs to support the growth of our organization. As a result, we expect to incur substantial operating losses and negative operating cash flows for the foreseeable future.

Based on our current operating plan, we believe that our existing cash, cash equivalents, and marketable securities as of December 31, 2022, together with the net proceeds from the sale of our shares of common stock in a public offering in January 2023, December 31, 2023 will enable us to fund our operating expenses and capital expenditure requirements into mid-2025. 2026. However, we have based this estimate on assumptions that may prove to be wrong and we could exhaust our capital resources sooner than we expect.

Our funding requirements and timing and amount of our operating expenditures will depend largely on:

- the progress, costs and results of our clinical trials of losmapimod and FTX-6058, including our efforts to resolve the clinical hold on FTX-6058; pociredir;
- the scope, progress, costs and results of discovery research, preclinical development, laboratory testing and clinical trials for our current product candidates in additional indications or for any future product candidates that we may pursue;
- the impact of the ongoing COVID-19 pandemic on pursue, including under our business and operations; recent license agreement with CAMP4;
- the number of and development requirements for other product candidates that we pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- our ability to enter into contract manufacturing arrangements for supply of API and manufacture of our product candidates and the terms of such arrangements;
- the success of our collaboration with MyoKardia;
- our ability to establish and maintain additional strategic collaborations, licensing or other arrangements and the financial terms of such arrangement
- the payment or receipt of milestones, royalties and other collaboration-based revenues, if any;
- the costs and timing of future commercialization activities, including product manufacturing, sales, marketing and distribution, for any of our product candidates for which we may receive marketing approval;
- the amount and timing of revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property and proprietary right and defending any intellectual property-related claims; and
- the extent to which we acquire or in-license other products, product candidates, technologies or data referencing rights.

A change in the outcome of any of these or other variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of that product candidate. We will need to continue to rely on additional financing to achieve our

business objectives.

In addition to the variables described above, if and when any of our product candidates successfully complete development, we will incur substantial additional costs associated with regulatory filings, marketing approval, post-marketing requirements, maintaining our intellectual property rights, and regulatory protection, in addition to other commercial costs. We cannot reasonably estimate these costs at this time.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaboration arrangements, strategic alliances and marketing, distribution or licensing arrangements. We currently have no credit facility or committed sources of capital. To the extent that we raise additional capital through the future sale of equity securities, the ownership interests of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing common stockholders. If we raise additional funds through the issuance of debt securities, these securities could contain covenants that would restrict our operations. We may require additional capital beyond our currently anticipated amounts, and additional capital may not be available on reasonable terms, or at all. If we raise additional funds through collaboration arrangements, strategic alliances or marketing, distribution or licensing arrangements in the future, we may have to relinquish valuable rights to our technologies, future revenue streams or product candidates, or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these consolidated financial statements requires us to make judgments and estimates that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of expenses during the reporting periods. Our estimates are based on our historical experience, known trends and events, and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities and amount of expense recognized that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We evaluate our estimates and assumptions on an ongoing basis. The effects of material revisions in estimates, if any, will be reflected in the consolidated financial statements prospectively from the date of change in estimates.

We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the most significant areas involving management's judgments and estimates. See Note 2 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a description of our other significant accounting policies.

Revenue Recognition

We account for revenue recognition under the Financial Accounting Standards Board Accounting Standards Codification, or ASC, 606, *Revenue from Contracts with Customers*. We recognize revenue pursuant to ASC 606 when our customer obtains control of promised goods or services in an amount that reflects the consideration which we expect to receive in exchange for those goods or services.

At contract inception, once the contract is determined to be within the scope of ASC 606, we assess the goods or services promised within the contract and determine those that are performance obligations. We then determine the transaction price and allocate it to the identified performance obligations. As

part of the accounting for these arrangements, we must use significant judgment to determine the number of performance obligations and the transaction price, including the determination of whether milestones or other variable consideration should be included in the transaction price.

We use judgment to determine whether milestones or other variable consideration should be included in the transaction price. As part of management's evaluation of the transaction price, we consider numerous factors, including whether the achievement of the milestones is outside of our control, contingent upon the efforts of others or subject to the risks of success. If we conclude it is probable that a significant revenue reversal would not occur, the associated milestone payment is included in the transaction price. Milestone payments that are based on the occurrence of events not within our control, such as regulatory approvals, are generally not considered probable of being achieved until the underlying events occur or the associated approvals are received. At the end of each reporting period, we re-evaluate the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjust the estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment. Changes to the constraint of variable consideration can have a material effect on the amount of revenue recognized in the period.

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation on a relative standalone selling price basis, except for any variable consideration that meets the criteria to be allocated entirely to a single performance obligation or to a distinct service that forms part of a single performance obligation.

We recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied, either at a point in time or over time. If the performance obligation is satisfied over time, we recognize revenue based on the use of either an output or input method. The estimation of measure of progress is complex, involves significant judgment, and is affected by our estimates of the total costs required to complete the performance obligations, including the total internal personnel costs and external costs to be incurred. Changes in these estimates can have a material effect on our revenue recognition. If the entity does not satisfy a performance obligation over time, the related performance obligation is satisfied at a point in time by transferring the control of a promised good or service to a customer.

For further description of our revenue recognition policy, see Note 2 "Summary of Significant Accounting Policies—Revenue Recognition" to our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. See also Note 10, "Collaboration and License Agreements" to our audited consolidated financial statements included

elsewhere in this Annual Report on Form 10-K for further information on the application of ASC 606 to the Acceleron and MyoKardia collaboration agreements.

Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our accrued expenses as of each balance sheet date. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. The majority of our service providers invoice us monthly in arrears for services performed or when contractual milestones are met. We make estimates of our accrued expenses as of each balance sheet date based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. The significant estimates in our accrued research and development expenses include the costs incurred for services performed by our vendors in connection with research and development activities for which we have not yet been invoiced.

We base our expenses related to research and development activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation,

vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the research and development expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid expense accordingly. Non-refundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

Stock-Based Compensation

We measure stock-based compensation expense related to all restricted stock awards, restricted stock units, and stock options based on the fair value of the award on the date of grant. We recognize compensation expense for these awards over the requisite service period, which is generally the vesting period of the respective award. Generally, we issue awards with only service-based vesting conditions and record the expense for these awards using the straight-line method. We have also granted certain stock-based awards with performance-based vesting conditions. We conditions.We recognize compensation expense for awards with performance-based vesting conditions over the remaining service period using an accelerated attribution method when management determines that achievement of the performance condition is probable. At each reporting date, we evaluate if the achievement of a performance-based milestone is probable based on the expected satisfaction of the performance conditions.

We determine the fair value of restricted stock awards and restricted stock units based on the estimated fair value of our common stock on the date of grant, less any applicable purchase price. We estimate the fair value of stock options granted using the Black-Scholes option-pricing model. The determination of the grant date fair value of stock options using an option pricing model is affected principally by our estimated fair value of our common stock and requires management to make a number of other assumptions, including the expected term of the option, the estimated volatility of the underlying shares, the risk-free interest rate, and expected dividends. The assumptions used in the determination of the grant date fair value of stock options represent management's best estimates at the time of measurement. Given the lack of public market for our common stock prior to the closing of our IPO and a lack of company-specific historical and implied volatility data, we based the estimate of expected volatility on the historical volatility of a representative group of publicly traded companies for which historical information is available. The historical volatility is calculated based on a period of time commensurate with the assumption used for the expected term. We use the simplified method to calculate the expected term for all stock options. We utilize this method as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. The risk-free interest rate is based on a U.S. treasury instrument whose term is consistent with the expected term of the stock options. The expected dividend yield is assumed to be zero as we have never paid dividends and do not have current plans to pay any dividends on common stock.

In future periods, we expect stock-based compensation expense to increase, due in part to our existing unrecognized stock-based compensation expense and as we grant additional stock-based awards to continue to attract and retain our employees.

Income Taxes

We account for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in our tax returns. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amounts and the tax bases of the assets and liabilities

using the enacted tax rates in effect in the years in which the differences are expected to reverse. A valuation allowance against deferred tax assets is recorded if, based on the weight of the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. Potential for recovery of deferred tax assets is evaluated by considering several factors, including estimating the future taxable profits expected, estimating future reversals of existing taxable temporary differences, considering taxable profits in carryback periods, and considering prudent and feasible tax planning strategies.

We account for uncertain tax positions using a more-likely-than-not threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors including, but not limited to, changes in the law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity, and changes in facts or circumstances related to a tax position. As of each balance sheet date, we did not have any uncertain tax positions.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 2 to our audited consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K.

Emerging Growth Company Status

The Jumpstart Our Business Startups Act of 2012 permits an “emerging growth company” such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have elected not to “opt out” of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that we either (i) irrevocably elect to “opt out” of such extended transition period or (ii) no longer qualify as an emerging growth company.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our cash equivalents are in the form of money market funds that are invested in U.S. Treasury securities and our investments are in short-term marketable securities, such as corporate bonds and commercial paper. As of December 31, 2022 December 31, 2023, we had cash, cash equivalents, and marketable securities of $202.9 million $236.2 million. Interest income

is sensitive to changes in the general level of interest rates; however, due to the nature of these investments, an immediate 10% change in interest rates would not have a material effect on the fair market value of our investment portfolio.

We are also exposed to market risk related to changes in foreign currency exchange rates. We contract with vendors that are located outside of the United States and certain invoices are denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements. We do not currently hedge our foreign currency exchange rate risk. As of December 31, 2022 December 31, 2023, we had minimal or no liabilities denominated in foreign currencies.

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

Item 8. Financial Statements and Supplementary Data.

Our consolidated financial statements, together with the independent registered public accounting firm report thereon, are presented beginning on page F-1 of this Annual Report on Form 10-K.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9(b). Director and Officer Trading Plans and Arrangements.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our interim Chief Executive Officer (our principal executive officer) and our Chief Financial Officer (our principal executive officer and principal financial officer, respectively) officer), evaluated the effectiveness 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 Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits 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 a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 31, 2022 December 31, 2023, our interim Chief Executive Officer and our Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the company. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act as a process designed by, or under the supervision of, a company's principal executive officer and principal financial officer, or persons performing similar functions, and effected by a company's board of directors, management, and other personnel, 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 and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of a company's assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that a company's receipts and expenditures are being made only in accordance with authorizati of a company's management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of a company's assets th 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. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. 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.

Under the supervision of and with the participation of our principal executive officer and principal financial officer, our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022 December 31, 2023 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework (2013 framework). Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2022 December 31, 2023.

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm due to an exemption established by the JOBS Act for “emerging growth companies”.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the three months ended December 31, 2022 December 31, 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

Item 1.02. Termination of a Material Definitive Agreement.

None. As previously disclosed, on May 9, 2022, we entered into an equity distribution agreement, or the 2022 Sales Agreement, with Piper Sandler & Co., as sales agent, with respect to an at-the-market offering program to sell shares of our common stock having an aggregate offering price of up to $50.0 million, or the 2022 Shares, from time to time through the sales agent. Effective as of the date of this Annual Report on Form 10-K, we terminated the 2022 Sales Agreement pursuant to Section 7 thereof. We are not subject to any termination penalties related to the termination of the 2022 Sales Agreement. Prior to termination, all of the 2022 Shares remained available for sale pursuant to the 2022 Sales Agreement. As a result of the termination of the 2022 Sales Agreement, we will not offer or sell any shares under the 2022 Sales Agreement.

A copy of the 2022 Sales Agreement was filed as Exhibit 1.1 to the Current Report on Form 8-K filed by us on May 10, 2022. The description of the 2022 Sales Agreement contained herein does not purport to be complete and is qualified in its entirety by reference to the copy of the 2022 Sales Agreement filed as Exhibit 1.1 to the Current Report on Form 8-K filed by us on May 10, 2022.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Except to the extent provided below, the information required by this Item 10 will be included in our Definitive Proxy Statement to be filed with the SEC, with respect to our 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

We post our Code of Business Conduct and Ethics, which applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, in the “Corporate Governance” sub-section of the

"Investor Relations" section (ir.fulcrumtx.com) of our corporate website at www.fulcrumtx.com. We intend to disclose on our website any amendments to, or waivers from, the Code of Business Conduct and Ethics that are required to be disclosed pursuant to the disclosure requirements of Item 5.05 of Form 8-K.

Item 11. Executive Compensation.

The information required by this Item 11 will be included in our Definitive Proxy Statement to be filed with the SEC with respect to our 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item 12 will be included in our Definitive Proxy Statement to be filed with the SEC with respect to our 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 will be included in our Definitive Proxy Statement to be filed with the SEC with respect to our 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

The information required by this Item 14 will be included in our Definitive Proxy Statement to be filed with the SEC with respect to our 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(1) Consolidated Financial Statements

The following documents are included on pages F-1 through F-31 attached hereto and are filed as part of this Annual Report on Form 10-K.

(2) Financial Statement Schedules

All financial statement schedules have been omitted because they are not applicable, not required, or the information required is shown in the consolidated financial statements or the notes thereto.

(3) Exhibits

The exhibits required by Item 601 of Regulation S-K and Item 15(b) of this Annual Report on Form 10-K are listed in the Exhibit Index immediately preceding the signature page of this Annual Report on Form 10-K. The exhibits listed in the Exhibit Index are incorporated by reference herein.

Item 16. Form 10-K Summary

None.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Fulcrum Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Fulcrum Therapeutics, Inc. (the Company) as of December 31, 2022 December 31, 2023 and 2021, 2022, the related consolidated statements of operations and comprehensive loss, stockholders' equity and cash flows for the years then ended, 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 the years then ended, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (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 financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.
/s/ Ernst & Young LLP

We have served as the Company's auditor since 2017.

Boston, Massachusetts
March 9, 2023 February 27, 2024

Fulcrum Therapeutics, Inc.

Consolidated Balance Sheets

(In thousands, except share and per share amounts)

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
Assets				
Current assets:				
Cash and cash equivalents	35,04	35,47		
	$ 98,82	$ 12,75	$ 25,563	$ 35,098
Marketable securities	16 7,82 3	18 2,75 0	210,658	167,823

Accounts receivable	2,50	0		
Unbilled accounts receivable	1,13	7	537	229
Prepaid expenses and other current assets	4,36	9	5,441	4,369
Total current assets	20	22		
	7,51	5,99		
	9	8	242,199	207,519
Property and equipment, net	6,90	7,36		
	6	8	5,216	6,906
Operating lease right-of-use assets	9,06			
	3	—	7,176	9,063
Restricted cash	1,09	1,09		
	2	2	1,092	1,092
Other assets	2,10	54		
	5	2	2,011	2,105
Total assets	22	23		
	6,68	5,00		
	$ 5	$ 0	$ 257,694	$ 226,685
Liabilities and stockholders' equity				
Current liabilities:				
Accounts payable	3,63	4,78		
	$ 8	$ 8	$ 2,757	$ 3,638
Accrued expenses and other current liabilities	9,55	9,23		
	1	1	8,726	9,551
Deferred revenue, current portion	93	4,71		
	4	1	—	934
Operating lease liability, current	2,60			
	2	—	2,192	2,602
Deferred lease incentive, current portion	—	46 9		

Total current liabilities	16,725	19,199	13,675	16,725
Operating lease liability, excluding current portion	10,821	—	8,629	10,821
Other liabilities, excluding current portion	197	—	197	197
Deferred rent, excluding current portion		1,768		
	—	0		
Deferred lease incentive, excluding current portion		2,582		
	—	2		
Total liabilities	27,743	23,461	22,501	27,743
Commitments and contingencies (Note 13)				
Stockholders' equity:				
Preferred stock, $0.001 par value; 5,000,000 shares authorized; no shares issued or outstanding	—	—		
Common stock, $0.001 par value; 200,000,000 shares authorized; 52,099,211 and 40,636,398 shares issued as of December 31, 2022 and December 31, 2021, respectively; 52,099,211 and 40,626,224 shares outstanding as of December 31, 2022 and December 31, 2021, respectively	52	41		
Treasury stock, at cost; no shares	—	—		
Preferred stock, $0.001 par value; 5,000,000 shares authorized; no shares issued or outstanding			—	—
Common stock, $0.001 par value; 200,000,000 shares authorized; 61,915,367 and 52,099,211 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively			62	52
Additional paid-in capital	612,025	512,436,025	744,940	612,025
Accumulated other comprehensive loss	(797)	(397)	(136)	(797)
Accumulated deficit	(412,338)	(312,402,338)	(509,673)	(412,338)
Total stockholders' equity	198,942	219,853,194	235,193	198,942

Total liabilities and stockholders' equity	22 6, 68 $ 5	23 5, 00 $ 0	$ 257,694	$ 226,685

The accompanying notes are an integral part of these financial statements.

Fulcrum Therapeutics, Inc.

Consolidated Statements of Operations and Comprehensive Loss

(In thousands, except per share data)

	Year Ended December 31,		Year Ended December 31,	
	2022	2021	2023	2022
Collaboration revenue	$ 6,342	$ 19,163	$ 2,805	$ 6,342
Operating expenses:				
Research and development	76,782	69,701	71,801	76,782
General and administrative	41,694	30,516	41,668	41,694
Restructuring expenses	427	—	—	427
Total operating expenses	118,903	100,217	113,469	118,903
Loss from operations	(112,561)	(81,054)	(110,664)	(112,561)
Other income, net	2,690	207	13,329	2,690
Net loss	$ (109,871)	$ (80,847)	$ (97,335)	$ (109,871)
Net loss per share, basic and diluted	$ (2.44)	$ (2.29)	$ (1.59)	$ (2.44)
Weighted-average common shares outstanding, basic and diluted	44,991	35,361	61,310	44,991
Comprehensive loss:				
Net loss	$ (109,871)	$ (80,847)	$ (97,335)	$ (109,871)
Other comprehensive loss:				
Unrealized loss on marketable securities	(400)	(395)		
Total other comprehensive loss	(400)	(395)		
Other comprehensive gain (loss):				
Unrealized gain (loss) on marketable securities			661	(400)
Total other comprehensive gain (loss)			661	(400)
Comprehensive loss	$ (110,271)	$ (81,242)	$ (96,674)	$ (110,271)

The accompanying notes are an integral part of these financial statements.

Fulcrum Therapeutics, Inc.

Consolidated Statements of Stockholders' Equity

(In thousands, except share amounts)

	Common Stock		Treasury Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Loss	Deficit	Equity
Balance at December 31, 2020	27,941,566	28	—	—	316,775	(2)	(221,620)	95,181
Issuance of common stock in connection with public offering, net of issuance costs	12,190,000	12	—	—	182,845	—	—	182,857

Issuance of common stock under employee benefit plans	38,196,676	1	—	—	7	—	—	8	3,836,676					3,836,676
Vesting of restricted stock awards	112,692,691	—	—	—	5	—	—	5						
Repurchase of unvested restricted stock awards	—	—	2,971	—	—	—	—	—						
Retirement of treasury shares	—	—	(2,971)	—	—	—	—	—						
Stock-based compensation expense					1,100,707			1,100,707						
Unrealized loss on marketable securities	—	—	—	—	—	(39)	—	(39)						
Net loss							(80,884,847)	(80,884,847)						
Balance at December 31, 2021	40,626,224	$ 1	$ —	$ —	$ 2	$ (37)	$ (37)	$ 9	40,626,224	41	514,362	(397)	(302,467)	211,539

Issuance of common stock in connection with public offering, net of issuance costs	11,029,410	11	80,793	—	—	80,804
Issuance of common stock under employee benefit plans	433,403	—	3,519	—	—	3,519
Vesting of restricted stock awards	10,174	—	1	—	—	1
Stock-based compensation expense	—	—	13,350	—	—	13,350
Unrealized loss on marketable securities	—	—	—	(400)	—	(400)
Net loss	—	—	—	—	(109,871)	(109,871)
Balance at December 31, 2022	52,099,211	$ 52	$ 612,025	$ (797)	$ (412,338)	$ 198,942

Issuance of common stock in connection with public offering, net of issuance costs	9,615,384	10	117,336	—	—	117,346
Issuance of common stock under employee benefit plans	182,628	—	777	—	—	777
Vesting of restricted stock awards	18,144	—	—	—	—	—
Stock-based compensation expense	—	—	14,802	—	—	14,802
Unrealized gain on marketable securities	—	—	—	661	—	661
Net loss	—	—	—	—	(97,335)	(97,335)
Balance at December 31, 2023	61,915,367	$ 62	$ 744,940	$ (136)	$ (509,673)	$ 235,193

The accompanying notes are an integral part of these financial statements.

Fulcrum Therapeutics, Inc.

Consolidated Statements of Cash Flows

(In thousands)

	Year Ended December 31,		Year Ended December 31,	
	2022	2021	2023	2022
Operating activities				

Net loss	$ (109,872)	$ (80,847)	$ (97,335)	$ (109,872)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation expense	2,414	2,515	2,172	2,414
Stock-based compensation expense	13,350	11,070	14,802	13,350
Net amortization of premiums on marketable securities	152	673		
Net (accretion of discounts) amortization of premiums on marketable securities			(5,991)	152
Changes in operating assets and liabilities:				
Accounts receivable	2,500	(500)	—	2,500
Unbilled accounts receivable	908	(606)	(308)	908
Prepaid expenses and other current assets	(170)	(134)	(1,072)	(170)
Operating lease assets and liabilities	(372)	(438)	(715)	(372)
Other assets	(1,562)	36	94	(1,562)
Accounts payable	(1,176)	973	(853)	(1,176)
Accrued expenses and other liabilities	555	1,950	(825)	555
Deferred revenue	(3,777)	(13,170)	(934)	(3,777)
Net cash used in operating activities	$ (97,050)	$ (78,478)	$ (90,965)	$ (97,050)
Investing activities				
Purchases of marketable securities	(151,153)	(216,234)	(194,892)	(151,153)
Maturities of marketable securities	165,529	88,278	158,708	165,529
Purchases of property and equipment	(1,963)	(1,713)	(508)	(1,963)
Net cash provided by (used in) investing activities	12,413	(129,669)		
Net cash (used in) provided by investing activities			(36,692)	12,413
Financing activities				
Proceeds from issuance of common stock in connection with public offerings, net of issuance costs	80,804	182,857	117,345	80,804
Principal payments on capital lease obligations	—	(18)		
Proceeds from issuance of common stock under benefit plans, net	3,519	3,668	777	3,519
Net cash provided by financing activities	84,323	186,507	118,122	84,323
Net decrease in cash, cash equivalents and restricted cash	(314)	(21,640)		
Net (decrease) increase in cash, cash equivalents and restricted cash			(9,535)	(314)
Cash, cash equivalents, and restricted cash, beginning of period	36,504	58,144	36,190	36,504
Cash, cash equivalents, and restricted cash, end of period	$ 36,190	$ 36,504	$ 26,655	$ 36,190
Supplemental cash flow information				
Cash paid for operating lease liabilities	$ 2,219	$ —	$ 3,333	$ 2,219
Non-cash investing and financing activities:				
Property and equipment purchases unpaid at end of period	$ 26	$ 37	$ —	$ 26

The following table provides a reconciliation of the cash, cash equivalents, and restricted cash balances as of each of the periods shown above:

December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022

Cash and cash equivalents	$ 35,098	$ 35,412	$ 25,563	$ 35,098
Restricted cash	1,092	1,092	1,092	1,092
Total cash, cash equivalents, and restricted cash	$ 36,190	$ 36,504	$ 26,655	$ 36,190

The accompanying notes are an integral part of these financial statements.

Fulcrum Therapeutics, Inc.

Notes to Consolidated Financial Statements

1. Nature of the Business and Basis of Presentation

Fulcrum Therapeutics, Inc. (the “Company” or “Fulcrum”) was incorporated in Delaware on August 18, 2015. The Company is focused on improving developing small molecules to improve the lives of patients with genetically-defined rare diseases in areas of high unmet medical need.

The Company is subject to a number of risks similar to other companies in the biotechnology industry, including, but not limited to, risks of failure of preclinical studies and clinical trials, dependence on key personnel, protection of proprietary technology, reliance on third party organizations, risks of obtaining regulatory approval for any product candidate that it may develop, development by competitors of technological innovations, compliance with government regulations, and the need to obtain additional financing. Product candidates currently under development will require significant additional research and development efforts, including extensive preclinical and clinical testing, and regulatory approval, prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel infrastructure and extensive compliance-reporting capabilities. Even if the Company’s development efforts are successful, it is uncertain when, if ever, the Company will realize significant revenue from product sales.

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States of America (“GAAP”). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification (“ASC”) and Accounting Standards Updates (“ASU”) of the Financial Accounting Standards Board (“FASB”).

