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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31 , 2023

OR

o 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 001-36327

Neurogene Inc.

(Exact name of registrant as specified in its charter)

Delaware	**98-0542593**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
535 W 24th St. 5th Floor New York , NY	**10011**
(Address of Principal Executive Offices)	(Zip Code)

(855) 508-3568

Registrant's telephone number, including area code

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 $0.000001 per share	NGNE	The 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 o No x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes o No x

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 x No o

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 x No o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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	o	Accelerated filer	o
Non-accelerated filer	x	Smaller reporting company	x
		Emerging growth company	o

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.

o

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.

o

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.

o

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

o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes o No x

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant, based on the closing price of the shares of common stock on The Nasdaq Stock Market ("Nasdaq") on June 30, 2023, was $ 33,350,835 , based on the closing price on Nasdaq reported for such date. Shares of common stock held by each officer and director and by each person who is known to own 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates of the registrant. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

There were 12,852,985 shares of the registrant's common stock, par value $0.000001 per share, issued and outstanding as of March 13, 2024.

DOCUMENTS INCORPORATED BY REFERENCE

The information required by Part III of this Report, to the extent not set forth herein, is incorporated by reference from the registrant's definitive proxy statement relating to the Annual Meeting of Stockholders to be held in 2024, which shall be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year to which this Report relates (the "2024 Proxy Statement").

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CAUTIONARY NOTE ABOUT FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of the federal securities laws, which statements are subject to substantial risks and uncertainties and are based on estimates and assumptions. All statements, other than statements of historical facts, including statements concerning our plans, objectives, goals, strategies, future events, future revenues or performance, financing needs, plans or intentions relating to products and markets, and business trends and other information referred to under the sections entitled "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and "Business" are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "anticipate," "believe," "can," "could," "design," "develop," "estimate," "expect," "intend," "objective," "may," "might," "plan," "potential," "predict," "should," "will," "would," or the negative of these terms, and similar expressions intended to identify forward-looking statements. Forward-looking statements are not historical facts, and reflect our current views with respect to future events. Given the significant uncertainties, you should not place undue reliance on these forward-looking statements.

There are a number of risks, uncertainties and other factors that could cause our actual results to differ materially from the forward-looking statements expressed or implied in this Annual Report on Form 10-K. Such risks, uncertainties and other factors include, among others, the following:

- We have a limited operating history, have not completed any clinical trials, and have no products approved for commercial sale, and our results may vary from quarter to quarter.
- We will require substantial additional capital to finance our operations in the future. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce or eliminate clinical trials, product development programs or future commercialization efforts.
- We have incurred significant losses since inception, and expects to incur significant losses for the foreseeable future and may not be able to achieve or sustain profitability in the future. We have no products for sale, have not generated any product revenue and may never generate product revenue or become profitable.
- NGN-401, NGN-101 and our other programs are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability.
- We are substantially dependent on the success of our most advanced product candidates, NGN-401 and NGN-101, and our ongoing and anticipated clinical trials of such candidates may not be successful.
- Delays in developing our manufacturing capabilities or failure to achieve operating efficiencies from such capabilities may require us to devote additional resources and management time to manufacturing operations and may delay our product development timelines.
- We have a number of academic collaborations, and currently rely on our collaboration with the University of Edinburgh for certain aspects of our preclinical research and development programs, including working in collaboration to discover and preclinically develop our lead product candidate for Rett syndrome and our near-term future pipeline. Failure or delay of the University of Edinburgh or any other collaborator to fulfil all or part of its obligations under our agreement, a breakdown in collaboration between the parties or a complete or partial loss of the relationship would materially harm our business.
- In order to successfully implement our plans and strategies, we will need to grow the size of our organization and we may experience difficulties in managing this growth.
- The regulatory approval processes of the U.S. Food and Drug Administration ("FDA") and other comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for our product candidates, we will not be able to commercialize, or will be delayed in commercializing, such product candidates, and our ability to generate revenue will be materially impaired.
- The market price of our common stock may continue to be volatile.
- If our legacy lease obligations are not subleased, assigned, terminated or otherwise addressed or the legacy assets subject to the CVR Agreement are not sold, respectively, in a timely manner, we may have to incur time and resources to take such actions.
- Future sales of shares by existing stockholders could cause our stock price to decline.