Sales of Common Stock

On January 22, 2021, the Company completed a public offering of its common stock and issued and sold 4,600,000 shares of common stock at a public offering price of $11.00 per share, resulting in net proceeds of $47.4 million after deducting underwriting discounts and commissions and offering expenses.

On August 16, 2021, the Company completed a public offering of its common stock and issued and sold 7,590,000 shares of common stock at a public offering price of $19.00 per share, resulting in net proceeds of $135.5 million after deducting underwriting discounts and commissions and offering expenses.

In August 2022, the Company completed a public offering of its common stock and issued and sold 11,029,410 shares of common stock at a public offering price of $7.82 per share, resulting in net proceeds of $80.8 million after deducting underwriting discounts and commissions and offering expenses.

In January 2023, the Company completed a public offering of its common stock and issued and sold 9,615,384 shares of common stock at a public offering price of $13.00 per share, resulting in net proceeds of $117.3 million after deducting underwriting discounts and commissions and offering expenses.

Liquidity

The Company has incurred recurring losses and negative cash flows from operations since inception and has primarily funded its operations with proceeds from the sale of shares of its capital stock and from upfront payments received from the collaboration and license agreements with Acceleron Pharma Inc. (“Acceleron”), a wholly-owned subsidiary of Merck & Co., Inc., (“Merck”) and MyoKardia, Inc. (“MyoKardia”), a wholly-owned subsidiary of Bristol Myers Squibb Company. As of December 31, 2022 December 31, 2023, the Company had an accumulated deficit of $412.3 509.7 million. The Company expects its operating losses and negative operating cash flows to continue into the foreseeable future as it continues to expand its research and development efforts. The Company expects to finance its future cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements.

The Company expects that its cash, cash equivalents, and marketable securities will be sufficient to fund its operating expenses and capital expenditure requirements for at least 12 months from the date of issuance of these financial statements. However, the Company has based this estimate on assumptions that may prove to be wrong, and its operating plan may change as a result of many factors currently unknown to it. As a result, the Company could deplete its capital resources sooner than it currently expects. If the Company is unable to raise additional funds through equity or debt financings when needed, it may be required to delay, limit, reduce or terminate development or future commercialization efforts or grant rights to develop and market product candidates that it would otherwise prefer to develop and market itself.

2. Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary, Fulcrum Therapeutics Securities Corp., which is a Massachusetts subsidiary created to buy, sell, and hold securities. All intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of

the date of the financial statements, and the reported amount of expenses during the reported periods. Estimates inherent in the preparation of these consolidated financial statements include, but are not limited to, estimates related to revenue recognition, accrued expenses, stock-based compensation expense, and income taxes. The Company bases its estimates on historical experience and other market specific or other relevant assumptions it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates as there are changes in circumstances, facts and experience. Actual results could differ from those estimates or assumptions.

Cash and Cash Equivalents

Cash equivalents are highly liquid investments that are readily convertible into cash with original maturities of three months or less when purchased. Cash equivalents include investments in money market funds that invest in U.S. Treasury obligations, and commercial paper. The Company maintains its bank accounts at major financial institutions.

Restricted Cash

Restricted cash represents cash held to secure a letter of credit associated with the Company's facility lease for its corporate headquarters.

Fair Value of Financial Instruments

The fair value of the Company's financial assets and liabilities reflects the Company's estimate of amounts that it would have received in connection with the sale of the assets or paid in connection with the transfer of the liabilities in an orderly transaction between market participants at the measurement date. In connection with measuring the fair value of its assets and liabilities, the Company seeks to maximize the use of observable inputs (market data obtained from sources independent from the Company) and to minimize the use of unobservable inputs (the Company's assumptions about how market participants would price assets and liabilities). The following fair value hierarchy is used to classify assets and liabilities based on the observable inputs and unobservable inputs used in order to value the assets and liabilities:

Level 1: Quoted prices in active markets for identical assets or liabilities. An active market for an asset or liability is a market in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2: Observable inputs other than Level 1 inputs. Examples of Level 2 inputs include quoted prices in active markets for similar assets or liabilities and quoted prices for identical assets or liabilities in markets that are not active.

Level 3: Unobservable inputs based on the Company's assessment of the assumptions that market participants would use in pricing the asset or liability.

The Company's cash equivalents and marketable securities are carried at fair value and are classified according to the fair value hierarchy described above (Note 3). The cash equivalents and marketable securities are initially valued at the

transaction price, and subsequently revalued at the end of each reporting period, utilizing third-party pricing services. The pricing services utilize industry standard valuation models, including both income and market-based approaches, to determine fair value.

Marketable Securities

The Company classifies securities with a remaining maturity when purchased of greater than three months as marketable securities. As of December 31, 2022 December 31, 2023, the Company's marketable securities consisted of investments in U.S. Treasury securities, government agency securities, corporate bonds, and commercial paper. Marketable securities are classified as current assets on the consolidated balance sheets if the marketable securities are available to be converted into cash to fund current operations.

Marketable securities classified as available-for-sale are carried at fair value with the unrealized gains and losses included in accumulated other comprehensive loss, which is a component of stockholders' equity, until such gains and losses are realized. Any premium arising at purchase is amortized to interest expense (a component of other income, net) over the period of the earliest call date, and any discount arising at purchase is accreted to interest income (a component of other income, net) over the life of the instrument. Realized gains and losses are determined using the specific identification method and are included in other income, net.

If any adjustment to fair value reflects a decline in value of the investment, the Company considers all available evidence to evaluate the extent to which the decline is "other-than-temporary" and, if so, marks the investment to market through a charge to the Company's statement of operations and comprehensive loss.

Property and Equipment

Property and equipment are recorded at cost, net of accumulated depreciation. Maintenance and repairs to an asset that do not improve or extend its life are charged to operations. Depreciation expense is recorded using the straight-line method over the estimated useful life of the related asset as follows:

	Estimated Useful Life (in years)
Lab equipment	5
Furniture and fixtures	4
Computer equipment	3
Software	3
Leasehold improvements	Shorter of useful life or remaining lease term

Construction-in-progress is stated at cost, which includes direct costs attributable to the setup or construction of the related asset. Depreciation expense is not recorded on construction-in-progress until the relevant assets are completed and put into use. When assets are retired or otherwise disposed of, the assets and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is reflected in the Company's consolidated statements of operations and comprehensive loss.

Impairment of Long-Lived Assets

Long-lived assets consist of property and equipment. The Company continually evaluates whether events or circumstances have occurred that indicate that the estimated remaining useful life of its long-lived assets may warrant revision or that the carrying value of these assets may be impaired. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use or disposition of an asset group are less than its carrying amount. The impairment loss would be based on the excess of the carrying value of the impaired asset group over its fair value, determined based on discounted cash flows. The Company did not record any impairment losses on long-lived assets during the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

Leases

Effective January 1, 2022, the Company adopted ASU No. 2016-02, *Leases (Topic 842)* ("ASU 2016-02"). For contracts entered into on or after the effective date, at the inception of a contract, the Company determines whether the arrangement is or contains a lease based on the unique facts and circumstances present in the arrangement. Leases with a term

greater than twelve months are recognized on the balance sheet as right-of-use assets and current and non-current lease liabilities, as applicable. The Company does not recognize leases with terms of twelve months or less on the balance sheet. Options to renew a lease are not included in the Company's initial lease term assessment unless there is reasonable certainty that the Company will renew the lease.

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Leases are classified as either finance leases or operating leases. A lease is classified as a finance lease if any one of the following criteria are met: (i) the lease transfers ownership of the asset by the end of the lease term, (ii) the lease contains an option to purchase the asset that is reasonably certain to be exercised, (iii) the lease term is for a major part of the remaining useful life of the asset or (iv) the present value of the lease payments equals or exceeds substantially all of the fair value of the asset. A lease is classified as an operating lease if it does not meet any of these criteria.

For all operating leases, a lease liability and corresponding right-of-use asset are recognized. The lease liability represents the present value of the lease payments over the expected remaining lease term, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Company's incremental borrowing rate, which reflects the fixed rate at which the Company could borrow on a collateralized basis the amount of the lease payments in the same currency, for a similar term, in a similar economic environment. To estimate the Company's incremental borrowing rate, a credit rating applicable to the Company is estimated using a synthetic credit rating and yield curve analysis, since the Company does not have a rating agency-based credit rating. The right-of-use asset represents the right to use the leased asset for the lease term. The right-of-use asset is initially measured at cost, which primarily comprises the initial amount of the lease liability, plus any initial direct costs incurred if any, less any lease incentives received.

Lease payments included in the measurement of the lease liability comprise (i) the fixed noncancelable lease payments, (ii) payments for optional renewal periods where it is reasonably certain the renewal period will be exercised, and (iii) payments for early termination options unless it is reasonably certain the lease will not be terminated early. Lease expense for operating leases consists of the lease payments plus any initial direct costs, and is recognized on a straight-line basis over the lease term. Included in lease expense are any variable lease payments incurred in the period that are not included in the initial lease liability and lease payments incurred in the period for any leases with an initial term of 12 months or less. The Company accounts for lease and non-lease components together as a single lease component.

Revenue Recognition

Under ASC 606, *Revenue from Contracts with Customers*, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration that the entity expects to receive in exchange for those goods or services. In applying ASC 606, the Company performs the following five steps:

1) Identify the contract with the customer

A contract with a customer exists when (i) the Company enters into an enforceable contract with a customer that defines each party's rights regarding the goods or services to be transferred and identifies the related payment terms, (ii) the contract has commercial substance and (iii) the Company determines that collection of substantially all consideration for goods and services that are transferred is probable based on the customer's intent and ability to pay the promised consideration.

2) Identify the promises and performance obligations in the contract

Performance obligations promised in a contract are identified based on the goods and services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the good or service either on its own or together with other readily available resources, and are distinct in the context of the contract, whereby the transfer of the good or service is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised goods and services, the Company must apply judgment to determine whether promised goods and services are capable of being distinct and distinct in the context of the contract. In assessing whether a promised good or service is distinct, the Company considers factors such as the research, manufacturing and commercialization capabilities of the customer and the availability of the associated expertise in the marketplace. The Company also considers the intended benefit of the contract in assessing whether a promised good or service is separately identifiable from other promises in the contract. If these criteria are not met, the promised goods and services are accounted for as a combined performance obligation.

3) Determine the transaction price

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring goods and services to the customer. If the consideration promised in a contract includes a variable amount, the Company estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. The Company determines the amount of variable consideration by using the expected value method or the most likely amount method. The Company includes the unconstrained amount of estimated variable consideration in

the transaction price. The amount included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts the estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment. Changes to the constraint of variable consideration can have a material effect on the amount of revenue recognized in the period.

If an arrangement includes research and development milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates 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 based on the occurrence of events not within the Company's control, such as regulatory approvals, are generally not considered probable of being achieved until the underlying events occur or the associated approvals are received.

For arrangements with licenses of intellectual property that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes royalty revenue and sales-based milestones at the later of (i) when the related sales occur, or (ii) when the performance obligation to which the royalty has been allocated has been satisfied.

In determining the transaction price, the Company adjusts consideration for the effects of the time value of money if the timing of payments provides the Company with a significant benefit of financing. The Company assesses its revenue generating arrangements in order to determine whether a significant financing component exists.

4) Allocate the transaction price to the performance obligations in the contract

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation on a relative standalone selling price basis, except for any variable consideration that meets the criteria to be allocated entirely to a single performance obligation or to a distinct service that forms part of a single performance obligation.

5) Recognize revenue when or as the Company satisfies a performance obligation

The Company may satisfy performance obligations over time or at a point in time, depending on the nature of the performance obligation. Revenue is recognized over time if the customer simultaneously receives and consumes the benefits provided by the entity's performance, the entity's performance creates or enhances an asset that the customer controls as the asset is created or enhanced, or the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date. If the entity does not satisfy a performance obligation over time, the related performance obligation is satisfied at a point in time by transferring the control of a promised good or service to a customer.

For revenue that the Company recognizes over time, the Company assesses whether an input or an output method is the appropriate measure of progress associated with the satisfaction of the performance obligation. In determining the appropriate method for measuring progress, the Company considers the nature of the good or service that it has promised to transfer to the customer. Output methods recognize revenue on the basis of direct measurements of the value to the customer of the goods or services transferred to date relative to the remaining goods or services promised under the contract. Input methods recognize revenue on the basis of the entity's efforts or inputs to the satisfaction of a performance obligation. Estimates inherent to the measurement of progress associated with the satisfaction of performance obligations based on an input method include the total estimated costs to satisfy the associated performance obligation.

See Note 10, "Collaboration and License Agreements", for further information on the application of ASC 606 to the collaboration and license agreement with Acceleron (the "Acceleron Collaboration Agreement") and the collaboration and license agreement with MyoKardia (the "MyoKardia Collaboration Agreement").

Research and Development Expenses

Research and development expenses include costs directly attributable to the conduct of research and development programs, including personnel-related expenses such as salaries, payroll taxes, benefits, and stock-based compensation expense, manufacturing and external costs related to outside vendors engaged to conduct both preclinical studies and clinical

trials, laboratory supplies, depreciation on and maintenance of research equipment, and the allocable portions of facility costs, such as rent, utilities, repairs and maintenance, depreciation, and general support services. Expenditures relating to research and development are expensed in the period incurred. Non-refundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Research Contract Costs and Accruals

The Company has entered into various research and development contracts with research institutions and other companies. The Company records accruals for estimated ongoing research costs that have not yet been invoiced. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the studies or trials or the extent of services provided during the reporting periods, including invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at each reporting period. Actual results could differ from the Company's estimates.

Patent-Related Costs

Patent-related costs incurred in connection with patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses in the accompanying statements of operations.

Stock-Based Compensation

The Company measures stock-based awards based on the fair value on the date of grant. Compensation expense associated with those awards is recognized over the requisite service period, which is generally the vesting period of the respective award. Generally, the Company issues awards with only service-based vesting conditions and records the expense for these awards using the straight-line method.

The fair value of each restricted stock award is based on the fair value of the Company's common stock on the grant date, less any applicable purchase price. The fair value of each stock option is estimated on the grant date using the Black-Scholes option-pricing model, which requires inputs based on certain subjective assumptions, including the expected stock price volatility, the expected term of the award, the risk-free interest rate, and expected dividends. Expected volatility is calculated based on reported volatility data for a representative group of publicly traded companies for which historical information is available. The historical volatility is calculated based on a period of time commensurate with the assumption used for the expected term. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant commensurate with the expected term assumption. The Company uses the simplified method, under which the expected term is presumed to be the midpoint between the vesting date and the end of the contractual term. The Company utilizes this method due to the lack of historical exercise data and the plain nature of its stock-based awards. The expected dividend yield is assumed to be zero as the Company has never paid dividends and has no current plans to pay any dividends on common stock.

The Company accounts for forfeitures as they occur. The Company classifies stock-based compensation expense in its statements of operations in the same manner in which the award recipient's payroll or service costs are classified.

Income Taxes

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in the Company's tax returns. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amounts and the tax bases of the assets and liabilities using the enacted tax rates in effect in the years in which the differences are expected to reverse. A valuation allowance against deferred tax assets is recorded if, based on the weight of the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. Potential for recovery of deferred tax assets is evaluated by considering several factors, including estimating the future taxable profits expected, estimating future reversals of existing taxable temporary differences, considering taxable profits in carryback periods, and considering prudent and feasible tax planning strategies.

The Company accounts for uncertain tax positions using a more-likely-than-not threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors including, but not limited to, changes in the law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity, and changes in facts or circumstances related to a tax position.

Restructuring Expenses

The Company records costs and liabilities associated with exit and disposal activities in accordance with Accounting Standards Codification 420, *Exit or Disposal Cost Obligations*. Such costs are based on estimates of fair value in the period liabilities are incurred. The Company evaluates and adjusts these costs as appropriate for changes in circumstances as additional information becomes available.

Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. For the years ended December 31, 2022 December 31, 2023 and 2021, 2022, comprehensive loss consists of net loss and unrealized losses on investments.

Net Income (Loss) Per Share

Basic net income (loss) per share is computed by dividing the net income (loss) by the weighted average number of shares of common stock outstanding for the period. Diluted net income (loss) per share is computed by dividing net income (loss) by the weighted average number of shares of common stock outstanding for the period, including potential dilutive common shares. For purpose of this calculation, outstanding options to purchase common stock and unvested restricted stock awards are considered potential dilutive common shares. The Company has generated a net loss in all periods presented, and therefore the basic and diluted net loss per share are the same as the inclusion of the potentially dilutive securities would be anti-dilutive.

Off-Balance Sheet Risk and Concentrations of Credit Risk

The Company has no significant off-balance sheet risk such as foreign exchange contracts, option contracts, or other foreign hedging arrangements. Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash, cash equivalents, marketable securities, and restricted cash. The Company's cash, cash equivalents, and restricted cash are deposited in accounts at large financial institutions. The Company believes it is not exposed to significant credit risk due to the financial strength of the depository institutions in which the cash, cash equivalents and restricted cash are held. The Company maintains its cash equivalents in money market funds that invest in U.S. Treasury securities, U.S. Treasury securities, and commercial paper. The Company's marketable securities consist of U.S. Treasury securities, corporate bonds, and commercial paper, and potentially subject

the Company to concentrations of credit risk. The Company has adopted an investment policy that limits the amounts the Company may invest in any one type of investment. The Company has not experienced any credit losses and does not believe it is exposed to any significant credit risk on these funds.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision-maker in making decisions regarding resource allocation and

assessing performance. The Company and the Company's chief operating decision-maker, the Company's interim chief executive officer, view the Company's operations and manage its business as a single operating segment.

Emerging Growth Company Status

The Company is an emerging growth company ("EGC"), as defined in the Jumpstart Our Business Startups Act (the "JOBS Act"), and may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not EGCs, including that an EGC can take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards. The Company has elected to use the extended transition period for complying with new or revised accounting standards, and as a result of this election, its consolidated financial statements may not be comparable to companies that comply with public company effective dates for ASUs. The Company may take advantage of these exemptions up until the last day of the fiscal year following the fifth anniversary of its initial public offering or such earlier time that it is no longer an EGC.

Recent Accounting Pronouncements—To Be Adopted

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The standard requires that credit losses be reported using an expected losses model rather than the incurred losses model that is currently used, and establishes additional disclosures related to credit risks. For available-for-sale debt securities with unrealized losses, this standard requires allowances to be recorded instead of reducing the amortized cost of the investment. The new standard will be Company adopted this guidance effective for the Company on January 1, 2023. The Company is currently evaluating the potential impact that adoption of this standard may did not have a material impact on its the Company's consolidated financial position and results of operations.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes-Simplifying the Accounting for Income Taxes*. The standard eliminates certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period, and the recognition of deferred tax liabilities for outside basis differences. The new guidance also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The new standard will be Company adopted this guidance effective for the Company on January 1, 2023. The Company is currently evaluating the potential impact that adoption of this standard may have on its consolidated financial position and results of operations.

Recent Accounting Pronouncements—Adopted

In February 2016, the FASB ASU 2016-02, as amended by various subsequently issued ASUs. The standard requires lessees to recognize an operating lease with a term greater than one year on their balance sheets as a right-of-use asset and corresponding lease liability, measured at the present

value of the lease payments. Lessees are required to classify leases as either finance or operating leases. If the lease is effectively a financed-purchase by the lessee, it is classified as a financing lease, otherwise it is classified as an operating lease. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. In July 2018, the FASB also issued ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, which permits entities to continue applying legacy guidance in ASC 840, *Leases*, including its disclosure requirements, in the comparative periods presented in the year that the entity adopts the new leasing standard. Under this transition method, the cumulative effect of initially applying ASU 2016-02, as amended, is recognized as an adjustment to the opening balance of retained earnings or accumulated deficit at the beginning of the annual reporting period that includes the date of initial application.

Accordingly, the Company adopted the new standard effective January 1, 2022 using the transition method permitted by ASU 2016-02, as amended. In adopting the new standard, the Company elected to utilize certain available expedients by electing the transition package of practical expedients permitted within ASU 2016-02, which allow the Company to not reassess previous accounting conclusions around whether arrangements are, or contain, leases, the classification of existing or expired leases, and the treatment of previous initial direct costs that would qualify for capitalization under the new standard. The Company elected to apply the practical expedient to not separate lease and non-lease components for new and modified leases. The Company also made an accounting policy election to exclude leases with an initial term of twelve months or less from the balance sheet.

Upon the adoption of ASU 2016-02, as amended, the Company removed its legacy deferred rent balances that were previously recorded under ASC 840 and established an operating lease right-of-use asset of $10.8 million, an operating lease liability, current of $2.2 million and an operating lease liability, net of current portion of $13.4 million, all relating to the Company's existing operating leases for office and laboratory space. The following table presents a summary of the amount by which each financial statement line item was affected by the adoption of ASU 2016-02, as amended (in thousands):

	January 1, 2022		
	Prior to the Adoption of ASU 2016, as Amended	Effect of Adoption	Subsequent to the Adoption of ASU 2016-20, as Amended
	(in thousands, except per share data)		
Operating lease right of use asset	$ —	$ 10,815	10,815
Operating lease liability, current	—	2,173	2,173
Accrued expenses and other current liabilities	9,231	(50)	9,181
Deferred lease incentive, current portion	469	(469)	—
Operating lease liability, net of current portion	—	13,423	13,423
Deferred rent, excluding current portion	1,680	(1,680)	—
Deferred lease incentive, excluding current portion	2,582	(2,582)	—

The adoption of ASU 2016-02, as amended, did not have a material impact on the Company's consolidated statements financial position and results of operations and comprehensive loss or the consolidated statement of cash flows for the year ended December 31, 2022. See Note 12, "Leases", for further information on the application of ASU 2016-02, as amended, to the Company's operating lease for its existing operating leases for office and laboratory space.operations.

3. Fair Value Measurements

The following tables present information about the Company's financial assets measured at fair value on a recurring basis and indicate the fair value hierarchy classification of such fair values as of December 31, 2022 December 31, 2023 and 2021 2022 (in thousands):

	Fair Value Measurements at December 31, 2022				Fair Value Measurements at December 31, 2023			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Cash equivalents:								

Money market funds	$ 25,174	$ 25,174	$ —	$ —	$ 25,563	25,563	—	—
Commercial paper	9,924	—	9,924	—				
Marketable securities:								
U.S. Treasury securities	10,231	—	10,231	—	14,215	—	14,215	—
Government agency securities	12,444	—	12,444	—	65,107	—	65,107	—
Commercial paper	48,476	—	48,476	—	17,889	—	17,889	—
Corporate bonds	96,672	—	96,672	—	113,447	—	113,447	—
Total	$ 202,921	$ 25,174	$ 177,747	$ —	$ 236,221	$ 25,563	$ 210,658	$ —

	Fair Value Measurements at December 31, 2021				Fair Value Measurements at December 31, 2022			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Cash equivalents:								
Money market funds	$ 35,412	$ 35,412	$ —	$ —	$ 25,174	$ 25,174	$ —	$ —
Commercial paper					9,924	—	9,924	—
Marketable securities:								
U.S. Treasury securities					10,231	—	10,231	—
Government agency securities					12,444	—	12,444	—
Commercial paper	81,382	—	81,382	—	48,476	—	48,476	—
Corporate bonds	101,368	—	101,368	—	96,672	—	96,672	—
Total	$ 218,162	$ 35,412	$ 182,750	$ —	$ 202,921	$ 25,174	$ 177,747	$ —

There were no transfers between fair value levels during the years ended December 31, 2022 December 31, 2023 and 2021. 2022.