- Our executive officers, directors and principal stockholders have the ability to control or significantly influence all matters submitted to our stockholders for approval.

There may be other factors that may cause our actual results to differ materially from the forward-looking statements expressed or implied in this Annual Report on Form 10-K, including factors disclosed in “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” You should evaluate all forward-looking statements made in this Annual Report on Form 10-K in the context of these risks and uncertainties.

We caution you that the risks, uncertainties, and other factors referred to above and elsewhere in this Annual Report on Form 10-K may not contain all of the risks, uncertainties and other factors that may affect our future results and operations. Moreover, new risks will emerge from time to time. It is not possible for our management to predict all risks. In addition, we cannot assure you that we will realize the results, benefits or developments that we expect or anticipate or, even if substantially realized, that they will result in the consequences or affect us or our business in the way expected.

Any forward-looking statements contained in this Annual Report on Form 10-K speak only as of the date hereof and not of any future date, and we expressly disclaim any intent to update any forward-looking statements, whether as a result of new information, future events or otherwise.

Part I

Item 1. Business

Overview

Despite recent scientific advances in genetics, most neurological diseases, particularly those with devastating consequences to patients, are left untreated. Conventional gene therapy is an attractive potential treatment approach for only a limited number of monogenic diseases due to the challenges caused by the complex biology of neurological diseases and by inherent variable transgene uptake and expression. We are a clinical-stage biotechnology company committed to overcoming these limitations and turning today's complex devastating neurological diseases into treatable conditions. By harnessing our proprietary transgene regulation technology, EXACT™ (Expression Attenuation via Construct Tuning), we are building a robust and differentiated product portfolio of genetic medicines for rare neurological diseases with high unmet need not otherwise addressable by conventional gene therapy. Our EXACT approach leverages key scientific breakthroughs, including gene transfer technology, microRNA-based genetic circuits, and adeno-associated virus delivery, and is designed to deliver therapeutic levels of transgene to key areas of the brain that underlie neurological disease pathology.

Our first clinical-stage program to utilize the EXACT platform is NGN-401, which is under development for the treatment of Rett syndrome, a disease with a patient population that has a significant unmet need, and that ultimately progresses to substantial neurological and physical impairment and premature death. NGN-401 is being evaluated in pediatric female patients with Rett syndrome in a Phase 1/2 open-label, multi-center clinical trial that will assess the safety, tolerability, and efficacy of two doses of NGN-401 delivered using a one-time intracerebral ventricular ("ICV") procedure. We believe ICV is the most suitable route of administration to achieve optimal biodistribution in key regions of the brain. Consistent with our clinical development strategy, in February 2024 we amended the protocol to expand the low dose Cohort 1 to include three additional patients for a total of eight patients and added the second high dose Cohort 2 of eight patients. These previously planned updates to include two concurrent dose cohorts are designed to provide what we believe will be a more robust dataset that will be able to inform a future registrational trial design. Three patients have been dosed in Corhort 1, and we remain on track to report interim clinical data from Cohort 1 in the fourth quarter of 2024 and additional data, including from Cohort 2, in the second half of 2025. NGN-401 was manufactured at our manufacturing facility and clinical-grade product is being used in the Phase 1/2 trial.

We believe that our EXACT platform has broad applicability in complex neurological diseases not otherwise easily addressable by conventional gene therapy. In addition to our Rett syndrome program, we have multiple programs in the discovery stage. We anticipate advancing one of these programs into clinical development in 2025.

In addition to NGN-401, we are also pursuing a conventional gene therapy program in an ongoing Phase 1/2 clinical trial of NGN-101 for the treatment of CLN5 Batten disease. This patient population has significant unmet need, and experiences extensive neurological and physical impairment leading to blindness, loss of motor function and early mortality. Our Phase 1/2 clinical trial of NGN-101 is the first trial to assess the treatment of both neurodegenerative and ocular disease manifestations of Batten disease. A third-party manufacturer produced product for the NGN-101 program to initiate the Phase 1/2 clinical trial. Dosing for this program commenced in the second quarter of 2022, and we expect preliminary data in the second half of 2024.

After the Phase 1/2 trials, we may pursue, and the FDA may allow, adaptation to integrate a pivotal trial design within a single study as opposed to a separate classic Phase 3 trial; however, regulatory authorities may recommend changes to the study designs for NGN-401 or NGN-101, including the number and size of registrational clinical trials required to be conducted in such programs.

We have also established a fully operational current Good Manufacturing Practice ("cGMP") facility in Houston, Texas which we use to manufacture current and future product for research, toxicology and clinical studies. We believe that our in-house manufacturing capabilities enable control of product quality and development timelines and provides strategic pipeline and financial flexibility and clinical-to-commercial continuity.

In December 2020, we entered into a research collaboration agreement, the Master Research Collaboration (the "MCA") with the University of Edinburgh to support our pipeline development and expansion, and to accelerate scientific innovation to continue to improve upon conventional gene therapy. In November 2023, we extended the MCA though December 2026. The University of Edinburgh has a vibrant community of over 500 neuroscience researchers and is widely recognized as a preeminent center for neuroscience research, especially in areas of neurodegeneration and in neurodevelopmental disorders, such as Rett syndrome. For example, researchers currently in neuroscience centers at the University of Edinburgh conducted the seminal preclinical work for Rett syndrome, including discovery of the MECP2 protein, its function as a transcriptional repressor, developing the first and most widely adopted animal model of Rett syndrome, demonstrating for the first time the reversibility of phenotypes in any neurodevelopmental disorder as well as the first ever preclinical gene therapy efforts in Rett syndrome. Under the terms of the agreement, this collaboration allows us the option to in-license product candidates from Dr. Stuart Cobb's laboratory, where he has a dual appointment as a Professor in Translational Neuroscience at the Patrick Wild Centre and Centre for Discovery Brain Sciences, in addition to serving as our Chief Scientific Officer. Dr. Cobb may be entitled to receive in the future a percentage of certain license-related payments from Neurogene to the University of Edinburgh in accordance with the University of Edinburgh's standard policies for professor inventors.

Completion of our Reverse Merger and Pre-Closing Financing

On December 18, 2023, we completed our business combination with Neurogene OpCo in accordance with the terms of the Agreement and Plan of Merger, dated as of July 17, 2023 (the "Merger Agreement"), by and among the Company, Project North Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company ("Merger Sub"), and Neurogene OpCo, pursuant to which, among other matters, Merger Sub merged with and into Neurogene OpCo, with Neurogene OpCo surviving as a wholly owned subsidiary of the Company (the "Reverse Merger"). In connection with the completion of the Reverse Merger, the Company changed its name from "Neoleukin Therapeutics, Inc." to "Neurogene Inc.," and the business conducted by the Company became primarily the business conducted by Neurogene OpCo. Immediately prior to Closing, the Company effected a 1-for-4 reverse stock split (the "Reverse Stock Split"). Unless noted otherwise, all references in this Annual Report on Form 10-K to share and per share amounts reflect the Reverse Stock Split.

Concurrently with the execution and delivery of the Merger Agreement, and in order to provide Neurogene OpCo with additional capital for its development programs, Neurogene OpCo entered into a subscription agreement (the "Subscription Agreement") with certain investors named therein (the "Investors"), pursuant to which, subject to the terms and conditions of the Subscription Agreement, immediately prior to the effective time of the Reverse Merger, Neurogene OpCo issued and sold, and the Investors purchased, 2,792,206 shares of Neurogene OpCo common stock and 1,811,739 pre-funded warrants, exercisable for 1,811,739 shares of Neurogene OpCo common stock, at a purchase price of approximately $20.63 per share or $20.63 per warrant, for an aggregate purchase price of approximately $95.0 million (the "pre-closing financing").

On December 18, 2023, immediately prior to Closing and prior to the Reverse Stock Split, the Company also entered into a contingent value rights agreement (the "CVR Agreement") with a rights agent, pursuant to which holders of common stock or pre-funded warrants of the Company prior to Closing received one non-transferable contingent value right (each, a "CVR") for each outstanding share of Company common stock held by such stockholder or warrant holder immediately prior to Closing and before giving effect to the Reverse Stock Split. Holders of options to purchase our common stock outstanding immediately prior to the effective time of the reverse merger who elect to exercise those options following the reverse merger will also receive four CVRs for each share of our common stock issued upon exercise of such option (in order to preserve the ratio of CVRs to shares of common stock prior to the Reverse Merger), subject to certain conditions set forth in the CVR Agreement. Each CVR represents the contractual right to receive (i) certain net savings, if any, realized by the Company by June 30, 2029 in connection with certain legacy lease obligations related to the business of the Company prior to the Reverse Merger (the "Lease CVR"), including those related to a sublease entered into in October 2023, (ii) 100% of net proceeds, if any, derived from any consideration paid as a result of the sale of our pre-merger legacy assets pursuant any agreements entered into before Closing, and 80% of net proceeds, if any, derived from any consideration paid as a result of the sale of our pre-merger legacy assets pursuant any agreements entered into within one year after Closing (the "Intellectual Property CVR"), and (iii) certain net proceeds, if any, derived from an anticipated sales tax refund from Washington State relating to tax returns filed by the Company prior to Closing (the "Sales Tax CVR").