4. Cash Equivalents and Marketable Securities

Cash equivalents and marketable securities consisted of the following as of December 31, 2022 December 31, 2023 and December 31, 2021 December 31, 2022 (in thousands):

	Fair Value Measurements at December 31, 2022				Fair Value Measurements at December 31, 2023			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash equivalents:								
Money market funds	25,17			25,17				
	$ 4	$ —	$ —	$ 4	$ 25,563	$ —	$ —	$ 25,563

Commercial paper	9,928	—	(4)	9,924				
Total cash equivalents	35,102	—	(4)	35,098	25,563	—	—	25,563
Marketable securities:								
U.S. Treasury securities	10,267	—	(36)	10,231	14,229	10	(24)	14,215
Government agency securities	12,493	—	(49)	12,444	65,182	23	(98)	65,107
Commercial paper	48,661	—	(185)	48,476	17,891	8	(10)	17,889
Corporate bonds	97,195	3	(526)	96,672	113,492	90	(135)	113,447
Total marketable securities	168,616	3	(796)	167,823	210,794	131	(267)	210,658
Total cash equivalents and marketable securities	$ 203,718	$ 3	$ (800)	$ 202,921	$ 236,357	$ 131	$ (267)	$ 236,221

	Fair Value Measurements at December 31, 2021				Fair Value Measurements at December 31, 2022			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash equivalents:								
Money market funds	$ 35,412	$ —	$ —	$ 35,412	$ 25,174	$ —	$ —	$ 25,174
Commercial paper					9,928	—	(4)	9,924
Total cash equivalents	35,412	—	—	35,412	35,102	—	(4)	35,098
Marketable securities:								
U.S. Treasury securities					10,267	—	(36)	10,231
Government agency securities					12,493	—	(49)	12,444
Commercial paper	81,450	—	(68)	81,382	48,661	—	(185)	48,476
Corporate bonds	101,697	—	(329)	101,368	97,195	3	(526)	96,672
Total marketable securities	183,147	—	(397)	182,750	168,616	3	(796)	167,823
Total cash equivalents and marketable securities	$ 218,559	$ —	$ (397)	$ 218,162	$ 203,718	$ 3	$ (800)	$ 202,921

There were no sales of marketable securities during the year ended December 31, 2022 December 31, 2023. As of December 31, 2022 December 31, 2023, the aggregate fair value of held 46 debt securities that were in an unrealized loss position for less than twelve 12 months was with an aggregate fair

value of $111.1 130.2 million. As of December 31, 2022 December 31, 2023, the aggregate fair value of marketable Company held 18 debt securities that were in an unrealized loss position for greater than twelve 12 months was with an aggregate fair value of $42.9 33.8 million.

The Company determined that it did not hold any marketable securities with any other-than-temporary impairment as of December 31, 2022. As of December 31, 2022 December 31, 2023, the aggregate fair value of marketable securities with a remaining contractual maturity of greater than one year was $37.3 25.1 million.

The Company has the intent and ability to hold its debt securities until recovery. As of December 31, 2022, a result, the Company did not intend to sell, and would not be more likely than not be required to sell, the record any charges for credit-related impairments for its marketable securities in an unrealized loss position before recovery of their amortized cost bases. for the year ended December 31, 2023.

5. Property and Equipment, Net

Property and equipment, net consisted of the following (in thousands):

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
Lab equipment	$ 9,057	$ 8,182	$ 9,682	$ 9,057
Furniture and fixtures	786	594	600	786
Computer equipment	393	373	393	393
Software	199	199	199	199
Leasehold improvements	7,102	6,289	7,102	7,102
Construction in process	31	—	—	31
Total property and equipment	17,568	15,637	17,976	17,568
Less: accumulated depreciation	(10,662)	(8,269)	(12,760)	(10,662)
Property and equipment, net	$ 6,906	$ 7,368	$ 5,216	$ 6,906

Depreciation expense for the years ended December 31, 2022 December 31, 2023 and 2021 2022 was $2.2 million and $2.4 million, and $2.5 million, respectively.

6. Additional Balance Sheet Detail

Prepaid expenses and other current assets consisted of the following (in thousands):

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
Prepaid expenses	$ 3,425	$ 3,400	$ 3,658	$ 3,425
Prepaid sign-on bonuses subject to vesting provisions	92	326	71	92
Interest income receivable	852	473	1,712	852
Total prepaid expenses and other current assets	$ 4,369	$ 4,199	$ 5,441	$ 4,369

Accrued expenses and other current liabilities consisted of the following (in thousands):

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
External research and development	$ 4,700	$ 3,171	$ 3,164	$ 4,700
Payroll and benefits	4,211	4,990	4,712	4,211
Professional services	535	996	454	535
Other	105	74	396	105
Total accrued expenses and other current liabilities	$ 9,551	$ 9,231	$ 8,726	$ 9,551

7. Preferred Stock

As of December 31, 2022 December 31, 2023 and 2021, 2022, 5,000,000 shares of undesignated preferred stock were authorized. No shares of preferred stock were issued or outstanding as of December 31, 2022 December 31, 2023 and 2021. 2022.

No dividends have been declared since inception.

8. Common Stock

As of December 31, 2022 December 31, 2023 and 2021, 2022, 200,000,000 shares of common stock, $0.001 par value per share, were authorized.

Each share of common stock entitles the holder to one vote on all matters submitted to a vote of the Company's stockholders. Common stockholders are not entitled to receive dividends, unless declared by the Company's board of directors, subject to the preferential dividend rights of any preferred stock then outstanding. No dividends have been declared or paid by the Company since its inception.

As of December 31, 2022 December 31, 2023 and 2021, 2022, the Company has reserved for future issuance the following number of shares of common stock:

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
Shares reserved for exercises of outstanding stock options	6,504,080	5,188,354	9,972,217	6,504,080
Shares reserved for vesting of restricted stock units	76,718	—	75,017	76,718
Shares reserved for future issuance under the 2019 Stock Incentive Plan	1,941,054	286,324	3,157,537	1,941,054
Shares reserved for future issuance under the 2019 Employee Stock Purchase Plan	1,061,279	706,658	1,346,125	1,061,279

Shares reserved for future issuance under the 2022 Inducement Stock Incentive Plan	329,880	—	837,877	329,880
	9,913,011	6,181,336	15,388,773	9,913,011

9. Stock-based Compensation Expense

2016 Stock Incentive Plan

In July 2016, the Company adopted the 2016 Stock Incentive Plan (the "2016 Plan"), which provided for the grant of restricted stock awards, restricted stock units, incentive stock options, non-statutory stock options, and other stock-based awards to the Company's eligible employees, officers, directors, consultants, and advisors. As of the effective date of the 2019 Stock Incentive Plan (the "2019 Plan"), and as of December 31, 2022 December 31, 2023 and 2021, 2022, no shares remained available for future issuance under the 2016 Plan. Any options or other awards outstanding under the 2016 Plan remain outstanding and effective.

2019 Stock Incentive Plan

On July 2, 2019, the Company's stockholders approved the 2019 Plan, which became effective on July 17, 2019. The 2019 Plan provides for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock units and other stock-based awards to the Company's officers, employees, directors, consultants and advisors. The number of shares initially reserved for issuance under the 2019 Plan was 2,017,142 shares, plus the shares of common stock remaining available for issuance under the 2016 Plan as of July 17, 2019. The number of shares reserved was annually increased on January 1, 2020 and will be increased each January 1 thereafter through January 1, 2029 by the least of (i) 2,000,000 shares, (ii) 4% of the number of shares of the Company's common stock outstanding on the first day of each such year or (iii) an amount determined by the Company's board of directors. As of December 31, 2022 December 31, 2023, there were 1,941,054 3,157,537 shares available for future issuance under the 2019 Plan. On January 1, 2023 January 1, 2024, the number of shares reserved for issuance under the 2019 Plan was increased by 2,000,000 shares.

The shares of common stock underlying any awards that expire, terminate, or are otherwise surrendered, cancelled, forfeited or repurchased by the Company under the 2016 Plan or the 2019 Plan will be added back to the shares of common stock available for issuance under the 2019 Plan. As of July 17, 2019, no further awards will be made under the 2016 Plan.

2022 Inducement Stock Incentive Plan

In February 2022, the Company's board of directors adopted the 2022 Inducement Stock Incentive Plan (the "Inducement Plan"), pursuant to which the Company may grant, subject to the terms of the Inducement Plan and Nasdaq rules, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock units, and other stock-based awards. The Company initially reserved a total of 1,750,000 shares of common stock for the issuance of awards under the Inducement Plan. The number of shares reserved and available for issuance under the Inducement Plan can be increased at any time with the approval of the Company's board of directors. The Inducement Plan permits the board of directors, a delegated committee of the board of directors, or a delegated officer of the Company to grant the stock-based awards available under the Inducement Plan to attract key employees for the growth of the Company. As of December 31, 2022, there were 329,880 shares available for future issuance under the Inducement Plan. Effective March 8, 2023, the Company's Company's board of directors amended the Inducement Plan to increase the number of shares reserved for issuance by 2,000,000 shares.

Restricted Stock Awards

The Company may repurchase unvested restricted stock awards at Effective May 18, 2023, the original purchase price if employees or non-employees are terminated or cease their employment or service relationship with the Company. Shares of common stock repurchased from employees and non-employees are shares held in the Company's treasury ("Treasury Shares"). The board of directors may, at its discretion, authorize that amended the Treasury Shares be returned Inducement Plan to increase the pool number of authorized but unissued common stock.

The shares of common stock underlying restricted stock awards typically vest over a reserved for issuance by four-year1,400,000 period. The shares. As of December 31, 2023, there were 837,877 shares of common stock are recorded in stockholders' equity as they vest. available for future issuance under the Inducement Plan.

The following table summarizes the Company's restricted stock award activity during the year ended December 31, 2022:F-17

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested at December 31, 2021	10,174	$ 3.35
Granted	—	—
Vested	(10,174)	3.35
Repurchased	—	—
Unvested at December 31, 2022	—	$ —

Stock Options

Stock options granted by the Company typically vest over a four year period and have a ten year contractual term. Shares issued upon the exercise of stock options are issued from the Company's pool of authorized but unissued common

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stock. In addition to stock options granted under the 2019 Plan and 2016 Plan, the Company has granted stock options as material inducements to employment in accordance with Nasdaq Listing Rule 5635(c)(4), which were granted outside of the 2019 Plan and 2016 Plan. The following table summarizes the Company's stock option activity during the year ended December 31, 2022 December 31, 2023:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2021	5,188,354	$ 13.91	8.57	$ 27,082,052				
Outstanding at December 31, 2022					6,504,080	$ 11.99	8.55	$ 1,885,160

Granted	3,711,130	10.21			6,089,933		5.87			
Exercised	(381,661)	8.36			(38,903)		8.96			
Cancelled	(2,013,743)	14.33			(2,582,893)		11.33			
Outstanding at December 31, 2022	6,504,080	$ 11.99	8.55	$ 1,885,160						
Exercisable at December 31, 2022	2,116,037	$ 12.99	7.52	$ 98,187						
Outstanding at December 31, 2023					9,972,217	$	8.44	8.49	$	15,114,074
Exercisable at December 31, 2023					3,225,146	$	12.59	7.17	$	407,817

The aggregate intrinsic value of stock options is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock as of the balance sheet date for those options that had exercise prices lower than the fair value of the Company's common stock.

The weighted average grant date fair value of stock options granted in the years ended December 31, 2022 December 31, 2023 and 2021 2022 was $7.62 4.64 per share and $11.37 7.62 per share, respectively. The total intrinsic value of stock options exercised in the years ended December 31, 2022 December 31, 2023 and 2021 2022 was $0.2 million and $2.6 million, and $3.5 million, respectively.

The fair value of stock options granted during the years ended December 31, 2022 December 31, 2023 and 2021 2022 has been calculated on the date of grant using the following weighted average assumptions:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2023	Year Ended December 31, 2022
Risk-free interest rate	2.7%	0.9%	3.7%	2.7%
Expected dividend yield	0.0%	0.0%	0.0%	0.0%
Expected term (years)	6.1	6.1	6.1	6.1
Expected stock price volatility	90.0%	87.3%	98.6%	90.0%

Restricted Stock Units

The Company has also granted restricted stock units. The shares of common stock underlying restricted stock units typically vest over a four-year period. The shares of common stock are recorded in stockholders' equity as they vest.

The following table summarizes the Company's restricted stock unit activity during the year ended December 31, 2022 December 31, 2023:

	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Unvested at December 31, 2021	—	$ —		
Unvested at December 31, 2022			76,718	$ 9.73
Granted	126,803	10.09	37,045	12.59
Vested	—	—	(18,144)	9.79
Cancelled	(50,085)	10.65	(20,602)	11.03
Unvested at December 31, 2022	76,718	$ 9.73		
Unvested at December 31, 2023			75,017	$ 10.77

The aggregate intrinsic value of all restricted stock units and restricted stock awards that vested during the years ended December 31, 2022 December 31, 2023 and 2021 2022 was $0.1 million and $0.2 million, and $1.5 million, respectively.

Stock-based Compensation Expense

The total compensation cost recognized in the statements of operations and comprehensive loss associated with all stock-based compensation awards granted by the Company is as follows (in thousands):

	Year Ended December 31,		Year Ended December 31,	
	2022	2021	2023	2022
General and administrative	$ 9,652	$ 6,614	$ 11,026	$ 9,652
Research and development	3,698	4,456	3,776	3,698
Total stock-based compensation expense	$ 13,350	$ 11,070	$ 14,802	$ 13,350

As of December 31, 2022 December 31, 2023, the Company had an aggregate of $32.0 30.4 million of unrecognized stock-based compensation expense, which is expected to be recognized over a weighted average period of 2.86 2.91 years.

2019 Employee Stock Purchase Plan

On July 2, 2019, the Company's stockholders approved the 2019 Employee Stock Purchase Plan (the "ESPP"), which became effective on July 17, 2019. A total of 252,142 shares of common stock were initially reserved for issuance under the ESPP. In addition, the number of shares of common stock reserved under the ESPP was annually increased on January 1, 2020, and will be increased annually on each January 1 thereafter through January 1, 2029, by the least of (i) 428,571 shares of common stock, (ii) 1% of the number of shares of the Company's common stock outstanding on the first day of each such year or (iii) an amount determined by the Company's board of directors. As of December 31, 2022 December 31, 2023, there were 1,061,279 1,346,125 shares available for future issuance under the ESPP. On January 1, 2023 January 1, 2024, the number of shares reserved for issuance under the 2019 ESPP was increased by 428,571 shares.

10. Collaboration and License Agreements

Acceleron Collaboration Agreement

On December 20, 2019, the Company entered into the Acceleron Collaboration Agreement to identify biological targets to modulate specific pathways associated with a targeted indication within the pulmonary disease space (the "Indication"). Under the terms of the Acceleron Collaboration Agreement, the Company granted Acceleron an exclusive worldwide license under certain intellectual property rights to make, have made, use, sell, have sold, import, export, distribute and have distributed, market, have marketed, promote, have promoted, or otherwise exploit molecules and products directed against or expressing certain biological targets identified by the Company for the treatment, prophylaxis, or diagnosis of the Indication.

On June 3, 2022, Acceleron notified the Company of its termination of the Acceleron Collaboration Agreement for convenience, which became effective 120 days after the Company's receipt of the notice, or October 1, 2022.

Pursuant to a mutually agreed research plan, the Company was responsible for performing assay screening and related research activities to identify and validate potential biological targets for further research, in order to support the development, manufacture and commercialization of product candidates by Acceleron. Upon completion of the research activities, the Company delivered a data package to Acceleron with respect to the biological targets identified by the Company in the conduct of the research activities for the treatment, prophylaxis, or diagnosis of the Indication. As provided for under the exclusive worldwide license that was conveyed at the inception of the arrangement, Acceleron had the right to designate a specified number of the biological targets identified by the Company for Acceleron's research, development, manufacture and commercialization of products or molecules directed to such targets for the treatment, prophylaxis, or diagnosis of the Indication (the "Targets"). Acceleron did not designate any Targets prior to the notice of termination from Acceleron.

The Company received a non-refundable upfront payment of $10.0 million in December 2019 upon the execution of the Acceleron Collaboration Agreement. The Company was entitled to research milestone payments of up to $18.5 million in the aggregate upon achievement of specified research milestones, development milestone payments of up to $202.5 million in the aggregate upon achievement of specified clinical and regulatory milestones, and sales milestones payments of up to $217.5 million in the aggregate upon the achievement of certain aggregate annual worldwide net sales milestones for certain products directed to a Target that have achieved such milestones. Prior to the notice of termination from Acceleron, the Company achieved $2.0 million of specified research milestones. In addition, the Company was entitled to tiered royalties ranging from a mid single-digit percentage to a low double-digit percentage on Acceleron's annual worldwide net sales of products directed to any Target, subject to reduction in specified circumstances. The Company was also entitled to receive reimbursement from Acceleron for research costs incurred under the research plan, including internal and external costs.

Accounting Analysis

Identification of the Contract

The Company assessed the Acceleron Collaboration Agreement and concluded that it represents a contract with a customer within the scope of ASC 606.

Identification of the Promises and Performance Obligations

The Company determined that the Acceleron Collaboration Agreement contained the following promises: (i) an exclusive worldwide license under certain intellectual property rights, including rights to a specified number of biological targets identified by the Company for the treatment, prophylaxis, or diagnosis of a targeted indication within the pulmonary disease space that was conveyed at the inception of the arrangement (the "License"), (ii) research services to identify and validate potential biological targets (the "Research Services"), and (iii) participation in the joint steering committee (the "JSC").

The Company assessed the above promises and concluded that the License is not capable of being distinct from the Research Services given that the License has limited value without the performance of the Research Services and the Research Services could only be performed by the Company due to their specialized nature. Therefore, the Company concluded that the License and the Research Services represented a single combined performance obligation.

The Company also assessed the participation on the JSC and concluded that the promise was quantitatively and qualitatively immaterial in the context of the Acceleron Collaboration Agreement. Accordingly, the Company disregarded its participation on the JSC as a performance obligation.

Determination of the Transaction Price

The Company received a non-refundable upfront payment of $10.0 million upon the execution of the Acceleron Collaboration Agreement, which the Company included in the transaction price. In December 2020, the Company achieved $2.0 million of specified research milestones associated with the Acceleron Collaboration Agreement, which the Company included in the transaction price. The Company has constrained the variable consideration associated with the unachieved milestone payments as of the date that the Company received notice of termination from Acceleron and has excluded the unachieved milestone payments from the transaction price.

The Company also included in the transaction price the amount of costs to be reimbursed for the Research Services.

Prior to the receipt of notice of termination from Acceleron, the Company reassessed the transaction price at the end of each reporting period and as uncertain events were resolved or other changes in circumstances occurred, and, if necessary, adjusted its estimate of the transaction price. There was no change in the amount of variable consideration constrained during During the year ended December 31, 2022.

Allocation of the Transaction Price to Performance Obligations

As noted above, December 31, 2023, the Company identified a single performance obligation recognized no collaboration revenue associated with the Acceleron Collaboration Agreement. Therefore, the Company allocated the entire amount of the transaction price to the identified single performance obligation.

Recognition of Revenue

The Company recognized revenue related to the Acceleron Collaboration Agreement over time as the Research Services are rendered. The Company concluded that an input method was a representative depiction of the transfer of services under the Acceleron Collaboration Agreement. Prior to the receipt of notice of termination from Acceleron, the method of measuring progress towards the delivery of the services incorporated actual cumulative internal and external costs incurred relative to total internal and external costs expected to be incurred to satisfy the performance obligation. The period over which total costs was estimated reflected the Company's estimate of the period over which it would perform the Research Services. Changes in estimates of total internal and external costs expected to be incurred were recognized in the period of change as a cumulative catch-up adjustment.

During the year ended December 31, 2022, the Company recognized $1.0 million of collaboration revenue associated with the Acceleron Collaboration Agreement, which includes $0.6 million of revenue recognized that was included in deferred revenue as of December 31, 2021. During the year ended December 31, 2021 As of December 31, 2023 and December 31, 2022, the Company recognized $ recorded 9.6 no million of collaboration revenue associated with the Acceleron Collaboration Agreement, which includes $7.3 million of revenue recognized that was included in deferred revenue, as of December 31, 2020. As of December 31, 2022 the Company recorded no deferred revenue unbilled accounts receivable, or accounts receivable associated with the Acceleron Collaboration Agreement. As of December 31, 2021 the Company recorded deferred revenue associated with the Acceleron Collaboration Agreement of $0.6 million, which was classified as either current or net of current portion in the accompanying consolidated balance sheets based on the period over which the revenue was expected to be recognized. The aggregate deferred revenue balance represents the aggregate amount of the transaction price allocated to the performance obligations that were unsatisfied as of December 31, 2021. As of December 31, 2023 and December 31, 2022, the Company had received $4.9 million of cost reimbursement payments under the Acceleron Collaboration Agreement and $2.0 million associated with the achievement of specified research milestones. As of December 31, 2021, the Company had received $3.9 million of cost reimbursement payments under the Acceleron Collaboration Agreement and $2.0 million associated with the achievement of specified research milestones. As of December 31, 2022, the Company recorded no unbilled accounts receivable related to reimbursable research and development costs under the Acceleron Collaboration Agreement. As of December 31, 2021, the Company recorded unbilled accounts receivable of $0.7 million related to reimbursable research and development costs under the Acceleron Collaboration Agreement for activities performed during the three months ended December 31, 2021. As of December 31, 2022 and 2021, the Company had recorded no accounts receivable under the Acceleron Collaboration Agreement.

MyoKardia Collaboration Agreement

On July 20, 2020, the Company entered into the MyoKardia Collaboration Agreement, pursuant to which the Company granted to MyoKardia an exclusive worldwide license under certain intellectual property rights to research, develop, make, have made, use, have used, sell, have sold, offer for sale,

have offered for sale, import, have imported, export, have exported, distribute, have distributed, market, have marketed, promote, have promoted, or otherwise exploit products directed against certain biological targets identified by the Company that are capable of modulating up to a certain number of genes of interest with relevance to certain genetically defined cardiomyopathies.

Pursuant to a mutually agreed research plan, the Company will perform assay screening and related research activities to identify and validate up to a specified number of potential cardiomyopathy gene targets ("Identified Targets") for further research, development, manufacture and commercialization by MyoKardia. The Company and MyoKardia will work together to determine how best to advance at each stage of the research activities under the research plan and to identify which of the Identified Targets, if any, meet the criteria set forth in the research plan (the "Cardiomyopathy Target Candidates"). Upon completion of the research plan, the parties will work together to prepare a final data package and MyoKardia may designate certain Cardiomyopathy Target Candidates for MyoKardia's further exploitation under the MyoKardia Collaboration Agreement (the "Cardiomyopathy Targets"). If MyoKardia does not designate any Cardiomyopathy Targets during the designated period, then the MyoKardia Collaboration Agreement will automatically terminate. If MyoKardia designates one or more Cardiomyopathy Targets, then MyoKardia will be obligated to use commercially reasonable efforts to seek regulatory approval for and to commercialize one product directed against an Identified Target in certain specified countries.

During the period in which the Company is performing the research activities pursuant to the research plan (the "Research Term") and for a specified period beyond the Research Term if MyoKardia designates a Cardiomyopathy Target, the Company may only use the data generated from such research activities for MyoKardia in accordance with the MyoKardia Collaboration Agreement. During the Research Term and for a specified period thereafter, the Company may not research, develop, manufacture, commercialize, use, or otherwise exploit any compound or product (a) that is a Compound or Product under the MyoKardia Collaboration Agreement that is directed against the Cardiomyopathy Target Candidates for the treatment, prophylaxis, or diagnosis of any indication or (b) for the treatment of any genetically defined cardiomyopathies shown to be related to certain specified genes of interest that are modulated by the Cardiomyopathy Targets.

Under the MyoKardia Collaboration Agreement, MyoKardia made a $10.0 million upfront payment and a $2.5 million payment as prepaid research funding to the Company in July 2020. MyoKardia will also reimburse the Company for the costs of the research activities not covered by the prepaid research funding, up to a maximum amount of total research funding (including the prepaid research funding). Upon the achievement of specified preclinical, development and sales milestones, the Company will be entitled to preclinical milestone payments, development milestone payments and sales milestone

payments of up to $298.5 million in the aggregate per target for certain Identified Targets, and of up to $150.0 million in the aggregate per target for certain other Identified Targets. To date, the Company has achieved a $2.5 million specified preclinical milestone. MyoKardia will also pay the Company tiered royalties ranging from a mid single-digit percentage to a

low double-digit percentage based on MyoKardia's, and any of its affiliates' and sublicensees', annual worldwide net sales of products under the MyoKardia Collaboration Agreement directed against any Identified Target. The royalties are payable on a product-by-product basis during a specified royalty term, and may be reduced in specified circumstances.

The MyoKardia Collaboration Agreement continues on a country-by-country and product-by-product basis until the last to expire royalty term for a product, at which time the MyoKardia Collaboration Agreement expires with respect to such product in such country. Either party has the right to terminate the MyoKardia Collaboration Agreement if the other party has materially breached in the performance of its obligations under the MyoKardia Collaboration Agreement and such breach has not been cured within the applicable cure period. MyoKardia also has the right to terminate the MyoKardia Collaboration Agreement for convenience in its entirety or on a target-by-target, product-by-product or molecule-by-molecule basis.

Accounting Analysis

Identification of the Contract

The Company assessed the MyoKardia Collaboration Agreement and concluded that it represents a contract with a customer within the scope of ASC 606.

Identification of the Promises and Performance Obligations

The Company determined that the MyoKardia Collaboration Agreement contains the following promises: (i) an exclusive worldwide license under certain intellectual property rights, including rights to a specified number of potential cardiomyopathy gene targets identified by the Company for further research, development, manufacture and commercialization for the treatment, prophylaxis, or diagnosis of certain genetically defined cardiomyopathies that was conveyed at the inception of the arrangement (the “MyoKardia License”), (ii) research services to identify and validate potential biological targets (the “MyoKardia Research Services”), and (iii) participation in the joint steering committee (the “MyoKardia JSC”).

The Company assessed the above promises and concluded that the MyoKardia License is not capable of being distinct from the MyoKardia Research Services given that the MyoKardia License has limited value without the performance of the MyoKardia Research Services and the MyoKardia Research Services can only be performed by the Company due to their specialized nature. Therefore, the Company has concluded that the MyoKardia License and the MyoKardia Research Services represent a single combined performance obligation.

The Company also assessed the participation on the MyoKardia JSC and concluded that the promise is quantitatively and qualitatively immaterial in the context of the MyoKardia Collaboration Agreement. Accordingly, the Company has disregarded its participation on the MyoKardia JSC as a performance obligation.

Determination of the Transaction Price

The Company received a non-refundable upfront payment of $10.0 million, which the Company included in the transaction price. In December 2021, the Company achieved a $2.5 million specified preclinical milestone associated with the MyoKardia Collaboration Agreement, which was previously constrained due to the significant uncertainty regarding whether such preclinical milestone would be achieved. The Company included this amount in the transaction price as of December 31, 2021. Based on the continued uncertainty associated with the achievement of any of the remaining preclinical and development milestone payments that the Company is eligible to receive, the Company has constrained the variable consideration associated with those milestone payments and excluded them from the transaction price. As part of its evaluation of constraining the preclinical and development milestones, the Company considered numerous factors, including the fact that the achievement of the preclinical and development milestones are contingent upon the results of the underlying preclinical and development activities and are thus outside of the control of the Company.

The Company also included in the transaction price the expected amount of costs to be reimbursed for the MyoKardia Research Services, which includes the $2.5 million prepaid research funding payment that the Company received in the third quarter of 2020.

The Company reassesses the transaction price at the end of each reporting period and as uncertain events are resolved or other changes in circumstances occur, and, if necessary, adjusts its estimate of the transaction price. There was no change in the amount of variable consideration constrained during the year ended December 31, 2022 December 31, 2023.

Any consideration related to sales milestone payments (including royalties) will be recognized when the related sales occur as these amounts have been determined to relate predominantly to the license granted to MyoKardia and therefore are recognized at the later of when the related sales occur or the performance obligation is satisfied.

Allocation of the Transaction Price to Performance Obligations

As noted above, the Company has identified a single performance obligation associated with the MyoKardia Collaboration Agreement. Therefore, the Company will allocate the entire amount of the transaction price to the identified single performance obligation.

Recognition of Revenue

The Company recognizes revenue related to the MyoKardia Collaboration Agreement over time as the MyoKardia Research Services are rendered. The Company has concluded that an input method is a representative depiction of the transfer of services under the MyoKardia Collaboration Agreement. The method of measuring progress towards the delivery of the services incorporates actual cumulative internal and external costs incurred relative to total internal and external costs expected to be incurred to satisfy the performance obligation. The period over which total costs are estimated reflects the Company's estimate of the period over which it will perform the MyoKardia Research Services. Changes in estimates of total internal and external costs expected to be incurred are recognized in the period of change as a cumulative catch-up adjustment.

During the year ended December 31, 2023, the Company recognized $2.8 million of collaboration revenue associated with the MyoKardia Collaboration Agreement, which includes $0.9 million of revenue recognized that was included in deferred revenue as of December 31, 2022. During the year ended December 31, 2022, the Company recognized $5.3 million of collaboration revenue associated with the MyoKardia Collaboration Agreement, which includes $3.2 million of revenue recognized that was included in deferred revenue as of December 31, 2021. During the year ended December 31, 2021 As of December 31, 2023, the Company recognized $9.6 million of collaboration recorded no deferred revenue associated with the MyoKardia Collaboration Agreement, which includes $6.7 million of revenue recognized that was included in deferred revenue as of December 31, 2021 and a cumulative catch-up adjustment of $1.7 million attributable to the removal of the constraint associated with the $2.5 million preclinical milestone achieved in December 2021. Agreement. As of December 31, 2022 and 2021, , the Company recorded deferred revenue of $0.9 million and $4.1 million, respectively, associated with the MyoKardia Collaboration Agreement, which is classified as either current or net of current portion in the accompanying consolidated balance sheets based on the period over which the revenue is expected to be recognized. The aggregate deferred revenue balance represents the aggregate amount of the transaction price allocated to the performance obligations that are unsatisfied as of December 31, 2022 December 31, 2023 and 2021. 2022. As of December 31, 2023, the Company had received $7.2 million of cost reimbursement payments under the MyoKardia Collaboration Agreement and $2.5 million associated with the achievement of a preclinical milestone. As of December 31, 2022, the Company had received $5.6 million of cost reimbursement payments under the MyoKardia Collaboration Agreement and $2.5 million associated with the achievement of a preclinical milestone. As of December 31, 2021, the Company had received $3.2 million of cost reimbursement payments under the MyoKardia Collaboration Agreement and no milestone or royalty payments. As of December 31, 2022 December 31, 2023, the Company recorded unbilled accounts receivable of $0.2 million related to reimbursable research and development costs under the MyoKardia Collaboration Agreement for activities performed during the three months ended December 31, 2022. As of December 31, 2021, the Company recorded unbilled accounts receivable

of $0.5 million related to reimbursable research and development costs under the MyoKardia Collaboration Agreement for activities performed during the three months ended December 31, 2021 December 31, 2023. As of December 31, 2022, the Company recorded unbilled accounts receivable of $no 0.2 million related to reimbursable

research and development costs under the MyoKardia Collaboration Agreement for activities performed during the three months ended December 31, 2022. As of December 31, 2023 and 2022, the Company recorded no accounts receivable under the MyoKardia Collaboration Agreement. As of December 31, 2021, the Company recorded accounts receivable of $2.5 million under the MyoKardia Collaboration Agreement associated with the achievement of a preclinical milestone in December 2021.

11. Right of Reference and License Agreements

GSK Agreement

In February 2019, the Company entered into the right of reference and license agreement, as amended (the "GSK Agreement"), with subsidiaries of GlaxoSmithKline plc (collectively referred to as "GSK"), pursuant to which the Company has been granted an exclusive worldwide license to develop and commercialize losmapimod. Under the GSK Agreement, the Company also acquired reference rights to relevant regulatory and manufacturing documents and GSK's existing supply of losmapimod drug substance and product. The Company also has the right to sublicense its rights under the license agreement, subject to certain conditions. The Company is obligated to use commercially reasonable efforts to develop and commercialize losmapimod at its sole cost. The Company is also responsible for costs related to the filing and maintenance of the licensed patent rights.

Under the GSK Agreement, the Company issued 12,500,000 shares of Series B Preferred Stock to GSK. In addition, the Company may owe GSK up to $37.5 million in certain specified clinical and regulatory milestones, including a $5.0 million milestone that was achieved and paid during the year ended December 31, 2022 and a $2.5 million milestone previously achieved and paid during 2019, and up to $60.0 million in certain specified sales milestones. The Company agreed to pay tiered royalties on annual net sales of losmapimod that range from mid single-digit percentages to a low double-digit, but less than teens, percentage. The royalties are payable on a product-by-product and country-by-country basis, and may be reduced in specified circumstances. The Company achieved a $5.0 million milestone during the second quarter of 2022, which the Company recorded as research and development expense in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2022.

The GSK Agreement may be terminated by either party for a material breach by the other, subject to notice and cure provisions. Unless earlier terminated, the GSK Agreement will continue in effect until the expiration of the Company's royalty obligations, which expire on a country-by-country basis on the later of (i) ten years after the first commercial sale in the country or (ii) approval of a generic version of losmapimod by the applicable regulatory agency.

The Company recognizes clinical and regulatory milestone payments when the underlying contingency is resolved and the consideration is paid or becomes payable. The milestone payments are capitalized or expensed depending on the nature of the associated asset as of the date of recognition.

CAMP4 Agreement

In July 2023, the Company entered into a license agreement (the "CAMP4 Agreement") with CAMP4 Therapeutics Corporation ("CAMP4") pursuant to which the Company received a worldwide exclusive license (including the right to sublicense) from CAMP4 to rights under its Diamond Blackfan Anemia ("DBA") program, which includes certain small molecule compounds, composition of matter and method of use patent rights, and know-how for the Company to research, develop, manufacture, use, commercialize or otherwise exploit therapeutic products in any indication, including the grant of a sublicense under certain intellectual property rights that CAMP4 has licensed under an agreement with Children's Medical Center Corporation ("CMCC").

The Company made an undisclosed upfront non-refundable, non-creditable payment to CAMP4. If the Company succeeds in developing and commercializing licensed products, CAMP4 will record sales be eligible to receive (i) up to $35.0 million in development and regulatory milestone payments, and (ii) up to $35.0 million in sales milestone payments. CAMP4 is also eligible to receive royalties as additional expense on worldwide net sales of licensed products ranging from mid-single digit to low-double digit, subject to potential reduction following loss of patent coverage, the launch of certain generic products or royalty stacking for licenses of third party intellectual property. The royalties will expire on a product-by-product and country-by-country basis upon the latest to occur of (i) the expiration of all valid patent claims covering the compounds in such country, (ii) the expiration of all regulatory exclusivities in such country, and (iii) 10 years following the first commercial sale in such country. The Company is responsible for the costs associated with the development and regulatory approvals of licensed products.

Unless earlier terminated in accordance with its terms, the license agreement continues on a country-by-country and licensed product-by-licensed product basis until the expiration of the related royalty term in each country, at which time the license agreement expires with respect to such licensed product sales in such country and the Company will have a fully-paid up, royalty-free and perpetual license to the licensed patent rights and know-how with respect to such licensed product in such country.

CAMP4 has the right to terminate the license agreement in the period event of the Company's non-payment (subject to cure periods and tolling for bona fide disputes). CAMP4 may also terminate the license agreement if the Company challenges certain patents sublicensed to the Company by CAMP4. Either party may terminate the license agreement in which its entirety for the corresponding sales occur. other party's material breach if such other party fails to cure the breach. Either party may also terminate the agreement in its entirety upon certain insolvency events involving the other party. The Company has the right to terminate the license agreement with CAMP4 for any or no reason upon prior written notice to CAMP4.

The Company recognizes development and regulatory milestone payments when the underlying contingency is resolved and the consideration is paid or becomes payable. The milestone payments are capitalized or expensed depending on the nature of the associated asset as of the date of recognition.

12. Leases

Operating Leases

26 Landsdowne Street

In November 2017, the Company entered into a lease agreement for its current corporate headquarters comprising approximately 28,731 square feet of office and laboratory space at 26 Landsdowne Street in Cambridge, Massachusetts, commencing December 2017. The Company began to occupy and use the leased space for its intended purpose in June 2018. The lease ends on June 30, 2028. The Company has the option to extend the term of the lease for an additional five-year period, at the market rate, by giving the landlord written notice of its election to exercise the extension at least nine months prior to the original expiration of the lease term. The lease has a total commitment of $25.1 million over the ten year term, and includes escalating rent payments. The lease provides the Company with an allowance for normal leasehold improvements of $5.0 million. The lease agreement requires the Company to either pay a security deposit or maintain a letter of credit of $1.1 million. The Company maintains a letter of credit for this lease and has recorded the cash held to secure the letter of credit as restricted cash on the consolidated balance sheet as of December 31, 2022 December 31, 2023 and December 31, 2021 December 31, 2022.

Accounting Under ASU 2016-02, as Amended

As a result of the adoption of ASU 2016-02, as amended, on January 1, 2022, the Company recorded a right-of-use asset Operating lease and a corresponding variable lease liability expense associated with the 26 Landsdowne Street this lease on the consolidated balance sheet as of December 31, 2022. As there is no rate implicit in the 26 Landsdowne Street lease, the Company estimated its incremental

borrowing rate based upon a synthetic credit rating and yield curve analysis. Based upon this analysis, the Company calculated a discount rate of 6.1% for the lease. As of December 31, 2022, the remaining lease term year ended December 31, 2023 was approximately $ 5.51.9 years. million and $

Pursuant to ASU 2016-02, as amended, operating 0.9 million, respectively. Operating lease expense and variable lease expense associated with this lease for the year ended December 31, 2022 was approximately $1.9 million and $1.0 million, respectively.

The future minimum lease payments associated with the 26 Landsdowne Street lease as of December 31, 2022 December 31, 2023, are as follows (in thousands):

2023	$	2,497
2024		2,572
2025		2,649
2026		2,729
Thereafter		4,237
Total minimum lease payments		14,684
Less: imputed interest		(2,278)
Total lease liability	$	12,406

Accounting Under ASC 840

Prior to the adoption of ASU 2016-02, as amended, and pursuant to the legacy guidance within ASC 840, the Company recorded rent expense on a straight-line basis through the end of the lease term and also recorded deferred rent on the consolidated balance sheets. The Company recorded the leasehold improvement incentives as a deferred lease incentive on the consolidated balance sheets and amortized the deferred lease incentive through a reduction of rent expense ratably over the lease term.

Pursuant to ASC 840, rent expense associated with this lease for the year ended December 31, 2021 was approximately $1.9 million. Under ASC 840, minimum rental commitments under non-cancelable leases for each of the next five years and total thereafter as of December 31, 2021, were as follows (in thousands):

2022	$ 2,424	
2023	2,497	
2024	2,572	2,572
2025	2,649	2,649
2026	2,729	2,729
2027		2,811
Thereafter	4,237	1,426
Total minimum lease payments	17,108	12,187
Less: imputed interest		(1,575)
Total lease liability		$ 10,612

125 Sidney Street

In November 2021, the Company entered into a lease agreement comprising approximately 12,196 square feet of office space at 125 Sidney Street in Cambridge, Massachusetts, commencing November 2021. The Company began recognizing rent expense associated with this lease during November 2021. The lease ends on March 31, 2024. The Company has the option to extend the term of the lease for two successive one-year periods, at the market rate, by giving the landlord written notice of its election to exercise the extension at least nine months prior to the original expiration of the lease term. The lease has a total commitment of $1.7 million over the initial term, and includes escalating rent payments.

Accounting Under ASU 2016-02, as Amended

As a result of the adoption of ASU 2016-02, as amended, on January 1, 2022, the Company recorded a right-of-use asset and a corresponding lease liability associated with the 125 Sidney Street lease on the consolidated balance sheet as of December 31, 2022. As there is no rate implicit in the 125 Sidney Street lease, the Company estimated its incremental borrowing rate based upon a synthetic credit rating and yield curve analysis. Based upon this analysis, the Company calculated a discount rate of 4.2% for the lease. As of December 31, 2022, the remaining lease term was 1.2 years.

Pursuant to ASU 2016-02, as amended, operating Operating lease expense associated with this lease for each of the year years ended December 31, 2022 December 31, 2023 and 2022 was approximately $0.7 million. No variable lease expense was recorded associated with this lease for the year years ended December 31, 2022. December 31, 2023 and 2022. The future minimum lease payments associated with this lease as of December 31, 2022 December 31, 2023, are as follows (in thousands):

2023	$ 836
2024	210
Total minimum lease payments	1,046
Less: imputed interest	(29)
Total lease liability	$ 1,017

Accounting Under ASC 840

Prior to the adoption of ASU 2016-02, as amended, and pursuant to the legacy guidance within ASC 840, the Company recorded rent expense on a straight-line basis through the end of the lease term and also recorded deferred rent on the consolidated balance sheets.

Pursuant to ASC 840, rent expense associated with this lease for the year ended December 31, 2021 was approximately $0.1 million. Under ASC 840, minimum rental commitments under non-cancelable leases for each of the next five years and total thereafter as of December 31, 2021, were as follows (in thousands):

2022	$ 613	
2023	836	
2024	210	210
Total minimum lease payments	$ 1,659	210
Less: imputed interest		(1)
Total lease liability		$ 209

13. Commitments and Contingencies

Indemnification Agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters arising out of the relationship between such parties and the Company. In addition, the Company has entered into indemnification agreements with members of its board of directors and senior management that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any material costs as a result of such indemnifications. The Company is not aware of any claims under indemnification arrangements, and it has not accrued any liabilities related to such obligations as of December 31, 2022 December 31, 2023 or 2021.

2022.

Legal Proceedings

On April 28, 2023, a class action complaint was filed in the United States District Court for the District of New Jersey against the Company and current and former officers (the “Securities Action”). On May 19, 2023, the Securities Action was transferred to the United States District Court for the District of Massachusetts, captioned *Celano v. Fulcrum Therapeutics, Inc., et al*., Case No. 1:23-cv-11125-IT. On July 31, 2023, the court appointed a lead plaintiff, who filed an amended complaint on September 29, 2023. The Securities Action alleges violations of Section 10(b) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 promulgated thereunder against all defendants and control person violations of Section 20(a) against the individuals, related to the Company’s February 2023 announcement that the U.S. Food and Drug Administration issued a clinical hold regarding the investigational new drug application for pociredir (formerly known as FTX-6058) for the potential treatment of sickle cell disease. The Securities Action alleges that the defendants made misleading statements and omitted to disclose material information related to the clinical hold and seeks, among other things, compensatory damages in

connection with an allegedly inflated stock price between March 3, 2022, and March 8, 2023, as well as attorneys' fees and costs. On November 28, 2023, all defendants filed a motion to dismiss the Securities Action, which motion is currently pending. The Company intends to defend vigorously against this litigation.

The Company is not currently a party to any material legal proceedings. At each reporting date, the Company evaluates whether or not a potential loss amount or a potential range of loss is probable and reasonably estimable under the provisions of the authoritative guidance that addresses accounting for contingencies. The Company expenses the costs related to its legal proceedings as they are incurred. Other than attorneys' fees and costs related to the defense of the Securities Action, No no such costs have been incurred for during the years year ended December 31, 2022 and 2021.December 31, 2023.

14. Income Taxes

A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31, 2022	Year Ended December 31, 2021	Year Ended December 31, 2023	Year Ended December 31, 2022
Federal income tax at statutory rate	21.00%	21.00%	21.00%	21.00%
Permanent differences	(0.69)	(0.31)	(0.71)	(0.46)
Federal and state research and development credits	1.44	2.39	1.47	1.44
Federal orphan drug credits	7.23	4.51	9.41	7.23
State income tax, net of federal benefit	5.78	6.12	5.92	5.78
Officers' compensation			(1.06)	(0.23)
Impact of ownership change	(2.92)	—	—	(2.92)
Other	(0.13)	(0.06)	(0.10)	(0.13)
Change in valuation allowance	(31.71)	(33.65)	(35.93)	(31.71)
Effective income tax rate	—%	—%	—%	—%

During the years ended December 31, 2022 December 31, 2023 and 2021, 2022, the Company incurred book and tax losses and, because it maintains a full valuation allowance on its net deferred tax assets, did not recognize federal or state income tax expense or benefit.

The Company's deferred tax assets and liabilities consist of the following (in thousands):

	December 31, 2022	December 31, 2021	December 31, 2023	December 31, 2022
Deferred tax assets:				
Net operating loss carryforwards	$ 75,005	$ 67,043	$ 85,622	$ 75,005
Capitalized research and development costs	16,911	—	30,019	16,911
Orphan drug credit carryforwards	14,628	6,679	23,790	14,628
Research and development credit carryforwards	10,140	8,774	11,569	10,140
Intangible assets	6,918	6,192	6,291	6,918
Accrued expenses and other	5,232	4,537	6,740	5,232

Operating lease liability	3,613	—	2,911	3,613
Deferred revenue	251	1,061	—	251
Deferred lease incentive	—	832		
Deferred rent	—	471		
Gross deferred tax assets	132,698	95,589	166,942	132,698
Valuation allowance	(129,512)	(94,630)	(164,483)	(129,512)
Net deferred tax assets	3,186	959	2,459	3,186
Deferred tax liability	(3,186)	(959)	(2,459)	(3,186)
Net deferred tax assets	$ —	$ —	$ —	$ —

The Company has evaluated the positive and negative evidence bearing upon its ability to realize the net deferred tax assets. The Company considered its history of cumulative net losses incurred since inception and its lack of commercialization of any products since inception and has concluded that it is more likely than not that the Company will not realize the benefits of the net deferred tax assets. Accordingly, a full valuation allowance has been established against the net deferred tax assets as of December 31, 2022 December 31, 2023 and 2021. 2022. The valuation allowance increased by $34.9 35.0 million during the year ended December 31, 2022 December 31, 2023, which is primarily attributable to increases in net operating loss carryforwards as a result of

current year net losses, increases in capitalized research and development costs, and the generation of research and development and orphan drug tax credit carryforwards. The Company reevaluates the positive and negative evidence at each reporting period.

As of December 31, 2022 December 31, 2023, the Company had federal net operating loss carryforwards of approximately $275.1 312.3 million, a portion of which begin to expire in 2036. Approximately $251.5 288.7 million of the federal net operating losses can be carried forward indefinitely. As of December 31, 2022 December 31, 2023, the Company also had state net operating loss carryforwards of approximately $272.6 317.1 million, which begin to expire in 2036.

As of December 31, 2022 December 31, 2023, the Company had federal orphan drug credits of approximately $14.6 23.8 million, which begin to expire in 2040. As of December 31, 2022 December 31, 2023, the Company had federal research and development tax credit carryforwards of approximately $ $7.6.9 6 million, which begin to expire in 2035. As of December 31, 2022 December 31, 2023, the Company also had state research and development tax credit carryforwards of approximately $4.0 4.9 million, which begin to expire in 2030.

Utilization of the net operating loss carryforwards and research and development tax credit carryforwards may be subject to an annual limitation under Section 382 of the Internal Revenue Code of 1986, as amended (the “Internal Revenue Code”), and corresponding provisions of state law, due to ownership changes that have occurred previously or that could occur in the future. These ownership changes may limit the amount of carryforwards that can be utilized annually to offset future taxable income. In general, an ownership change, as defined by Section 382, results from transactions increasing the ownership of certain shareholders or public groups in the stock of a corporation by more than 50% over a three-year period. The Company conducted an analysis under Section 382 to determine if historical changes in ownership through December 31, 2021 would limit or otherwise restrict the Company's ability to utilize its pre-change net operating losses and research and development tax credit carryforwards to offset future taxable income. As a result of the analysis, the Company does not believe that there are any significant limitations on its ability to utilize its net operating losses and research and development tax credit carryforwards to offset future taxable income. The Company has not conducted a study to assess whether a change of control has occurred or whether there have been multiple changes of control since December 31, 2021. If the Company has experienced a change of control, as defined by Section 382, subsequent to December 31, 2021, utilization of the net operating loss carryforwards or research and development tax credit carryforwards would be subject to an annual limitation under Section 382, which is determined by first multiplying the value of the Company’s stock at the time of the ownership change by the applicable long-term tax-exempt rate, and then could be subject to additional adjustments, as required. Any limitation may result in expiration of a portion of the net operating loss carryforwards or research and development tax credit

carryforwards before utilization. Further, until a study is completed and any limitation is known, no amounts are being presented as an uncertain tax position.

The Company files tax returns as prescribed by the tax laws of the jurisdictions in which it operates. In the normal course of business, the Company is subject to examination by federal and state jurisdictions, where applicable. There are currently no pending tax examinations. As of December 31, 2022 December 31, 2023, the Company's tax years are still open under statute from 2016 to the present.

It is the Company's policy to include penalties and interest expense related to income taxes as a component of the provision for income taxes. As of December 31, 2022 December 31, 2023 and 2021, 2022, the Company had no accrued interest or penalties related to uncertain tax positions and no amounts have been recognized in the Company's statements of operations. For the year ended December 31, 2022 December 31, 2023, the Company generated research and development tax credits but has not conducted a study to document the qualified activities. This study may result in an adjustment to the Company's research and development tax credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. A full valuation allowance has been provided against the Company's research and development tax credit carryforwards and, if an adjustment is required, this adjustment would result in an adjustment to the deferred tax asset established for the research and development tax credit carryforwards and the valuation allowance.

15. Defined Contribution Plan

The Company has a defined contribution savings plan under Section 401(k) of the Internal Revenue Code (the "401(k) Plan"). The 401(k) Plan covers all employees who meet defined minimum age and service requirements, and allows participants the option to elect to defer a portion of their annual compensation on a pretax basis. As currently established, the Company is not required to make contributions to the 401(k) Plan. The Company made $0.7 million and $0.8 million in contributions to the 401(k) Plan for the year years ended December 31, 2022. No contributions were made to the 401(k) Plan for the year ended December 31, 2021. December 31, 2023 and 2022, respectively.

16. Restructuring Activities

In August 2022, the Company announced the implementation of a strategic plan to realign internal investments and operations to prioritize the Company's two clinical programs. In connection with this decision, the Company announced a workforce reduction of 25% of its planned headcount, which was completed in August 2022. During the year ended December 31, 2022, the Company recorded aggregate restructuring charges of $0.4 million related to severance and other employee-related costs. The Company does not expect to incur any additional significant costs associated with this restructuring. During the year ended December 31, 2022, the Company paid $0.4 million of the restructuring charges.

Accrued restructuring charges as of December 31, 2021	—
Restructuring charges incurred during the period	427
Amounts paid during the period	(427)
Accrued restructuring charges as of December 31, 2022	—

17. Net Loss per Share

The following common stock equivalents were excluded from the calculation of diluted net loss per share for the periods indicated because including them would have had an anti-dilutive effect:

	Year Ended December 31,		Year Ended December 31,	
	2022	2021	2023	2022
Outstanding stock options	6,504,080	5,188,354	9,972,217	6,504,080

Unvested restricted stock units	76,718	10,174	75,017	76,718
Total	6,580,798	5,198,528	10,047,234	6,580,798

EXHIBIT INDEX

Exhibit Number	Description
3.1	Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 22, 2019).
3.2	Certificate of Amendment of the Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 9, 2023).
3.3	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 22, 2019).
4.1	Specimen Stock Certificate evidencing shares of common stock (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
4.2	Description of the Registrant's Securities Registered under Section 12 of the Exchange Act (incorporated by reference to Exhibit 4.2 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2020).
10.1	Amended and Restated Investors' Rights Agreement, dated as of August 24, 2018, by and among the Registrant and the other parties thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.2	Registration Rights Agreement, dated June 9, 2020, by and among the Registrant and the other parties thereto (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 10, 2020).
10.3# 10.1#	2016 Stock Incentive Plan, as amended (incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.4# 10.2#	Form of Incentive Stock Option Agreement under the 2016 Stock Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.5# 10.3#	Form of Non-Statutory Stock Option Agreement under the 2016 Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.6# 10.4#	Form of Restricted Stock Agreement under the 2016 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.7# 10.5#	2019 Stock Incentive Plan (incorporated by reference to Exhibit 10.6 to Amendment No. 1 to Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on July 8, 2019).
10.8# 10.6#	Form of Stock Option Agreement under the 2019 Stock Incentive Plan (incorporated by reference to Exhibit 10.7 to Amendment No. 1 to Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on July 8, 2019).
10.9# 10.7#	Form of Inducement Non-Statutory Stock Option Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 4, 2021).
10.10# 10.8 #	Form of Restricted Stock Unit Agreement under the 2019 Stock Incentive Plan (incorporated by reference to Exhibit 10.10 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 3, 2022).
10.11# 10.9 #	2019 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.8 to Amendment No. 1 to Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on July 8, 2019).

10.12#	10.10#	2022 Inducement Stock Incentive Plan (incorporated by reference to Exhibit 10.12 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 3, 2022).
10.13*#	10.11#	First Amendment to 2022 Inducement Stock Incentive Plan (incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 9, 2023).
10.12*#		Second Amendment to 2022 Inducement Stock Incentive Plan.
10.14#	10.13#	Form of Non-Statutory Stock Option Agreement under 2022 Inducement Stock Incentive Plan (incorporated by reference to Exhibit 10.13 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 3, 2022).
10.15#	10.14#	Form of Restricted Stock Unit Agreement under 2022 Inducement Stock Incentive Plan (incorporated by reference to Exhibit 10.14 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 3, 2022).
10.16*#	10.15#	Summary of Non-Employee Director Compensation Program. Program (incorporated by reference to Exhibit 10.16 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 9, 2023).

10.17#	10.16#	Form of Employment Agreement for Executive Officers (incorporated by reference to Exhibit 10.12 to Amendment No. 1 to Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on July 8, 2019).

10.18*#	10.17#	Letter Agreement, dated January 3, 2023, by and between Registrant and Robert J. Gould. Gould (incorporated by reference to Exhibit 10.18 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 9, 2023).
10.19*#	10.18#	Separation Agreement, dated January 2, 2023, by and between Registrant and Bryan Stuart. Stuart (incorporated by reference to Exhibit 10.19 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 9, 2023).
10.19#		Employment Agreement, dated May 12, 2023, by and between Registrant and Alex C. Sapir (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on August 3, 2023).
10.20#		Employment Agreement, dated August 7, 2023, by and between the Registrant and Alan A. Musso (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 7, 2023).
10.21#		Employment Agreement, dated October 29, 2020, by and between the Registrant and Curtis Oltmans (incorporated by reference to Exhibit 10.16 to the Registrant's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 4, 2021).
10.21*#		Separation Agreement, dated October 14, 2022, by and between the Registrant and Judith Dunn.
10.22#		Employment Agreement, dated September 7, 2021, by and between the Registrant and Mel Hayes (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 8, 2022).
10.23#		Employment Agreement, dated January 3, 2022, by and between the Registrant and Esther Rajavelu (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-K filed with the Securities and Exchange Commission on March 3, 2022).
10.24*#		Employment Agreement, dated November 7, 2022, by and between the Registrant and Santiago Arroyo.
10.25#		Form of Indemnification Agreement between the Registrant and each of its Executive Officers and Directors (incorporated by reference to Exhibit 10.15 to Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.26#	10.23#	Consulting Agreement, dated April 22, 2023, by and between the Registrant and Esther Rajavelu (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 15, 2023).
10.24†		Right of Reference and License Agreement, dated as of February 8, 2019, by and among the Registrant, GlaxoSmithKline Intellectual Property (No. 2) Limited, GlaxoSmithKline LLC and Glaxo Group Limited (incorporated by reference to Exhibit 10.10 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).

10.27 10.25 †		First Amendment to the Right of Reference and License Agreement, dated as of September 23, 2020, by and among the Registrant, GlaxoSmithKline Intellectual Property (No. 2) Limited, GlaxoSmithKline LLC and Glaxo Group Limited (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-38978) filed with the Securities and Exchange Commission on November 10, 2020).
10.28 10.26 †		Collaboration and License Agreement, dated as of July 20, 2020, by and between the Registrant and MyoKardia, Inc, a wholly-owned subsidiary of Bristol Myers Squibb Company (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-38978) filed with the Securities and Exchange Commission on November 10, 2020).
10.27†		First Amendment to Collaboration and License Agreement, effective as of April 20, 2023, by and between the Registrant and MyoKardia, Inc, a wholly-owned subsidiary of Bristol Myers Squibb Company (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on August 3, 2023).
10.28†		License Agreement, effective as of July 5, 2023, by and between the Registrant and CAMP4 Therapeutics Corporation (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 7, 2023).
10.29		Lease for 26 Landsdowne Street, dated November 22, 2017, by and between the UP 26 Landsdowne, LLC and the Registrant (incorporated by reference to Exhibit 10.11 to the Registrant's Registration Statement on Form S-1 (File No. 333-232260) filed with the Securities and Exchange Commission on June 21, 2019).
10.30		Equity Distribution Agreement, dated May 9, 2022, by and between the Registrant and Piper Sandler & Co. (incorporated by reference to Exhibit 1.1 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on May 10, 2022).
21.1*		Subsidiary of the Registrant.
23.1*		Consent of Ernst & Young LLP, independent registered public accounting firm.
31.1*		Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*		Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1+		Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2+		Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
97.1*#		Compensation Recovery Policy of Registrant.
101.INS		XBRL Instance Document

101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101)

# Indicates a management contract or any compensatory plan, contract or arrangement.

† Certain portions of this exhibit have been omitted because the registrant has determined that they are both not material and is the type of information that the registrant treats as private or confidential.

* Filed herewith.

+ Furnished herewith.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized**.**

Fulcrum Therapeutics, Inc.

Date: March 9, 2023 February 27, 2024

By: /s/ Robert J. Gould Alex C. Sapir

Robert J. Gould, Ph.D. Alex C. Sapir

Interim President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this report has been signed below by the following persons on behalf of the registrant in the capacities and on the dates indicated.

Name	Title	Date

/s/ Robert J. Gould Alex C. Sapir	Interim President and Chief Executive Officer	March 9, 2023 February 27, 2024
Robert J. Gould, Ph.D. Alex C. Sapir	Director (Principal (Principal Executive Officer)	
/s/ Esther Rajavelu Alan Musso	Chief Financial Officer (Principal Financial Officer)	March 9, 2023 February 27, 2024
Esther Rajavelu Alan Musso		
/s/ Gregory Tourangeau	Controller Vice President, Finance (Principal Accounting Officer)	March 9, 2023 February 27, 2024
Gregory Tourangeau		

/s/ Kate Haviland	Chairman of the Board	March 9, 2023
Kate Haviland		
/s/ Sonja Banks	Director	February 27, 2024
Sonja Banks		
/s/ James J. Collins	Director	February 27, 2024
James J. Collins Ph.D.		
/s/ Katina Dorton	Director	February 27, 2024
Katina Dorton		
/s/ Alan Ezekowitz	Director	February 27, 2024
Alan Ezekowitz, MBChB, D. Phil		
/s/ James Geraghty	Director	February 27, 2024
James Geraghty		
/s/ Robert J. Gould	Director	March 9, 2023 February 27, 2024
Sonja Banks		
/s/ James Robert J. Collins	Director	March 9, 2023

James J. Collins Gould, Ph.D.		
/s/ Katina Dorton Katina Dorton	Director	March 9, 2023
/s/ Alan Ezekowitz Alan Ezekowitz, MBChB, D. Phil	Director	March 9, 2023
/s/ James Geraghty James Geraghty	Director	March 9, 2023

Exhibit 10.13 10.12

FIRST SECOND AMENDMENT
TO
FULCRUM THERAPEUTICS, INC.
2022 INDUCEMENT STOCK INCENTIVE PLAN

A. The Fulcrum Therapeutics, Inc. 2022 Inducement Stock Incentive Plan (the (as amended by the First Amendment to the Fulcrum Therapeutics, Inc. 2022 Inducement Stock Incentive Plan and as amended from time to time, the "Plan") is hereby amended by deleting the first sentence of Section 4(a) and substituting therefore the following:

> "Subject to adjustment under Section 9, Awards may be made under the Plan for up to 3,750,000 5,150,000 shares of common stock, $0.001 par value per share, of the Company (the "***Common Stock***")."

B. The effective date of this First Second Amendment shall be March 8, 2023 May 18, 2023.

C. Except as amended herein, the Plan is confirmed in all other respects.

Exhibit 10.16

FULCRUM THERAPEUTICS, INC.
NON-EMPLOYEE DIRECTOR COMPENSATION POLICY
Effective February 3, 2023

The Company's non-employee directors shall receive the following compensation for their service as members of the Board of Directors (the "Board") of the Company.

Director Compensation

Our goal is to provide compensation for our non-employee directors in a manner that enables us to attract and retain outstanding director candidates and reflects the substantial time commitment necessary to oversee the Company's affairs. We also seek to align the interests of our directors and our stockholders and we have chosen to do so by compensating our non-employee directors with a mix of cash and equity-based compensation.

Cash Compensation

The fees that will be paid to our non-employee directors for service on the Board, and for service on each committee of the Board on which the director is then a member, and the fees that will be paid to the chairperson of the Board, if one is then appointed, and the chairperson of each committee of the Board will be as follows:

	Member Annual Fee	Chairman Incremental Annual Fee
Board of Directors	$ 40,000	$ 30,000
Audit Committee	$ 7,500	$ 7,500
Compensation Committee	$ 5,000	$ 5,000
Nominating and Corporate Governance Committee	$ 4,000	$ 4,000
Science and Technology Committee	$ 5,000	$ 5,000

The foregoing fees will be payable in arrears in four equal quarterly installments on the last day of each quarter, provided that the amount of such payment will be prorated for any portion of such quarter that the director is not serving on the Board, on such committee or in such position.

Equity Compensation

Initial Grants . Upon initial election to the Board, each non-employee director will be granted, automatically and without the need for any further action by the Board, an initial equity award of an option to purchase 60,000 shares of our common stock. The initial award shall have a term of ten years from the date of the award, and shall vest and become exercisable as to 1/36 of the shares underlying such award at the end of each successive one-month period following the grant date until the third anniversary of the grant date, subject to the director's continued service to the Company through each applicable vesting date. The vesting shall accelerate as to 100% of the shares upon a change in control of the Company. The exercise price shall be the closing price of our common stock on the date of grant.

Annual Grants . Each non-employee director who has served as a member of the Board for at least six months prior to the date of our annual meeting of stockholders for a particular year will be granted, automatically and without the need for any further action by the Board, an equity award on the date of the first Board meeting held after our annual meeting of stockholders for such year of an option to purchase 30,000 shares of our common stock. The annual award shall have a term of ten years from the date of the award, and shall vest and become exercisable in full on the one-year anniversary of the grant date (or, if earlier, immediately prior to the first annual meeting of stockholders occurring after the grant date), subject to the director's continued service to the Company through each

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applicable vesting date. The vesting shall accelerate as to 100% of the shares upon a change in control of the Company. The exercise price shall be the closing price of our common stock on the date of grant.

The foregoing share amounts shall be automatically adjusted in the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event effecting our common stock, or any distribution to holders of our common stock other than an ordinary cash dividend.

The initial awards and the annual awards shall be subject to the terms and conditions of our 2019 Stock Incentive Plan, or any successor plan, and the terms of the option agreements entered into with each director in connection with such awards.

Expenses

Upon presentation of documentation of such expenses reasonably satisfactory to the Company, each non-employee director shall be reimbursed for his or her reasonable out-of-pocket business expenses incurred in connection with attending meetings of the Board and committees thereof or in connection with other business related to the Board, and each non-employee director shall also be reimbursed for his or her reasonable out-of-pocket business expenses authorized by the Board or a committee of the Board that are incurred in connection with attendance at various conferences or meetings with management of the Company, in accordance with the Company's travel policy, as it may be in effect from time to time.

January 3, 2023 Robert J. Gould Dear Robert:

Fulcrum Therapeutics, Inc. (the "Company") is pleased to extend you a consulting role as Interim Chief Executive Officer of the Company ("Interim CEO"), reporting to the Board of Directors of the Company (the "Board"), effective January 3, 2023 (the "Effective Date"). The terms are as follows:

1. Term. It is anticipated that your consulting services will continue until the date that a new Chief Executive Officer (the "New CEO") commences employment with the Company ("New CEOCommencement Date"), unless your consulting role is sooner terminated by you or the Board. The time period between the Effective Date and the last date as a consultant for the Company (the "Date ofConsulting Services Termination") shall be referred to herein as the "Term".

2. Position. As the Interim CEO, you shall have such powers and duties as may from time to time be prescribed by the Board. At all times during the Term, you shall devote your full working time and efforts to the business and affairs of the Company. In addition, you shall continue to serve as member of the Board during the Term. Notwithstanding the foregoing, you may serve on other boards of directors and engage in other business activities, with the prior written approval of the Board (the "OutsideActivities") provided that such Outside Activities do not create a conflict of interest. The Company acknowledges and consents to the boards of directors roles that the Interim CEO is serving on as of the Effective Date. Interim CEO shall seek written approval of the Board for any additional Boards of Directors roles. You also may engage in religious, charitable or other community activities as long as such services only require a modest time commitment during the Term and such activities do not interfere with the performance of your duties to the Company.

3. Base Salary. During the Term, the Company will pay you an annual base salary at the rate of $600,000 per year, payable at the monthly rate of $50,000 in accordance with the Company's standard payroll schedule and subject to applicable deductions and withholdings (the "Base Salary"). The Base Salary shall be payable in a manner that is consistent with the Company's usual payroll practices.

4. Existing Equity Awards. During the Term, you will continue to vest in your existing equity awards, subject to the terms of the applicable equity award agreements and equity incentive plan(s). There will be no break in services from your status as a director and the commencement of your consulting role as Interim CEO pursuant to this Agreement.

5. Expenses. You will be entitled to receive prompt reimbursement for all reasonable expenses that you incur during the Term in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company.

6. Accrued Obligations. In the event of the ending of your consulting role for any reason, the Company shall pay you (i) any Base Salary earned through the Date of Consulting Services Termination and (ii) any unpaid expense reimbursements on or before the time required by law but in no

event more than 30 days after the Date of Consulting Services Termination (together, the "AccruedObligations"). Other than the Accrued Obligations, you will not be entitled to any compensation from the Company in connection with the ending of your consulting services.

7. Confidentiality and Assignment Agreement. As a condition of your consulting role, you agree that the existing Confidentiality and Assignment Agreement enclosed with this Agreement (the "Restrictive Covenants Agreement") remains in effect.

8. Withholding. All payments made by the Company to you under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law.

9. Entire Agreement. This Agreement, together with the Restrictive Covenants Agreement, constitutes the complete agreement between you and the Company, contains all of the terms of your consulting role with the Company and supersedes any prior agreements, representations or understandings (whether written, oral or implied) between you and the Company related to the terms and conditions of your consulting role as Interim CEO.

10. Assignment. Neither you nor the Company may make any assignment of this Agreement or any interest in it, by operation of law or otherwise, without the prior written consent of the other; *provided, however*, that the Company may assign its rights and obligations under this Agreement without your consent to any affiliate or to any person or entity with whom the

Company shall hereafter effect a reorganization, consolidate with, or merge into or to whom it transfers all or substantially all of its properties or assets. This Agreement shall inure to the benefit of and be binding upon you and the Company, and each of your and its respective successors, executors, administrators, heirs and permitted assigns.

11. Other Terms. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

[Signature page follows.]

Thank you for your willingness to serve as the Interim CEO. You may indicate your agreement with these terms by signing and dating this Agreement, together with the signed Restrictive Covenants Agreement, and returning them both to me. If you have any questions, please do not hesitate to contact me.

Very truly yours,

By: /s/ Kate Haviland

Name: Kate Haviland

Title: Chair, Board of Directors

I have read and accept this Agreement:

By: /s/ Robert J. Gould

Name: Robert J. Gould

Exhibit 10.19

SEVERANCE AGREEMENT

This Severance Agreement (this "Agreement") is made between Fulcrum Therapeutics, Inc. (the "Company") and Bryan Stuart (the "Executive"). The Company together with the Executive shall be referred to as the "Parties".

WHEREAS, the Parties entered into an Employment Agreement dated March 31, 2021 (the "Employment Agreement"), which superseded in all respects the prior employment agreement between the Parties dated July 3, 2019 (the "Prior Agreement");

WHEREAS, pursuant to the Employment Agreement, the Company and the Executive each retained the right to terminate the Executive's employment by the Company without any breach of the Employment Agreement under the circumstances set forth in Section 7 of the Employment Agreement;

WHEREAS, the Executive's employment will end on January 2, 2023 (the "Date ofSeparation"), and the Parties are treating the ending of his employment as a termination without Cause pursuant to Section 7(b) of the Employment Agreement;

WHEREAS, if the Executive enters into, does not revoke and complies with this Agreement, the Executive will be eligible to receive the severance pay and benefits as described in this Agreement; and

WHEREAS, this Agreement is the "Severance Agreement" referred to in the Employment Agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. **Recitals**. The Recitals set forth above are expressly incorporated into this Agreement.

2. **Ending of Employment**. The Executive's employment with the Company will end on the Date of Separation. The below terms shall apply regardless of whether this Agreement becomes effective:

(a) *Resignations*. The Executive shall be deemed to have resigned from all officer and board member positions that the Executive holds with the Company or any of its respective subsidiaries and affiliates upon the Date of

Separation. The Executive shall execute any documents in reasonable form as may be requested to confirm or effectuate any such resignations.

(b) *Accrued Obligations*. The Executive acknowledges and agrees that in connection with the ending of his employment, the Company shall pay or provide to the Executive the following "Accrued Obligations": (i) the Base Salary (as defined in the Employment Agreement) that has accrued and to which the Executive is entitled as of the Date

of Separation and to the extent consistent with general Company policy, to be paid no later than the Date of Separation, (ii) unreimbursed business expenses for which expenses the Executive

has timely submitted appropriate documentation in accordance with Section 5 of the Employment Agreement, and (iii) any amounts or benefits to which the Executive is entitled under the terms of the benefit plans then-sponsored by the Company in accordance with their terms (and not accelerated to the extent acceleration does not satisfy Section 409A of the Internal Revenue Code of 1986, as amended, (the "Code").

(c) *Health and Other Benefits*. The Executive's participation in all benefit plans shall end on or after the Date of Separation, in accordance with the terms of the applicable benefit plan. The Executive will be provided with information regarding the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA") under separate cover, including payment obligations.

(d) *Equity Awards*. The Executive shall cease vesting in any outstanding, unvested stock options, restricted stock units or other equity awards as of the Date of Separation, consistent with the applicable equity award agreement and equity incentive plan (collectively, the "Equity Documents"). The Executive may exercise his vested options, if any, within the time period set forth in the Equity Documents, subject to Section 4 below, if this Agreement becomes effective. The unvested portion of any equity award shall terminate or be forfeited on the Date of Separation.

(e) *Restrictive Covenants Agreement*. The Executive is required to comply with the continuing obligations under the Employee Confidentiality and Assignment Agreement between the Executive and the Company dated December 6, 2018 (the "Restrictive CovenantsAgreement"), which remains in full force and effect.

3. **Severance Benefits**. In exchange for the Executive entering into, not revoking and complying with this Agreement, the Executive will be entitled to the following "SeveranceBenefits":

(a) the Company shall continue to pay to the Executive, in accordance with the Company's regularly established payroll procedures, the Executive's Base Salary for a period of twelve (12) months, with the first such payment to be made on the first regular payroll date following both the Date of Separation and the Effective Date of this Agreement (as defined below); and

(b) provided the Executive is eligible for and timely elects to continue receiving group medical insurance pursuant to the "COBRA" law, the Company shall continue to pay (but in no event longer than twelve (12) months following the Date of Separation) the share of the premium for health coverage that is paid by the Company for active and similarly-situated employees who receive the same type of coverage; and

(c) the Company shall pay the Executive a 2022 bonus in the amount of $220,000, less applicable tax withholdings, to be paid on the date that the Company's executives receive their 2022 bonuses, and in any event no later than March 15, 2023.

4. **Extended Exercise Period**. In addition, in exchange for the Executive entering into, not revoking and complying with this Agreement, the Company shall extend the exercise period with respect to the Executive's vested stock options until the earlier of (i) the date that is

eighteen (18) months following the Date of Separation and (ii) the original 10-year expiration date for such vested stock options as provided in the Equity Documents (the "Extended ExercisePeriod"). The Company advises the Executive to consult his personal tax advisor regarding the tax impact of the Extended Exercise Period.

5. **General Release**. In consideration for, among other terms, the Severance Benefits and the Extended Exercise Period, to which the Executive acknowledges that he would otherwise not be entitled, the Executive irrevocably and unconditionally releases and forever discharges the Company, all of its affiliated and related entities, its and their respective predecessors, successors and assigns, its and their respective employee benefit plans and the fiduciaries of such plans, and the current and former officers, directors, stockholders, employees, attorneys, accountants, and agents of each of the foregoing in their official and personal capacities (collectively referred to as the "Releasees") generally from all claims, demands, debts, damages and liabilities of every name and nature, known or unknown ("Claims") that, as of the date when the Executive signs this Agreement, he has, ever had, now claims to have or ever claimed to have had against any or all of the Releasees. This release includes, without limitation, the complete waiver and release of all Claims: related to the Executive's employment by the Company or termination of employment; arising out of or relating to the Employment Agreement, the Prior Agreement or any other agreement between the Executive and any of the Releasees; of breach of express or implied contract; of wrongful termination of employment whether in contract or tort; of violation of public policy; of intentional, reckless, or negligent infliction of emotional distress; of breach of any express or implied covenant of employment, including the covenant of good faith and fair dealing; of interference with contractual or advantageous relations, whether prospective or existing; of deceit or misrepresentation; of discrimination or retaliation under state, federal or municipal law, including, without limitation, Title VII of the Civil Rights Act of 1964, the Americans with Disabilities Act, the Age Discrimination in Employment Act, and the Massachusetts Fair Employment Practices Act; of whistleblower retaliation; of fraud; under any other federal, state or local statute, rule, ordinance or regulation; of promissory estoppel or detrimental reliance; for wages, bonuses, incentive compensation, stock, stock options, vacation pay, severance allowances or entitlements, and any other compensation or benefits, either under the Massachusetts Wage Act, or otherwise; of slander, libel, defamation, disparagement, intentional infliction of emotional distress, personal injury, negligence or other torts; for damages or other remedies of any sort, including, without limitation, compensatory damages, punitive damages, injunctive relief, attorneys' fees, experts' fees, medical fees or expenses, costs and disbursements. The Executive understands that this general release of Claims includes, without limitation, any and all Claims against the Company in respect of any stock-based awards of any kind, and all Claims in his capacity as a Company stockholder arising up to and through the date that the Executive enters into this Agreement. The Executive further understands that this general release does not extend to any rights or Claims that may arise out of acts or events that occur after the date on which the Executive signs this Agreement, to Claims that cannot be released as a matter of law or to any rights to any indemnification and defense that the Executive has with the Company, including, without limitation under the indemnification agreement between the Executive and the Company (the "Indemnification Agreement"). This release does not affect the Executive's rights or obligations under this Agreement, nor shall it affect the Executive's rights, if any, to unemployment compensation benefits or to workers' compensation. The Executive

agrees not to accept damages of any nature, other equitable or legal remedies for the Executive's own benefit or attorney's fees or costs from any of the Releasees with respect to any Claim

released by this Agreement. The Executive represents that he has not assigned to any third party and has not filed with any agency or court any Claim released by this Agreement.

In consideration for the promises and covenants contained herein, the Company acknowledges that it knows of no claims, liabilities, obligations, promises, causes of action, actions, suits or demands, of whatever kind or character, arising from or relating to any omissions, acts or facts that have occurred up until and including the date of this Agreement. The Company further agrees that the Indemnification Agreement remains in full force and effect in accordance with its terms.

6. **Return of Property**. The Executive acknowledges and agrees that he is required to return all Company property to the Company pursuant to the Restrictive Covenants Agreement upon the ending of his employment. By entering into this Agreement, the Executive confirms that he has returned to the Company all Company property, including, without limitation, any Company laptop, computer equipment, software, keys and access cards, credit cards, files and any documents (including computerized data and any copies made of any computerized data or software) containing information concerning the Company, its business or its business relationships, without deletion or alteration. After returning all Company property, the Executive agrees to delete and finally purge any duplicates of files or documents that may contain Company or customer information from any non-Company computer or other device that remains the Executive's property after the Date of Separation. The obligations under this Section 6 are supplemental to, and not in lieu of, the Executive's obligations under the Restrictive Covenants Agreement.

7. **Communications; Non-Disparagement**.

(a) The Executive agrees that he will not communicate about his departure with anyone until after the Company has made a formal announcement about the Executive's departure through a company-wide communication (together, the "Company Announcement"); provided that the Executive may communicate with his tax advisors, attorneys and spouse about his departure before the Company Announcement, provided further that the Executive first advises such persons not to reveal information about the Executive's departure and each such person agrees. Once the Company has made the Company Announcement, the Executive agrees to limit any communications regarding his departure to statements consistent with the Company Announcement.

(b) Subject to Section 11, the Executive agrees not to make nor cause to be made any disparaging statements (whether written, oral, through social or electronic media or otherwise) concerning the Company or any of the Releasees.

(c) The Company agrees to instruct the current members of the Board of Directors (the "Board"), for so long as they are members of the Board, not to make or cause to be made any disparaging statements (whether written, oral, through social or electronic media or otherwise) concerning the Executive. For the avoidance of doubt, nothing in this Section 7(c)

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applies to truthful testimony in a legal proceeding nor prevents the Board from communicating truthfully with investors or potential investors.

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8. **Cooperation**. The Executive shall cooperate reasonably with the Company, including in (i) the defense or prosecution of any claims or actions now in existence or which may be brought in the future against or on behalf of the Company which relate to events or occurrences that transpired while the Executive was employed by the Company, and (ii) the investigation, whether internal or external, of any matters about which the Company believes the

Executive may have knowledge or information. The Executive's full cooperation in connection with such claims, actions or investigations shall include, but not be limited to, being available to meet with counsel to answer questions or to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. The Executive also shall cooperate reasonably with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 8, including but not limited to the Executive's reasonable attorneys' fees in the event the parties mutually agree that a conflict of interest exists with respect to the Executive's performance of obligations pursuant to this Section 8.

9. **Continuing Obligations; Termination of Payments; Injunctive Relief**. The Executive acknowledges that his right to the Severance Benefits is conditioned on his full compliance with Sections 6 through 8 of this Agreement and the Restrictive Covenants Agreement, which is incorporated by reference herein, and together with Sections 6 through 8 of this Agreement, shall be referred to as the "Continuing Obligations". In the event that the Executive materially breaches any of the Continuing Obligations, and such material breach (to the extent it is curable), has not been cured by the Executive within ten (10) days of written notification of such material breach, then in addition to any other legal or equitable remedies it may have for such breach, the Company shall have the right to terminate payments provided under this Agreement other than the Accrued Obligations. Such termination in the event of a breach by the Executive of the Continuing Obligations shall not affect the general release in Section 5 of this Agreement or the Executive's obligation to comply with the Continuing Obligations and shall be in addition to, and not in lieu of, the Company's rights to other legal and equitable remedies that the Company may have. Further, the Executive and the Company agree that it would be difficult to measure any harm caused to that might result from any breach by a party of any of the Continuing Obligations and that, in any event, money damages would be an inadequate remedy for any such breach. Accordingly, the Executive and the Company agree that if in the event of a material breach, or proposed material breach, of any portion of the Continuing Obligations, then the non- breaching party shall be entitled, in addition to all other remedies it may have, to an injunction or other appropriate equitable relief to restrain any such breach, without showing or proving any actual damage to the Company and without the necessity of posting a bond, and to recover the attorneys' fees and costs associated with any such breach.

10. **Absence of Reliance; Non-Admission**. This Agreement is a legally binding document and the Executive's signature will commit the Executive to its terms. In signing this Agreement, the Executive agrees that he is not relying upon any promise or representations made by anyone at

or on behalf of the Company, and he understands that the Company is not admitting in any way that it violated any legal obligation that it owed to the Executive.

11. **Protected Disclosures**. Nothing in this Agreement or otherwise limits the Executive's:
(i) obligation to testify truthfully in any legal proceeding; (ii) right to file a charge, claim or complaint with any federal agency (such as the Equal Employment Opportunity Commission) or any state or local governmental agency or commission (together, a "Government Agency"), provided that the Executive waives any right to monetary or other individualized relief (either individually or as part of any collective or class action); provided further that nothing in this Agreement limits any right that the Executive may have to receive a whistleblower award or bounty for information provided to the Securities and Exchange Commission; or (iii) ability to communicate with any Government Agency or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency.

12. **Time for Consideration; Effective Date**. The Company advises the Executive to consult with an attorney before entering into this Agreement. The Executive acknowledges that he has carefully read and fully understands all of the provisions of this Agreement and that the Executive is voluntarily and knowingly entering into this Agreement. The Executive acknowledges that he has been given the opportunity to consider this Agreement for twenty-one (21) days before executing it (the "Consideration Period"). To accept this Agreement, the Executive must return a signed, unmodified original or PDF copy of this Agreement so that it is received by the undersigned at or before the expiration of the Consideration Period. If the Executive signs this Agreement before the end of the Consideration Period, the Executive acknowledges that such decision was entirely voluntary and that the Executive had the opportunity to consider this Agreement for the entire Consideration Period. For the period of seven (7) days from the date when the Executive signs this Agreement, the Executive has the right to revoke this Agreement by written notice to the undersigned, provided that such notice is delivered so that it is received at or before the expiration of the seven (7) day revocation period. This Agreement shall not become effective or enforceable during the revocation period. This Agreement shall become effective on the first business day following the expiration of the revocation period (the "Effective Date").

13. **Enforceability**. The Executive acknowledges that, if any portion or provision of this Agreement or the Continuing Obligations shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision shall be valid and enforceable to the fullest extent permitted by law.

14. **Entire Agreement**. This Agreement, together with the Restrictive Covenants Agreement, the Indemnification Agreement and the Equity Documents (subject to the terms of this Agreement), constitutes the entire agreement between the Executive and the Company concerning the Executive's relationship with the Company, and supersedes and replaces any and all prior agreements and understandings between the Parties concerning the Executive's relationship with the Company including, without limitation, the Employment Agreement and the Prior Agreement.

15. **Waiver; Amendment**. No waiver of any provision of this Agreement, including the Continuing Obligations, shall be effective unless made in writing and signed by the waiving party. The failure of either Party to require the performance of any term or obligation of this Agreement or the Continuing Obligations, or the waiver by either Party of any breach of this

Agreement or the Continuing Obligations shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach. This Agreement may not be modified or amended except in a writing signed by both the Executive and a duly authorized officer of the Company.

16. **Taxes**. All payments made by the Company to the Executive under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law. Nothing in this Agreement shall be construed to require the Company to make any payments to compensate the Executive for any adverse tax effect associated with any payments or benefits or for any deduction or withholding from any payment or benefit.

17. **Section 409A**. The Parties intend that this Agreement will be administered in accordance with Section 409A of the Internal Revenue Code of 1986, as amended (the "Code"). To the extent that any provision of this Agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that all payments hereunder comply with Section 409A of the Code. Each payment pursuant to this Agreement is intended to constitute a separate payment for purposes of Treasury Regulation Section 1.409A-2(b)(2). The Company makes no representation or warranty and shall have no liability to the Executive or any other person if any provisions of this Agreement are determined to constitute deferred compensation subject to Section 409A of the Code but do not satisfy an exemption from, or the conditions of, such Section.

18. **Acknowledgment of Wage and Other Payments**. The Executive acknowledges and represents that, except as expressly provided in this Agreement, the Executive has been paid all wages, bonuses, compensation, benefits and other amounts that any of the Releasees has ever owed to the Executive through the date this Agreement is executed. The Executive is not entitled to any bonus, incentive compensation or other compensation except as specifically set forth in this Agreement. By entering into this Agreement, the Executive acknowledges and agrees that the Severance Benefits are the exclusive payments and benefits to be paid to the Executive in connection with the ending of his employment and that he is not entitled to any other severance pay, benefits or equity rights, including without limitation pursuant to any severance plan, program or arrangement. The Executive further acknowledges and agrees that all notice provisions under the Employment Agreement regarding the ending of his employment have been satisfied.

19. **Governing Law; Interpretation**. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles thereof. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit. In the event of any dispute, this Agreement is intended by the Parties to be construed as a whole, to be interpreted in accordance with its fair meaning, and not to be construed strictly for or against either Party or the "drafter" of all or any portion of this Agreement.

20. **Consent to Jurisdiction; Jury Trial Waiver**. The parties hereby consent to the exclusive jurisdiction of the state and federal courts of the Commonwealth of Massachusetts. Accordingly, with respect to any such court action, the Executive (a) submits to the exclusive

personal jurisdiction of such courts; (b) consents to service of process; and (c) waives any other requirement (whether imposed by statute, rule of court, or otherwise) with respect to personal jurisdiction or service of process. The Company and the Executive each hereby irrevocably waives any right to a trial by jury in any action, suit or other legal proceeding arising under or relating to any provision of this Agreement.

21. **Assignment; Successors and Assigns**. Neither the Executive nor the Company may make any assignment of this Agreement or any interest in it, by operation of law or otherwise, without the prior written consent of the other; provided, however, that the Company may assign its rights and obligations under this Agreement (including the Restrictive Covenants Agreement) without the Executive's consent to any affiliate or to any person or entity with whom the Company shall hereafter effect a reorganization or consolidation, into which the Company merges or to whom it transfers all or substantially all of its properties or assets. This Agreement shall inure to the benefit of and be binding upon the Executive and the Company, and each of the Executive's and the Company's respective successors, executors, administrators, heirs and permitted assigns. In the event of the Executive's death after the Date of Separation but prior to the completion by the Company of all payments due to the Executive under this Agreement, the Company shall continue such payments to the Executive's beneficiary designated in writing to the Company prior to the Executive's death (or to the Executive's estate, if the Executive fails to make such designation).

22. **Counterparts**. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original, but all of which together shall constitute one and the same document. Electronic and pdf signatures shall be deemed to be of equal force and effect as originals.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the Parties, intending to be legally bound, have executed this Agreement on the date(s) indicated below.

COMPANY:

FULCRUM THERAPEUTICS, INC.

By: /s/ Curt Oltmans

Name: Curt Oltmans

Title: Chief Legal Officer

Date: January 3, 2023

EXECUTIVE:

By: /s/ Bryan Stuart

Name: Bryan Stuart

Date: January 3, 2023

ACTIVE/120535856.4

ACTIVE/121852692.1

Exhibit 10.21

October 14, 2022

Ms. Judith Dunn

Dear Judith:

This letter confirms that your Employment Agreement dated March 19, 2021 between you and Fulcrum Therapeutics, Inc. (the "Company") is terminating effective on the Separation Date (as defined below), and summarizes the terms of the separation agreement that the Company is willing to offer as a result of your separation from the Company. Please read this letter agreement (the "Letter Agreement"), which includes a general release, carefully. If you are willing to agree to its terms, please sign in the space provided below and return it to me within 21 days.

1. Your employment with the Company terminates as of January 3, 2023 (the "Separation Date"), provided however, that you will not be required to come to work after the Effective Date of this Letter Agreement but will (i) remain available through the Separation Date to satisfactorily perform in good faith the job duties set forth in Attachment A hereto; and (ii) comply with Company rules and policies, and not make or publish any written or oral disparaging or defamatory statements, including online or in social media, regarding the Company, and its current and former employees, officers, directors and agents. You will continue to receive your current base salary and all benefits (subject to the terms and conditions of the governing plan documents) through the Separation Date, less lawful deductions, provided you remain employed by the Company and otherwise comply with the terms of this Agreement.

2. After the Separation Date, except as provided below, you will not be entitled to receive any benefits paid by or participate in any benefit programs offered by the Company to its employees. Your coverage (if any) under any Company sponsored health, dental, vision, life, short-term disability, long-term disability, and accidental death & dismemberment insurance will terminate as of the Separation Date. You will receive, under separate cover, information concerning any right to continue your health insurance benefits after the Separation Date in accordance with COBRA.

3. In consideration for signing this Letter Agreement, and in compliance with the promises made herein (including those set forth in paragraph 4 below) and returning
it within the appropriate time periods and not revoking your acceptance as set forth below, the Company agrees to provide you the following payments and benefits (the "Severance Benefits") provided that you (i) satisfactorily complete the work deliverables set forth in Attachment A hereto, and (ii) sign and return

Attachment B hereto no sooner than the day after the Separation Date and no later than 7 calendar days after the Separation Date:

a. The Company will pay you separation pay in the total gross amount of $461,867.00, less all applicable taxes and withholdings, which sum represents 12 months of pay at your current base salary. This separation pay will be paid to you in the form of salary continuation pursuant to the Company's regularly established payroll procedures over a period of 12 months, beginning with the first regular Company payroll cycle after the Separation Date and expiration of

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revocation period set forth in **Attachment B**, provided that if the revocation period would end in a calendar year subsequent to the year containing the Separation Date, the payments described in this paragraph will not begin before the first Company payroll of such subsequent calendar year.

b. Provided that you properly and timely elect to continue your group medical insurance coverage unde COBRA, the Company will contribute towards the cost of such COBRA coverage in the same amou as if you were actively employed, plus any COBRA administration fees, until the earlier of (i) the on year anniversary of the Separation Date; or (ii) the date you become eligible for coverage under th group medical plan of another employer (the "COBRA Contribution Period"). During this COBR Contribution Period, in order to continue receiving the benefit described in this paragraph, you will b required to pay the remaining cost of the COBRA premium, and you agree that your contribution ma be taken by the Company directly from the salary continuation payments set forth above. After th COBRA Contribution Period, you will be responsible for the full cost of any such COBRA premium You agree to promptly notify the Company if you become eligible under the group health plan another employer during the period in which the Company is subsidizing your COBRA premiums.

c. The Company will permit you to exercise the stock options that you previously received under the Company's incentive equity plan, to the extent vested and exercisable as of the Separation Date (the "Vested Options"), and not subsequently forfeited under the terms of the equity plan and award agreements governing the Vested Options, until the earlier of (i) one hundred eighty (180) days after the Separation Date, (ii) the last possible date on which the Vested Options expire under Sections 3(c) (as amended by item 3c(i) above) upon your violation of the Employee Confidentiality and Assignment Agreement, 3(d), or 3(e) of the applicable Award Agreements or (iii) the Final Exercise Date as defined in the applicable Award Agreements. The Vested Options will expire and be forfeited for no consideration to the extent they are not exercised by you within the extended exercise period described in the preceding sentence, in accordance with the terms and conditions of their governing documents.

d. The Company will instruct its Executive Team and Board of Directors not to make or publish an written or oral disparaging or defamatory statements, including online or in social media, regarding yo to any outside third parties.

4. You understand and agree that you would not receive the Severance Benefits specified in paragraph 3 above, except for your timely execution and non- revocation of this Letter Agreement and the fulfillment of the promises contained therein. In signing this Letter Agreement, you agree to perform the following as a condition to your receipt of the Severance Benefits: (a) upon your separation, promptly returning all Company-provided technology in proper condition subject to normal wear and tear (b) upon your separation, immediately returning any other Company property in your possession, (c) satisfactorily performing any job duties or other transitional tasks asked of you by the Company through the Separation Date including as set forth in **AttachmentA**, (d) refraining from acts that are intended to cause, or that do cause, damage to the Company, its property (tangible and intangible) and its employees, and (e) not making or publishing any written or oral disparaging or defamatory statements, including online or in social media, regarding the Company, and its current and former employees, officers, directors and agents.

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5. In consideration of the payments and other consideration to be made by the Company to you as set forth in paragraph 3 above and the promises contained in this Letter Agreement, you, except as provided below, voluntarily and of your own freewill hereby release, forever discharge and hold harmless Fulcrum Therapeutics, Inc., its parents, subsidiaries, divisions and affiliates, its present or former officers, directors, trustees, employees, agents, insurers, or successors or assigns (the "Releasees") from any and all claims, demands, rules or regulations, or any other causes of action of whatever nature that exist as of the date of this Letter Agreement, whether known or unknown, including, but not limited to, the National Labor Relations Act, as amended; Title VII of the Civil Rights Act of 1964, as amended; Sections 1981 through 1988 of Title 42 of the United States Code, as amended; the Age Discrimination in Employment Act of 1967, as amended; the Older Workers Benefit Protection Act; the Immigration Reform Control Act,

as amended; the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001, etseq.; the Occupational Safety and Health Act, as amended; the Civil Rights Act of 1866, 29 U.S.C. § 1981, et seq.; the Rehabilitation Act of 1973, 29 U.S.C. § 701, et seq.; the Americans With Disabilities Act of 1990, as amended; the Civil Rights Act of 1991; the Massachusetts Law Against Discrimination, G.L. c. 151B; the Massachusetts Wage Payment Statutes, G.L. c. 149, §§ 148, 148A, 148B, 149, 150, 150A-150C, 151, 152, 152A, et seq.; the Massachusetts Wage and Hour Laws, G.L. c. 151§1A et seq.; the Massachusetts Privacy Statute, G.L. c. 214, § 1B; the Massachusetts Sexual Harassment Statute, G.L. c. 214 § 1C; the Massachusetts Civil Rights Act, G.L. c. 12, § 11H, the Massachusetts Equal Rights Act, G.L. c. 93, § 102; the Massachusetts Equal Pay Act, G.L. c. 149, § 105A; the Massachusetts Parental Leave Act, G.L. c. 149, §105D; the Massachusetts Family and Medical Leave Law, G.L. c. 175M; or any other federal or state law, regulation, or ordinance; any public policy, contract, tort, or common law; or any allegation for costs, fees, or other expenses including attorneys' fees incurred in these matters. Notwithstanding anything to the contrary contained in the Letter Agreement, you are not releasing or waiving the following rights or claims: (a) your own vested accrued employee benefits under the Company's health, welfare or retirement benefit plans; (b) claims to the Vested Options, subject to the terms of their governing documents, including but not limited to the Company's 2019 Stock Incentive Plan, as amended by this Letter Agreement; (c) benefits and/or the right to seek benefits under applicable workers' compensation and/or unemployment compensation statutes; (d) claims which by law cannot be waived by signing this Letter Agreement; (e) claims for breach of this Letter Agreement or to enforce this Letter Agreement; (f) any claims arising solely after the execution of this Letter Agreement; (g) claims under ERISA § 502(a)(1)(B), 29 U.S.C. § 1132(a)(1)(B); (h) any rights and/or claims you may have under the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA"); (i) claims for reimbursement of approved business expenses incurred prior to the date of this Letter Agreement under and subject to the Company's business expense reimbursement policy; (j) rights, if any, to defense and indemnification from the Company or its insurers for actions taken by you in the course and scope of your employment with the Company under and subject to the applicable Company policy; and (k) any right you may have to obtain contribution as permitted by law in the event of entry of judgment against you as a result of any act or failure to act for which you and the Company or its past, present and future trustees, officers, directors, agents, administrators, representatives, employees, affiliates, or insurers are held jointly liable.

For the avoidance of doubt, this general release is intended to release any and all claims you may have under the Massachusetts Wage Act and is intended to resolve any and all disputes related to wages, commissions, bonuses or other compensation of any kind.

In addition, you agree that if any claim is not subject to release, to the extent

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permitted by law, you waive any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on such a claim in which the Company or any other Releasee identified in this Letter Agreement is a party.

6. You agree not to disclose to anyone, either directly or indirectly, any information whatsoever regarding the existence or substance of this Letter Agreement, except your immediate family, attorneys,

financial advisors, accountants, and tax preparation professionals, provided that they agree to keep such information strictly confidential. This includes, but is not limited to, present or former employees of the Company and other members of the public. You may also disclose this Letter Agreement to a state agency if required as part of an application for unemployment compensation benefits. You further agree not to make or publish any written or oral disparaging or defamatory statements, including online or in social media, regarding the Company, and its current and former employees, officers, directors and agents. You understand and agree that your obligations under this paragraph are material terms of this Letter Agreement, and that the Company shall have the right, in addition to any other damages, to cease all Severance Benefits and seek and obtain the return of any already provided Severance Benefits (without impacting the validity or enforceability of the general release contained herein), in the event you breach any of your obligations under this paragraph. If any party to this Letter Agreement seeks to enforce its rights under this Letter Agreement by legal proceedings or otherwise, the substantially non-prevailing party (including in any action for preliminary injunctive relief), as determined by the court, shall pay the reasonable attorneys' fees, costs and expenses of the prevailing party.

7. You hereby acknowledge and reaffirm the validity of the Employee Confidentiality and Assignment Agreement between you and the Company, the terms and conditions of which are incorporated herein by reference and remain in full force and effect for the full term stated therein. You further agree that you shall abide by any and all common-law and statutory obligations relating to protection and non-disclosure of trade secrets and confidential and proprietary documents and information. You understand that the Company would not provide you with the monies and benefits under this Letter Agreement but for your reaffirmation of these obligations. You further understand and agree that your obligations under this paragraph are material terms of this Letter Agreement, and that the Company shall have the right, in addition to any other damages, to seek and obtain the return of the consideration paid hereunder (without impacting the validity or enforceability of the general release contained herein) in the event you breach any of your obligations under this paragraph.

8. You acknowledge that you are being provided a period of 21 days from receipt of this Letter Agreement to consider the meaning and effect of this Letter Agreement. You are hereby advised to consult with an attorney and acknowledge that you have had the opportunity to do so. You agree that any modifications, material or otherwise, did not restart or affect in any manner the original consideration period for the severance proposal made to you. This Letter Agreement shall have no force or effect if you do not sign it during the 21-day consideration period, or prior to your Separation Date.

9. You may revoke this Letter Agreement for a period of seven (7) days following the day you execute this Letter Agreement. Any revocation within this period must be submitted, in writing, to Kim Hazen, Chief People Officer, Fulcrum Therapeutics, Inc., 26 Landsdowne Street, Cambridge, MA 02139 and state "I hereby revoke my acceptance of the Letter Agreement." The revocation must be delivered to Ms. Hazen at the Company by email

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( ), and regular mail postmarked within seven (7) days after execution of this Letter Agreement. The Letter Agreement shall not become effective or enforceable until the revocation period has expired (the "Effective Date"). If the last day of the revocation period is a Saturday, Sunday or legal holiday in Massachusetts, then the revocation period shall not expire until the next following day which is not a Saturday, Sunday or legal holiday in Massachusetts. If you revoke your acceptance of this Letter Agreement, you shall not be entitled to the monies and/or benefits set forth in paragraph 3 above.

10. This Letter Agreement, which will be construed under Massachusetts law, may not be modified, altered, or changed except upon express written consent of both parties wherein specific reference is made to this Letter Agreement. You agree that any claims or causes of action which arise out of or relate in any way to this Letter Agreement shall be instituted and litigated only in, and you voluntarily submit to the jurisdiction over your person by, the courts of the Commonwealth of Massachusetts, or if appropriate, a federal court located in Massachusetts (which courts, for purposes of this Letter Agreement, are the only courts of

competent jurisdiction). **You and the Company waivethe right to a trial by jury with respect to any such claims or causes of action orother proceeding**.

11. Nothing in this Letter Agreement prohibits or prevents you from filing a charge with or participating, testifying, or assisting in any investigation, hearing, or other proceeding before the U.S. Equal Employment Opportunity Commission, the National Labor Relations Board or a similar agency enforcing federal, state or local anti- discrimination laws. However, to the maximum extent permitted by law, you agree that if such an administrative claim is made to such an anti-discrimination agency, you shall not be entitled to recover any individual monetary relief or other individual remedies. In addition, nothing in this Letter Agreement, including but not limited to the release of claims nor the confidentiality and non-disparagement clauses, prohibits you from: (1) reporting possible violations of federal law or regulations, including any possible securities laws violations, to any governmental agency or entity, including but not limited to the U.S. Department of Justice, the U.S. Securities and Exchange Commission, the U.S. Congress, or any agency Inspector General; (2) making any other disclosures that are protected under the whistleblower provisions of federal law or regulations; or (3) otherwise fully participating in any federal whistleblower programs, including but not limited to any such programs managed by the U.S. Securities and Exchange Commission and/or the Occupational Safety and Health Administration. Moreover, nothing in this Letter Agreement prohibits or prevents you from receiving individual monetary awards or other individual relief by virtue of participating in such federal whistleblower programs.

12. You affirm that you have been paid and have received all leave (paid or unpaid), compensation, wages, bonuses, commissions, severance pay, and/or benefits to which you may be entitled and that no other leave (paid or unpaid), compensation, wages, bonuses, commissions, severance pay, and/or benefits are due to you, except as provided in this Letter Agreement. You further affirm that you have no known workplace injuries or occupational diseases. You also affirm that you have not been retaliated against for reporting any allegations of wrongdoing by the Company or its officers, including any allegations of corporate fraud. In addition, you affirm that all decisions regarding your pay and benefits through the date of your execution of this Letter Agreement were not discriminatory based on age, disability, race, color, sex, religion, national origin or any other classification protected by law.

13. You agree that neither this Letter Agreement, nor the furnishing of consideration for this Letter Agreement, shall be deemed or construed at any time for any purpose as an admission by the Company of any liability, wrongdoing, or unlawful conduct

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of any kind.

14. You agree to reasonably cooperate with the Company in the investigation, defense or prosecution of any claims, actions or other matters now in existence or which may be brought in the future against or on behalf of the Company. Your reasonable cooperation in connection with such claims or actions shall include, but not be limited to, being reasonably available to meet with the Company's counsel to prepare for discovery or any mediation, arbitration, trial, administrative hearing or other proceeding or to act as a witness when reasonably requested by the Company at mutually agreeable times and at locations mutually convenient to you and the Company. Nothing herein shall require you to provide anything other than truthful information. The Company will reimburse you for all reasonable out-of-pocket expenses incurred by you in connection with such cooperation.

15. This Letter Agreement represents the complete agreement between you and the Company, and fully supersedes any prior agreements or understandings between the parties including Employment Agreement dated March 19, 2021, except that your obligations under the Employee Confidentiality and Assignment Agreement referred to in paragraph 7 remain in full force and effect as provided therein. You

acknowledge that you have not relied on any representations, promises, or agreements of any kind made to you in connection with your decision to sign this Letter Agreement, except those set forth herein.

16. Should any provision of this Letter Agreement be declared illegal or unenforceable by any court of competent jurisdiction and cannot be modified to be enforceable consistent with the intent of the parties, excluding the general release language, such provision shall immediately become null and void, leaving the remainder of this Letter Agreement in full force and effect. However, if the general release in Paragraph No. 5 is found to be invalid, you agree to execute a valid release of the claims that are the subject of this Letter Agreement and/or are referred to in the general release in Paragraph No. 5 above.

17. This Letter Agreement may be executed in counterparts, each of which when so executed shall be deemed an original, and the counterparts together shall constitute one and the same agreement. A copied, scanned, or faxed signature shall be treated the same as an original. Delivery of an executed counterpart's signature page of this Agreement, by facsimile, electronic mail in portable document format (.pdf), or by any other electronic means intended to preserve the original graphic and pictorial appearance of a document, has the same effect as delivery of an executed original of this Agreement.

18. Although the Company does not guarantee the tax treatment of any payments under the Letter Agreement, the intent of the parties is that the payments and benefits under this Letter Agreement be exempt from, or comply with, Section 409A of the Internal Revenue Code of 1986, as amended, and all Treasury Regulations and guidance promulgated thereunder ("Code Section 409A") and to the maximum extent permitted the Letter Agreement shall be limited, construed and interpreted in accordance with such intent. In no event whatsoever shall the Company or its affiliates or their respective officers, directors, employees or agents be liable for any additional tax, interest or penalties that may be imposed on you by Code Section 409A or damages for failing to comply with Code Section 409A. Notwithstanding anything in this Agreement or elsewhere to the contrary, a termination of employment will not be deemed to have occurred for purposes of any provision of this Agreement providing for the payment of any amounts or benefits that constitute nonqualified deferred compensation subject to Code Section 409A upon or following a termination of your employment unless such termination is also a "separation from service" within the meaning of Code Section 409A and, for purposes of any such provision of this Agreement, references to a "termination," "resignation", or like terms will

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mean "separation from service" and the date of such separation from service will be the date of termination or resignation, as applicable, for purposes of any such payment or benefits. If a payment made under this Letter Agreement that is nonqualified deferred compensation subject to Code Section 409A may be made in more than one taxable year depending on when you execute this Letter Agreement, payment shall be made in the second taxable year. Notwithstanding any other provision of this Letter Agreement to the contrary, to the extent that any reimbursement of expenses constitutes "deferred compensation" under Code Section 409A, such reimbursement shall be provided no later than December 31 of the year following the year in which the expense was incurred. The amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year. The amount of any in-kind benefits provided in one year shall not affect the amount of in-kind benefits provided in any other year. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A- 2(b)(2)(iii)), the right to receive payments in the form of installment payments shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment shall at all times be considered a separate and distinct payment. Whenever a payment under this Letter Agreement may be paid within a specified period, the actual date of payment within the specified period shall be within the sole discretion of the Company. Notwithstanding any other provision of this Agreement to the contrary, if at the time of your separation from service (as defined in Code Section 409A), you are a "Specified Employee", then the Company will defer the payment or commencement of any nonqualified deferred compensation subject to Code Section 409A payable upon

separation from service (without any reduction in such payments or benefits ultimately paid or provided to you) until the date that is six (6) months following separation from service or, if earlier, the earliest other date as is permitted under Code Section 409A (and any amounts that otherwise would have been paid during this deferral period will be paid in a lump sum on the day after the expiration of the six (6) month period or such shorter period, if applicable). You will be a "Specified Employee" for purposes of this Letter Agreement if, on the date of your separation from service, you are an individual who is, under the method of determination adopted by the Company designated as, or within the category of employees deemed to be, a "Specified Employee" within the meaning and in accordance with Treasury Regulation Section 1.409A-1(i).

The Company would like to extend its appreciation to you for your past service, and its sincere hope for success in your future endeavors.

Very truly yours,

/s/ Kim Hazen

Kim Hazen
Chief People Officer

ACKNOWLEDGED AND AGREED TO:

/s/ Judith Dunn

Judith Dunn
Date: 14 Oct 2022

ATTACHMENT A

Transitional Duties:

1. Be available on an as needed and remote basis through the Separation Date to consult on transitional matters as requested by any member of the Executive Team. For the sake of clarity, no supervision of employees will be required.

ATTACHMENT B

By signing below, I hereby affirm the terms, provisions, and my obligations set forth in my Letter Agreement with Fulcrum Therapeutics, Inc. ("Fulcrum" or "the Company") dated October 14, 2022 (the "Letter Agreement") and I agree as follows:

1. Except as provided below, I hereby release Fulcrum in accordance with the terms of the Letter Agreement, as more fully set forth in Paragraph 5 of the Letter Agreement. For the avoidance of doubt, I understand and hereby agree that I am releasing any and all claims I may have against Fulcrum and the Releasees (as defined in the Letter Agreement) which I have or may have as of the date of execution of this Attachment B (the "Release"), including, without limitation, claims under Title VII of the Civil Rights Act of 1964, as amended; Sections 1981 through 1988 of Title 42 of the United States Code, as amended; the Age Discrimination in Employment Act of 1967, as amended; the Older Workers Benefit Protection Act; the Immigration Reform Control Act, as amended; the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001, et seq.; the Occupational Safety and Health Act, as amended; the Civil Rights Act of 1866, 29 U.S.C. § 1981, et seq.; the Rehabilitation Act of 1973, 29 U.S.C. § 701, et seq.; the Americans With Disabilities Act of 1990, as amended; the Civil Rights Act of 1991; the Sarbanes Oxley Act of 2002; the Fair Credit Reporting Act; the Family and Medical Leave Act; the Equal Pay Act; the Genetic Information Nondiscrimination Act of 2008; the Workers Adjustment and Retraining Notification Act; the Massachusetts Law Against Discrimination, G.L.

c. 151B; the Massachusetts Wage Payment Statutes, G.L. c. 149, §§ 148, 148A, 148B, 148C, 149, 150, 150A-150C, 151, 152, 152A, et seq.; the Massachusetts Wage and Hour Laws, G.L. c. 151§1A et seq.; the Massachusetts Privacy Statute, G.L. c. 214, § 1B; the Massachusetts Sexual Harassment Statute, G.L. c. 214 § 1C; the Massachusetts Civil Rights Act, G.L. c. 12, § 11H, the Massachusetts Equal Rights Act, G.L. c. 93, § 102; the Massachusetts Equal Pay Act, G.L. c. 149, § 105A, the Massachusetts Parental Leave Act, G.L. c. 149, §105D; the Massachusetts Family and Medical Leave Law, G.L. c. 175M; any federal or state law, regulation, or ordinance or any claim for short term disability benefits; any public policy, contract, tort, or common law; or any allegation for costs, fees, or other expenses including attorneys' fees incurred in any matter. Notwithstanding anything to the contrary contained in the Release, I am not releasing or waiving the following rights or claims: (a) my own vested accrued employee benefits under the Company's health, welfare or retirement benefit plans; (b) claims to the Vested Options (as defined in the Letter Agreement), subject to the terms of their governing documents, including but not limited to the Company's 2019 Stock Incentive Plan, as amended by the Letter Agreement; (c) benefits and/or the right to seek benefits under applicable workers' compensation and/or unemployment compensation statutes; (d) claims which by law cannot be waived by signing the Release; (e) claims for breach of the Letter Agreement or to enforce the Letter Agreement; (f) any claims arising solely after the execution of the Release; (g) claims under ERISA § 502(a)(1)(B), 29 U.S.C. § 1132(a)(1)(B); (h) any rights and/or claims I may have under the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA"); (i) claims for reimbursement of approved

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business expenses incurred prior to the date of the Release under and subject to the Company's business expense reimbursement policy; (j) rights, if any, to defense and indemnification from the Company or its insurers for actions taken by me in the course and scope of my employment with the Company under and subject to the applicable Company policy; and (k) any right I may have to obtain contribution as permitted by law in the event of entry of judgment against me as a result of any act or failure to act for which I and the Company or its past, present and future trustees, officers, directors, agents, administrators, representatives, employees, affiliates, or insurers are held jointly liable.

2. I affirm that I have been paid and have received all leave (paid or unpaid), compensation, wages, bonuses commissions, benefits, reimbursements and/or monies to which I may be entitled and that no other leav (paid or unpaid), compensation, wages, bonuses, commissions, benefits, reimbursements and/or monie are due to me, except for any unpaid base salary provide for in Paragraph 1 of the Letter Agreement an the Severance Benefits provided for in Paragraph 3 of the Letter Agreement. I further affirm that I have n known workplace injuries or occupational diseases and have been provided and/or have not been denie any leave requested under the Family and Medical Leave Act. I also affirm that I have not been retaliate against for reporting any allegations of wrongdoing by Fulcrum or its officers, including any allegations c corporate fraud.

3. I understand the meaning of the terms, provisions and my obligations set forth in the Letter Agreement. I further understand that I may revoke this Release for a period of seven (7) calendar days following the day I sign the Release. Any revocation within this period must be submitted, in writing, to Kim Hazen, Chief People Officer, Fulcrum Therapeutics, Inc., 26 Landsdowne Street, Cambridge, MA 02139 and state "I hereby revoke my acceptance of the Letter Agreement." The revocation must be delivered to Ms. Hazen at the Company by email (khazen@fulcrumtx.com), and regular mail postmarked within seven (7) days after execution of this Letter Agreement. I further acknowledge that I have been given a period of more than twenty-one (21) days to consider signing this Release and have been advised to consult with an attorney prior to signing it. I

also understand that any timely revocation of my acceptance of this Release does not void or otherwise affect the enforceability of the release contained in Paragraph 5 of the Letter Agreement to which this **Attachment B**is attached.

4. I have satisfied all conditions set forth in paragraph 4 of the Letter Agreement.
5. I understand that, in order to be effective, I must sign this **Attachment B**no earlier than the day after the Separation Date (as defined in Paragraph 1 of the Letter Agreement) and no later than seven (7) days after the Separation Date.

Agreed and Accepted:

/s/ Judith Dunn

Date: 14 Oct 2022

Exhibit 10.24

EMPLOYMENT AGREEMENT

THIS EMPLOYMENT AGREEMENT (the "Agreement") is made as of November 7, 2022 (Executive's first day of employment, after all eligibility criteria have been met) by and between Fulcrum Therapeutics, Inc. (the "Company"), and Santiago Arroyo (the "Executive") (together, the "Parties").

RECITALS

WHEREAS, the Company desires to employ the Executive as its Chief Medical Officer; and

WHEREAS, the Executive has agreed to accept such employment on the terms and conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the foregoing and of the respective covenants and agreements of the Parties herein contained, the Parties hereto agree as follows:

1. *Agreement*. This Agreement shall be effective as of November 7, 2022 "Date of Hire"). Following the Effective Date, the Executive shall continue to be an employee of the Company until such employment relationship is terminated in accordance with Section 7 hereof (the "Term of Employment").

2. *Position*. During the Term of Employment, the Executive shall serve as Chief Medical Officer of the Company, working out of the Company's office in Cambridge, Massachusetts, and travelling as reasonably required by the Executive's job duties.

3. *Scope of Employment*. During the Term of Employment, the Executive shall be responsible for the performance of those duties consistent with the Executive's position as Chief Medical Officer. The Executive shall report to the President and Chief Executive Officer of the Company and shall perform and discharge faithfully, diligently, and to the best of the Executive's ability, the Executive's duties and responsibilities hereunder. The Executive shall devote substantially all of the Executive's business time, loyalty, attention and efforts to the business and affairs of the Company and its affiliates. Membership on boards of directors of any other companies will be permitted only with the express approval of the Company's board of directors (the "Board"); provided, however, that the Executive may engage in community and charitable activities or participate in industry associations and serve on the boards of up to two (2) community, charitable or industry organizations, without the approval of the Board, provided such activities do not create a conflict of interest or otherwise interfere with the Executive's performance of the Executive's duties hereunder. The Executive agrees to abide by the rules, regulations, instructions, personnel practices and policies of the Company and any changes therein that may be adopted and disclosed to the Executive from time to time by the Company. The three Board positions the Executive currently holds have been approved by the Fulcrum Board of Directors. In the event that the Executive is serving on fewer than three Boards in the future, and the Executive seeks to serve on a new Board, Fulcrum Board approval will be required.

4. *Compensation*. As full compensation for all services rendered by the Executive to the Company and any affiliate thereof, during the Term of Employment, the Company will provide to the Executive the following:

(a) *Base Salary*. Effective as of the date on which the registration statement relating to the Company's initial public offering is effective, the Executive shall receive a base salary at the annualized rate of $500,000 (the "Base Salary"). The

Executive's Base Salary shall be paid in equal installments in accordance with the Company's regularly established payroll procedures.

The Executive's Base Salary will be reviewed on an annual or more frequent basis by the Board and is subject to increase (but not decrease) in the discretion of the Board.

(b) *Annual Discretionary Bonus*. Effective as of the Effective Date, the Executive will be eligible to earn an annual performance bonus of up to 40% of the Executive's Base Salary (the "Target Bonus"), based upon the Board's assessment of the Executive's performance and the Company's attainment of targeted goals as set no later than the end of February of each calendar year by the Board with input from the Executive. To the extent the Executive's Base Salary and/or target bonus percentage of Base Salary is changed during the year to which the performance bonus relates, the Target Bonus shall be calculated based on base salary actually paid during such year (and not solely on the Executive's Base Salary at the end of such year) and shall apply the initial target bonus percentage of Base Salary and the revised target bonus percentage of Base Salary based on the portion of the year during which each was in effect. The

Board may determine to provide the bonus in the form of cash, equity award(s), or a combination of cash and equity. Following the close of each calendar year, the Board will determine whether the Executive has earned a performance bonus, and the amount of any performance bonus, based on the set criteria. No amount of the annual bonus is guaranteed, and the Executive must be an employee in good standing on the date of payment in order to be eligible for any annual bonus, except as specifically set forth below. The annual performance bonus, if earned, will be paid by no later than March 15 of the calendar year after the year to which it relates. The Executive's bonus eligibility will be reviewed on an annual or more frequent basis by the Board and is subject to increase (but not decrease) in the discretion of the Board.

(c) *Equity Award*. Subject to approval of the Board, the Company will grant to the Executive a nonstatutory stock option (the "Option"), for the purchase of an aggregate of 400,000 shares (inducement grant) of the Company's common stock at an exercise price per share equal to the fair market value of the Company's common stock on the date the Option is granted. Subject to the terms of the stock option agreement evidencing the Option and the Executive's continued employment, the Option shall vest over four years at the rate of 25% on the first anniversary of the Start Date and an additional 6.25% per quarter for the next twelve successive quarters of employment when, after four full years of employment, the Option will be fully vested.

(d) *Paid Time Off*. The Executive shall be entitled to paid time off, vacation time plus sick time, consistent with the Company's policies.

(e) *Benefits*. Subject to eligibility requirements and the Company's polices, the Executive shall have the right, on the same basis as other similarly-situated employees of the Company, to participate in, and to receive benefits under, any medical, vision and dental

insurance policy

maintained by the Company and the Company shall pay a portion of the cost of the premiums for such medical, vision and dental insurance that is consistent with the Company's then current employee benefit policy if the Executive elects to participate in such plans.

(f) *Withholdings*. All compensation payable to the Executive shall be subject to applicable taxes and withholdings.

5. *Expenses*. The Executive will be reimbursed for her actual, necessary and reasonable business expenses pursuant to Company policy, subject to the provisions of Section 3 of Exhibit A attached hereto.

6. *Restrictive Covenants Agreement*. The Executive hereby acknowledges that in connection with entering into this Agreement, the Executive shall be required to enter into a new Employee Confidentiality and Assignment Agreement with the Company.

7. *Employment Termination*. This Agreement and the employment of the Executive shall terminate upon the occurrence of any of the following:

(a) Upon the death or "Disability" of the Executive. As used in this Agreement, the term "Disability" shall mean a physical or mental illness or disability that prevents the Executive from performing the duties of the Executive's position for a period of more than any twenty (20) consecutive weeks or for periods aggregating more than twenty-six weeks. The Company shall determine in good faith and in its sole discretion whether the Executive is unable to perform the services provided for herein, subject to input from the Executive's healthcare provider.

(b) At the election of the Company, with or without "Cause" (as defined below), immediately upon written notice by the Company to the Executive. As used in this Agreement, "Cause" shall mean:

(i) Executive's dishonest statements or acts with respect to the Company or any affiliate of the Company, or any curre prospective customers, suppliers, vendors or other third parties with which such entity does business that results in reasonably anticipated to result in material harm to the Company provided, however, that the Executive shall have period of not less than thirty (30) days to cure any curable act or omission constituting Cause described in this Sec 7(b)(i) following the Company's delivery to the Executive of written notice of such act or omission within sixty (60) d of such act or omission;

(ii) Executive's conviction of (A) a felony or (B) any misdemeanor involving moral turpitude, deceit, dishonesty or fraud

(iii) Executive's gross negligence, willful misconduct or willful insubordination with respect to any lawful and ethical instruction from the President and CEO or the Chair of the Board that results in or is reasonably anticipated to resu material harm to the Company, provided, however, that the Executive shall have a period of not less than thirty (30) days to cure any curable act or omission constituting

Cause described in this Section 7(b)(iii) following the Company's delivery to the Executive of written notice of such act or omission within sixty (60) days of such act or omission; or

(iv) Executive's material violation of any provision of any agreement(s) between the Executive and the Company relatin to nonsolicitation, nondisclosure and/or assignment of inventions.

(c) At the election of the Executive, with or without "Good Reason" (as defined below), immediately upon written notice by the Executive to the Company (subject, if it is with Good Reason, to the timing provisions set forth in the definition of Good Reason). As used in this Agreement, "Good Reason" shall mean (without the Executive's consent):

(i) a material diminution of the Executive's base compensation, other than in connection with, and substantially proportionate to, reductions by the Company of the base compensation of all or substantially all senior executives Company;

(ii) a material diminution in the Executive's title, reporting lines, duties, authority or responsibilities;

(iii) the Company's requiring Executive to relocate Executive's primary office more than fifty (50) miles from the Executive's then-current primary office; or

(iii) any material breach of this Agreement or any other agreement between the Company and the Executive by the Company not otherwise covered by this paragraph;

provided, however, that in each case, the Company shall have a period of not less than thirty (30) days to cure any act constituting Good Reason following Executive's delivery to the Company of written notice within sixty (60) days of the action or omission constituting Good Reason and that the Executive actually terminates employment within thirty (30) days following the expiration of the Company's cure period.

8. *Effect of Termination*.

(a) *All Terminations Other Than by the Company Without Cause or by the Executive With Good Reason*. If the Executive's employment is terminated under any circumstances other than a Qualifying Termination (as defined below) (including a voluntary termination by the Executive without Good Reason pursuant to Section 7(c), a termination by the Company for Cause pursuant to Section 7(b) or due to the Executive's death or Disability pursuant to Section 7(a)), the Company's obligations under this Agreement shall immediately cease and the Executive shall only be entitled to receive (i) the Base Salary that has accrued and to which the Executive is entitled as of the effective date of such termination and to the extent consistent with general Company policy, to be paid in accordance with the Company's established payroll procedure and applicable law but no later than the next regularly scheduled pay period, (ii) unreimbursed business expenses for which expenses the Executive has timely submitted

appropriate documentation in accordance with Section 5 hereof, and (iii) any amounts or benefits to which the Executive is then entitled under the terms of the benefit plans then-sponsored by the Company in accordance with their terms (and not accelerated to the extent acceleration does not satisfy Section 409A of the Internal Revenue Code of 1986, as amended, (the "Code")) (the payments described in this sentence, the "Accrued Obligations").

(b) *Termination by the Company Without Cause or by the Executive With Good Reason Prior to or More Than Twelve Months Following a Change in Control.* If the Executive's employment is terminated by the Company without Cause pursuant to Section 7(b) or by the Executive with Good Reason pursuant to Section 7(c) (in either case, a "Qualifying Termination") prior to or more than twelve (12) months following a Change in Control (as defined below), the Executive shall be entitled to the Accrued Obligations. In addition, and subject to Exhibit A and the conditions of Section 8(d), the Company shall: (i) continue to pay to the Executive, in accordance with the Company's regularly established payroll procedures, the Executive's Base Salary for a period of nine (9) months and (ii) provided the Executive is eligible for and timely elects to continue receiving group medical insurance pursuant to the "COBRA" law, continue to pay (but in no event longer than nine (9) months following the Executive's termination date) the share of the premium for health coverage that is paid by the Company for active and similarly-situated employees who receive the same type of coverage, unless the Company's provision of such COBRA payments will violate the nondiscrimination requirements of applicable law, in which case this benefit will not apply (collectively, the "Severance Benefits").

(c) *Termination by the Company Without Cause or by the Executive With Good Reason Within Twelve Months Following a Change in Control.* If a Qualifying Termination occurs within twelve (12) months following a Change in Control, then the Executive shall be entitled to the Accrued Obligations. In addition, and subject to Exhibit A and the conditions of Section 8(d), the Company shall: (i) continue to pay to the Executive, in accordance with the Company's regularly established payroll procedures, the Executive's Base Salary (or, if higher, the Executive's Base Salary in effect immediately prior to the Change in Control) for a period of twelve (12) months; (ii) pay to the Executive, in a single lump sum on the Payment Date (as defined below) an amount equal to 100% of the Executive's Target Bonus for the year in which termination occurs or, if higher, the Executive's Target Bonus immediately prior to the Change in Control, (iii) provided the Executive is eligible for and timely elects to continue receiving group medical insurance pursuant to the "COBRA" law, continue to pay (but in no event longer than twelve (12) months following the Executive's termination date) the share of the premium for health coverage that is paid by the Company for active and similarly-situated employees who receive the same type of coverage, unless the Company's provision of such COBRA payments will violate the nondiscrimination requirements of applicable law, in which case this benefit will not apply, and (iv) provide that the vesting of the Executive's then-unvested equity awards that vest based solely on the passage of time shall be accelerated, such that all then-unvested equity awards that vest based solely on the passage of time vest and become fully exercisable or non- forfeitable as of the termination date (collectively, the "Change in Control Severance Benefits").

(d) *Release*. As a condition of the Executive's receipt of the Severance Benefits or the Change in Control Severance Benefits, as applicable, the Executive must execute and deliver to the Company a severance and release of claims agreement in a form to be provided by the Company (the "Severance Agreement"), which Severance Agreement must become irrevocable within 60 days following the date of the Executive's termination of employment (or such shorter period as may be directed by the Company). The Severance Benefits or the Change in Control Severance Benefits, as applicable, will be paid or commence to be paid in the first regular payroll beginning after the Severance Agreement becomes effective, provided that if the foregoing 60 day period would end in a calendar year subsequent to the year in which the Executive's employment ends, the Severance Benefits or Change in Control Severance Benefits, as applicable, will not be paid or begin to be paid before the first payroll of the subsequent calendar year (the date the Severance Benefits or Change in Control Severance Benefits, as applicable, commence pursuant to this sentence, the "Payment Date"). The Executive must continue to comply with the Employee Confidentiality and Assignment Agreement and any similar agreement with the Company in order to be eligible to continue receiving the Severance Benefits or Change in Control Severance Benefits, as applicable.

(e) *Change in Control Definition*. For purposes of this Agreement, "Change in Control" shall mean the occurrence of any of the following events, provided that such event or occurrence constitutes a change in the ownership or effective control of the Company, or a change in the ownership of a substantial portion of the assets of the Company, as defined in Treasury Regulation §§ 1.409A-3(i)(5)(v), (vi) and (vii): (i) the acquisition by an individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934 (the "Exchange Act")) (a "Person") of beneficial ownership of any capital stock of

the Company if, after such acquisition, such Person beneficially owns (within the meaning of Rule 13d-3 under the Exchange Act) fifty percent (50%) or more of either (x) the then-outstanding shares of common stock of the Company (the "Outstanding Company Common Stock") or (y) the combined voting power of the then-outstanding securities of the Company entitled to vote generally in the election of directors (the "Outstanding Company Voting Securities"); provided, however, that for purposes of this subsection (i), the following acquisitions shall not constitute a Change in Control: (1) any acquisition directly from the Company or (2) any acquisition by any entity pursuant to a Business Combination (as defined below) which complies with clauses (x) and (y) of subsection (iii) of this definition; or (ii) a change in the composition of the Board that results in the Continuing Directors (as defined below) no longer constituting a majority of the Board (or, if applicable, the Board of Directors of a successor corporation to the Company), where the term "Continuing Director" means at any date a member of the Board (x) who was a member of the Board on the Effective Date or (y) who was nominated or elected subsequent to such date by at least a majority of the directors who were Continuing Directors at the time of such nomination or election or whose election to the Board was recommended or endorsed by at least a majority of the directors who were Continuing Directors at the time of such nomination or election; provided, however, that there shall be excluded from this clause (y) any individual whose initial assumption of office occurred as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents, by or on behalf of a person other than the Board; or (iii) the consummation of a merger, consolidation, reorganization, recapitalization or share exchange involving the Company, or a sale or other disposition of all or substantially all of the assets of the Company (a "Business Combination"), unless, immediately following such Business Combination, each of the following two (2)

conditions is satisfied: (x) all or substantially all of the individuals and entities who were the beneficial owners of the Outstanding Company Common Stock and Outstanding Company Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than fifty percent (50%) of the then-outstanding shares of common stock and the combined voting power of the then-outstanding securities entitled to vote generally in the election of directors, respectively, of the resulting or acquiring corporation in such Business Combination (which shall include, without limitation, a corporation which as a result of such transaction owns the Company or substantially all of the Company's assets either directly or through one (1) or more subsidiaries) (such resulting or acquiring corporation is referred to herein as the "Acquiring Corporation") in substantially the same proportions as their ownership of the Outstanding Company Common Stock and Outstanding Company Voting Securities, respectively, immediately prior to such Business Combination and
(y) no Person (excluding any employee benefit plan (or related trust) maintained or sponsored by the Company or by the Acquiring Corporation) beneficially owns, directly or indirectly, fifty percent (50%) or more of the then-outstanding shares of common stock of the Acquiring Corporation, or of the combined voting power of the then-outstanding securities of such corporation entitled to vote generally in the election of directors (except to the extent that such ownership existed prior to the Business Combination); or (iv) the liquidation or dissolution of the Company.

9. *Absence of Restrictions*. The Executive represents and warrants that the Executive is not bound by any employment contracts, restrictive covenants or other restrictions that prevent the Executive from entering into employment with, or carrying out the Executive's responsibilities for, the Company, or which are in any way inconsistent with any of the terms of this Agreement.

10.*Notice*. Any notice delivered under this Agreement shall be deemed duly delivered three (3) business days after it is sent by registered or certified mail, return receipt requested, postage prepaid, one (1) business day after it is sent for next-business day delivery via a reputable nationwide overnight courier service, or immediately upon hand delivery, in each case to the address of the recipient set forth below.

To Executive:

At the address set forth in the Executive's personnel file To Company:

Fulcrum Therapeutics, Inc.

26 Landsdowne Street, 5th Floor Cambridge, MA 02139

Either Party may change the address to which notices are to be delivered by giving notice of such change to the other Party in the manner set forth in this Section 10.

11.*Applicable Law; Jury Trial Waiver*. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts (without reference to the

conflict of laws provisions thereof). Any action, suit or other legal proceeding arising under or relating to any provision of this Agreement shall be commenced only in a court of the Commonwealth of Massachusetts (or, if appropriate, a federal court located within the Commonwealth of Massachusetts), and the Company and the Executive each consents to the jurisdiction of such a court. The Company and the Executive each hereby irrevocably waives any right to a trial by jury in any action, suit or other legal proceeding arising under or relating to any provision of this Agreement.

12.*Successors and Assigns*. This Agreement shall be binding upon and inure to the benefit of both Parties and their respective successors and assigns, including any corporation with which or into which the Company may be merged or which may succeed to its assets or business; provided, however, that the obligations of the Executive are personal and shall not be assigned by the Executive.

13.*At-Will Employment*. During the Term of Employment, the Executive will continue to be an at-will employee of the Company, which means that, notwithstanding any other provision set forth herein, the employment relationship can be terminated by either Party for any reason, at any time, with or without prior notice and with or without Cause.

14.*Acknowledgment*. The Executive states and represents that the Executive has had an opportunity to fully discuss and review the terms of this Agreement with an attorney. The Executive further states and represents that the Executive has carefully read this Agreement, understands the contents herein, freely and voluntarily assents to all of the terms and conditions hereof, and signs the Executive's name of the Executive's own free act.

15.*No Oral Modification, Waiver, Cancellation or Discharge*. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Executive. No delay or omission by the Company in exercising any right under this Agreement shall operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion shall be effective only in that instance and shall not be construed as a bar to or waiver of any right on any other occasion.

16.*Captions and Pronouns*. The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular forms of nouns and pronouns shall include the plural, and vice versa.

17.*Interpretation*. The Parties agree that this Agreement will be construed without regard to any presumption or rule requiring construction or interpretation against the drafting Party. References in this Agreement to "include" or "including" should be read as though they said "without
limitation" or equivalent forms. References in this Agreement to the "Board" shall include any authorized committee thereof.

18.*Severability*. Each provision of this Agreement must be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be prohibited by or invalid under applicable law, such provision will be ineffective only to the

extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement. Moreover, if a court of competent jurisdiction determines any of the provisions contained in this Agreement to be unenforceable because the provision is excessively broad in scope, whether as to duration, activity, geographic application, subject or otherwise, it will be construed, by limiting or reducing it to the extent legally permitted, so as to be enforceable to the extent compatible with then applicable law to achieve the intent of the Parties.

19.*Entire Agreement*. This Agreement constitutes the entire agreement between the Parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement, including, without limitation, the Existing Agreement.

[Signatures on Page Following]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the day and year set forth above.

FULCRUM THERAPEUTICS, INC.

By: /s/ Kim Hazen

Name: Kim Hazen

Title: Chief People Officer

EXECUTIVE:

By: /s/ Santiago Arroyo

Name: Santiago Arroyo

EXHIBIT A

Payments Subject to Section 409A

1. Subject to this Exhibit A, any severance payments that may be due under the Agreement shall begin only upon the date of the Executive's "separation from service" (determined as set forth below) which occurs on or after the termination of the Executive's employment. The following rules shall apply with respect to distribution of the severance payments, if any, to be provided to the Executive under the Agreement, as applicable:

(a) It is intended that each installment of the severance payments provided under the Agreement shall be treated as a separate "payment" for purposes of Section 409A of the Internal Revenue Code ("Section 409A"). Neither the Company nor the Executive shall have the right to accelerate or defer the delivery of any such payments except to the extent specifically permitted or required by Section 409A.

(b) If, as of the date of the Executive's "separation from service" from the Company, the Executive is not a "specified employee" (within the meaning of Section 409A), then each installment of the severance payments shall be made on the dates and terms set forth in the letter agreement.

(c) If, as of the date of the Executive's "separation from service" from the Company, the Executive is a "specified employee" (within the meaning of Section 409A), then:

(i) Each installment of the severance payments due under the Agreement that, in accordance with the dates and terms set forth herein, will in all circumstances, regardless of when the Executive's separation from service occurs, be paid within the short-term deferral period (as defined under Section 409A) shall be treated as a sh term deferral within the meaning of Treasury Regulation Section 1.409A-1(b)(4) to the maximum extent permissible under Section 409A and shall be paid on the dates and terms set forth in the Agreement; and

(ii) Each installment of the severance payments due under the Agreement that is not described in this Exhibit A, Section 1(c)(i) and that would, absent this subsection, be paid within the six-month period following the Executive's "separation from service" from the Company shall not be paid until the date that is six months and day after such separation from service (or, if earlier, the Executive's death), with any such installments that ar required to be delayed being accumulated during the six-month period and paid in a lump sum on the date th six months and one day following the Executive's separation from service and any subsequent installments, if any, being paid in accordance with the dates and terms set forth herein; provided, however, that the preceding provisions of this sentence shall not apply to any installment of payments if and to the maximum extent that that such installment is deemed to be paid under a separation pay plan that does not

provide for a deferral of compensation by reason of the application of Treasury Regulation 1.409A-1(b)(9)(iii) (relating to separation pay upon an involuntary separation from service). Any installments that qualify for the exception under Treasury Regulation Section 1.409A-1(b)(9)(iii) must be paid no later than the last day of the Executive's second taxable year following the taxable year in which the separation from service occurs.

2. The determination of whether and when the Executive's separation from service from the Company has occurred shall be made and in a manner consistent with, and based on the presumptions set forth in, Treasury Regulation

Section 1.409A-1(h). Solely for purposes of Section 2 of this Exhibit A, "Company" shall include all persons with whom the Company would be considered a single employer under Section 414(b) and 414(c) of the Code.

3. All reimbursements and in-kind benefits provided under the Agreement shall be made or provided in accordance with the requirements of Section 409A to the extent that such reimbursements or in-kind benefits are subject to Section 409A, including, where applicable, the requirements that (i) any reimbursement is for expenses incurred during the Executive's lifetime (or during a shorter period of time specified in the Agreement), (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred and (iv) the right to reimbursement is not subject to set off or liquidation or exchange for any other benefit.

4. The Company makes no representation or warranty and shall have no liability to the Executive or to any other person if any of the provisions of the Agreement (including this Exhibit A) are determined to constitute deferred compensation subject to Section 409A but that do not satisfy an exemption from, or the conditions of, that section.

5. The Agreement is intended to comply with, or be exempt from, Section 409A and shall be interpreted accordingly.

[Remainder of page intentionally left blank.]

Exhibit 21.1

List of Subsidiaries

	Jurisdiction of Incorporation
Fulcrum Therapeutics Securities Corp.	Massachusetts

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

1. Registration Statement (Form S-8 No. 333-233452) pertaining to the 2016 Stock Incentive Plan, as amended, 2019 St Incentive Plan, and 2019 Employee Stock Purchase Plan of Fulcrum Therapeutics, Inc.;
2. Registration Statement (Form S-8 No. 333-236910) pertaining to the 2019 Stock Incentive Plan and 2019 Employee St Purchase Plan of Fulcrum Therapeutics, Inc.;
3. Registration Statement (Form S-1 No. 333-239353) and related Prospectus of Fulcrum Therapeutics, Inc. (as amended by Form S-3/A No. 333-239353);
4. Registration Statement (Form S-8 No. 333-253862) pertaining to the 2019 Stock Incentive Plan and 2019 Employee St

Purchase Plan of Fulcrum Therapeutics, Inc.,

5. Registration Statement (Form S-8 No. 333-262356) pertaining to the 2019 Stock Incentive Plan, 2019 Employee St Purchase Plan, and Inducement Stock Option Awards (September 2021 – January 2022) of Fulcrum Therapeutics, Inc.; and
6. Registration Statement (Form S-8 No. 333-263249) pertaining to 2022 Inducement Stock Incentive Plan, and Inducement St Option Award, as amended (February 2022) of Fulcrum Therapeutics, Inc.; and
7. Registration Statement (Form S-8 No. 333-270385) pertaining to the 2019 Stock Incentive Plan, 2019 Employee St Purchase Plan, and Inducement Stock Incentive Plan, as amended, of Fulcrum Therapeutics, Inc.

of our report dated March 9, 2023 February 27, 2024, with respect to the consolidated financial statements of Fulcrum Therapeutics, Inc. included in this Annual Report (Form 10-K) of Fulcrum Therapeutics, Inc. for the year ended December 31, 2022 December 31, 2023.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 9, 2023 February 27, 2024

Exhibit 31.1

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Robert J. Gould, Alex C. Sapir, certify that:

1. I have reviewed this Annual Report on Form 10-K, of Fulcrum Therapeutics, 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) (Paragraph omitted pursuant Designed such internal control over financial reporting, or caused such internal control over financial reporting to SEC Release Nos. 33-8238/34-47986 be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and 33-8392/34-49313); 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

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: March 9, 2023 February 27, 2024

By: /s/ Robert J. Gould Alex C. Sapir

Robert J. Gould, Ph.D. Alex C. Sapir

Interim President and Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Esther Rajavelu, Alan Musso, certify that:

1. I have reviewed this Annual Report on Form 10-K of Fulcrum Therapeutics, 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) (Paragraph omitted pursuant Designed such internal control over financial reporting, or caused such internal control over financial reporting to SEC Release Nos. 33-8238/34-47986 be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and 33-8392/34-49313); 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

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: March 9, 2023 February 27, 2024

By: /s/ Esther Rajavelu Alan Musso

Esther Rajavelu Alan Musso

Chief Financial Officer

(Principal 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 on Form 10-K of Fulcrum Therapeutics, Inc. (the "Company") for the year ended December 31, 2022 December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Bryan Stuart, Alex C. Sapir, President and Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 9, 2023 February 27, 2024

By: /s/ Robert J. Gould Alex C. Sapir

Robert J. Gould, Ph.D. Alex C. Sapir

Interim President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

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 on Form 10-K of Fulcrum Therapeutics, Inc. (the "Company") for the year ended December 31, 2022 December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Esther Rajavelu, Alan Musso, Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 9, 2023 February 27, 2024

By: /s/ Esther Rajavelu Alan Musso
Esther Rajavelu Alan Musso
Chief Financial Officer
(Principal Financial Officer)

Exhibit 97.1

FULCRUM THERAPEUTICS, INC.

COMPENSATION RECOVERY POLICY

Adopted as of November 16, 2023

Fulcrum Therapeutics, Inc., a Delaware corporation (the "Company"), has adopted a Compensation Recovery Policy (this "Policy") as described below.

1. Overview

The Policy sets forth the circumstances and procedures under which the Company shall recover Erroneously Awarded Compensation from Covered Persons (as defined below) of the Company in accordance with rules issued by the United States

Securities and Exchange Commission (the "SEC") under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Nasdaq Stock Market. Capitalized terms used and not otherwise defined herein shall have the meanings given in Section 3 below.

2. Compensation Recovery Requirement

In the event the Company is required to prepare a Financial Restatement, the Company shall recover reasonably promptly all Erroneously Awarded Compensation with respect to such Financial Restatement.

3. Definitions

a. "Applicable Recovery Period" means the three completed fiscal years immediately preceding the Restatement Date for a Financial Restatement. In addition, in the event the Company has changed its fiscal year: (i) any transition period of less than nine months occurring within or immediately following such three completed fiscal years shall also be part of such Applicable Recovery Period and (ii) any transition period of nine to 12 months will be deemed to be a completed fiscal year.

b. "Applicable Rules" means any rules or regulations adopted by the Exchange pursuant to Rule 10D-1 under the Exchange Act and any applicable rules or regulations adopted by the SEC pursuant to Section 10D of the Exchange Act.

c. "Board" means the Board of Directors of the Company.

d. "Committee" means the Compensation Committee of the Board or, in the absence of such committee, a majority of independent directors serving on the Board.

e. A "Covered Person" means any Executive Officer. A person's status as a Covered Person with respect to Erroneously Awarded Compensation shall be determined as of the time of receipt of such Erroneously Awarded Compensation regardless of the person's current role or status with the Company (e.g., if a person began service as an

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Executive Officer after the beginning of an Applicable Recovery Period, that person would not be considered a Covered Person with respect to Erroneously Awarded Compensation received before the person began service as an Executive Officer, but would be considered a Covered Person with respect to Erroneously Awarded Compensation received after the person began service as an Executive Officer where such person served as an Executive Officer at any time during the performance period for such Erroneously Awarded Compensation).

f. "Effective Date" means November 16, 2023.

g. "Erroneously Awarded Compensation" means the amount of any Incentive-Based Compensation received by a Covered Person on or after the Effective Date and during the Applicable Recovery Period that exceeds the amount that otherwise would have been received by the Covered Person had such compensation been determined based on the restated amounts in a Financial Restatement, computed without regard to any taxes paid. Calculation of

Erroneously Awarded Compensation with respect to Incentive-Based Compensation based on stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in a Financial Restatement, shall be based on a reasonable estimate of the effect of the Financial Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was received, and the Company shall maintain documentation of the determination of such reasonable estimate and provide such documentation to the Exchange in accordance with the Applicable Rules. Incentive-Based Compensation is deemed received, earned, or vested when the Financial Reporting Measure is attained, not when the actual payment, grant, or vesting occurs.

h. "Exchange" means the Nasdaq Stock Market LLC.

i. An "Executive Officer" means any person who served the Company in any of the following roles at any time during the performance period applicable to Incentive-Based Compensation such person received during service in such role: the president, principal financial officer, principal accounting officer (or if there is no such accounting officer the controller), any vice president in charge of a principal business unit, division, or function (such as sales, administration, or finance), any other officer who performs a policy making function, or any other person who performs similar policy making functions for the Company. Executive officers of parents or subsidiaries of the Company may be deemed executive officers of the Company if they perform such policy making functions for the Company.

j. "Financial Reporting Measures" mean measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, any measures that are derived wholly or in part from such measures

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(including, for example, a non-GAAP financial measure), and stock price and total shareholder return.

k. A "Financial Restatement" means a restatement of previously issued financial statements of the Company due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required 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.

l. "Incentive-Based Compensation" means any compensation provided, directly or indirectly, by the Company or any of its subsidiaries that is granted, earned, or vested based, in whole or in part, upon the attainment of a Financial Reporting Measure and any equity-based compensation provided by the Company or any of its subsidiaries, including, without limitation, stock options, restricted stock awards, restricted stock units and stock appreciation rights.

m. "Restatement Date" means, with respect to a Financial Restatement, the earlier to occur of: (i) the date the Board or the Audit Committee of the Board concludes, or reasonably should have concluded, that the Company is required to prepare the Financial Restatement or (ii) the date a court, regulator or other legally authorized body directs the Company to prepare the Financial Restatement.

4. Exception to Compensation Recovery Requirement

The Company may elect not to recover Erroneously Awarded Compensation pursuant to this Policy if the Committee determines that recovery would be impracticable, and one or more of the following conditions, together with any further requirements set forth in the Applicable Rules, are met: (i) the direct expense paid to a third party, including outside legal counsel, to assist in enforcing this Policy would exceed the amount to be recovered, and the Company has made a reasonable attempt to recover such Erroneously Awarded Compensation; or (ii) recovery would likely cause an otherwise tax-qualified retirement plan to fail to be so qualified under applicable regulations.

5. Tax Considerations

To the extent that, pursuant to this Policy, the Company is entitled to recover any Erroneously Awarded Compensation that is received by a Covered Person, the gross amount received (i.e., the amount the Covered Person received, or was entitled to receive, before any deductions for tax withholding or other payments) shall be returned by the Covered Person.

6. Recovery Where Intentional Misconduct.

In addition to (and without limiting) the provisions of paragraph 2 above, in the event the Company is required to prepare a Financial Restatement after the Effective Date and the Board (or a duly established committee thereof), in its sole discretion, determines that a Covered Person's act or omission contributed to the circumstances requiring the Financial Restatement and such act or omission involved any of the following: (i) willful, knowing or intentional misconduct or a willful, knowing or intentional violation of any of the Company's rules or any applicable legal or regulatory requirements in the course of the Covered Person's employment by the Company or (ii) fraud in the course of the Covered Person's employment by the Company, the Company will use reasonable efforts to recover from such Covered Person up to 100% (as determined by the Board or a duly established committee thereof in its sole discretion) of the Incentive-Based Compensation received by such Covered Person from the Company during the three fiscal years preceding the date on which the Company determined that it is required to prepare a Financial Restatement.

7. Method of Compensation Recovery

The Committee shall determine, in its sole discretion, the method for recovering Erroneously Awarded Compensation hereunder, which may include, without limitation, any one or more of the following:

a. requiring reimbursement of cash Incentive-Based Compensation previously paid;

b. seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer or other disposition of any equity-based awards;

c. cancelling or rescinding some or all outstanding vested or unvested equity-based awards;

d. adjusting or withholding from unpaid compensation or other set-off;

e. cancelling or offsetting against planned future grants of equity-based awards; and/or

f. any other method permitted by applicable law or contract.

Notwithstanding the foregoing, a Covered Person will be deemed to have satisfied such person's obligation to return Erroneously Awarded Compensation to the Company if such Erroneously Awarded Compensation is returned in the exact same form in which it was received; provided that equity withheld to satisfy tax obligations will be deemed to have been received in cash in an amount equal to the tax withholding payment made.

8. Policy Interpretation

This Policy shall be interpreted in a manner that is consistent with the Applicable Rules and any other applicable law. The Committee shall take into consideration any applicable interpretations and guidance of the SEC in interpreting this Policy, including, for example, in determining whether a financial restatement qualifies as a Financial Restatement hereunder. To the extent the Applicable Rules require recovery of Incentive-Based Compensation in additional circumstances besides those specified above, nothing in this Policy shall be deemed to limit or restrict the right or obligation of the Company to recover Incentive-Based Compensation to the fullest extent required by the Applicable Rules.

9. Policy Administration

This Policy shall be administered by the Committee. The Committee shall have such powers and authorities related to the administration of this Policy as are consistent with the governing documents of the Company and applicable law. The Committee shall have full power and authority to take, or direct the taking of, all actions and to make all determinations required or provided for under this Policy and shall have full power and authority to take, or direct the taking of, all such other actions and make all such other determinations not inconsistent with the specific terms and provisions of this Policy that the Committee deems to be necessary or appropriate to the administration of this Policy. The interpretation and construction by the Committee of any provision of this Policy and all determinations made by the Committee under this policy shall be final, binding and conclusive.

10. Compensation Recovery Repayments not Subject to Indemnification

Notwithstanding anything to the contrary set forth in any agreement with, or the organizational documents of, the Company or any of its subsidiaries, Covered Persons are not entitled to indemnification for Erroneously Awarded Compensation or for any claim or losses arising out of or in any way related to Erroneously Awarded Compensation recovered under this Policy.

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