See Item 8 of Part II "*Financial Statements—Note 1 – Reverse Merger and Pre-Closing Financing*" for additional information.

Our Team

Neurogene was founded in January 2018 by Dr. Rachel McMinn with the vision of harnessing the power of gene therapy to turn today's devastating neurological diseases into treatable conditions in the future. We have built a research and development engine through our research collaboration with the University of Edinburgh, which has renowned expertise in neurodevelopmental disorders, and through the leadership of experienced management with extensive expertise in gene therapy manufacturing, we have also developed chemistry manufacturing and controls ("CMC") capabilities and established a fully operational cGMP facility. We are led by a strong management team with deep operational and company building experience as well as significant expertise in research and development in the fields of rare disease and genetic medicine. The members of our management team also provide leadership for certain key functions that are required to develop and obtain regulatory approval for novel treatments, including clinical development and regulatory affairs. Our management team has a deep background of experience in biopharmaceutical companies, including Amicus, AstraZeneca, Auspex, Avexis, Axovant, Cerevel Therapeutics, Eli Lilly, Homology Medicines, ImClone Systems, Intercept Pharmaceuticals, Johnson and Johnson, Lonza, NPS Pharma, Pharmasset, and Takeda. Together, our team has a track record in the discovery, development, and commercialization of multiple therapies for devastating disorders.

Our Approach

We have a bold vision to harness the power of gene therapy together with our EXACT technology to turn today's complex devastating neurological diseases into treatable conditions. Fundamental to accomplishing this goal are three capabilities that provide us with important competitive advantages that we believe support our disciplined product development approach and improve the probability of technical and regulatory success of our product candidates.

1. Our EXACT Technology. We developed the EXACT technology, in collaboration with the University of Edinburgh, with the goal of solving the problem of variable gene expression resulting from the inherent limitations we believe exist with conventional gene therapy. We believe our EXACT technology has the potential to overcome this challenge by widening the otherwise narrow therapeutic window for transgene expression in certain complex neurological diseases. The EXACT technology is predicted to be delivery agnostic and compatible with viral and non-viral delivery platforms.

2. Optimal Drug Delivery Approaches to Treat CNS Disorders. We believe in utilizing the most optimal routes of administration to deliver our product candidates which we believe will best target the underlying pathophysiology and biology of the disease. We rigorously study potential central nervous system ("CNS") indications and their underlying pathologies prior to choosing a candidate and deliberately choose what we believe is the most appropriate route of administration to increase the probability of technical and regulatory success.

3. Scalable and Flexible Manufacturing. We believe that integrating in-house cGMP manufacturing capabilities enables superior oversight of product quality and greater control of development timelines, allows for strategic pipeline flexibility, and promotes continuity in our process from preclinical to clinical to commercial manufacturing in the future. Besides cGMP manufacturing, our core development capabilities include quality control, process, analytical, and bioanalytical development labs with experienced teams. We believe that our in-house manufacturing capabilities also possess the potential to avoid comparability challenges caused by the introduction of significant platform-based changes during the product development phase that other gene therapy companies have encountered. We believe our in-house manufacturing also provides increased flexibility to manufacture products more efficiently and more cost effectively.

Neurogene's EXACT Technology Acts as a Genetic Thermostat

EXACT's transgene control elements consist of an embedded non-mammalian miRNA, and its complementary recognition sites. This combination is designed to avoid off-target gene regulation. The transgene and the miRNA are co-expressed from the same construct under the control of the same promoter. Because the miRNA and recognition sites are fully complementary with no mismatches, the miRNA-bound transcripts are predicted to be rapidly destroyed, limiting the number of available transgene mRNA copies. These remaining mRNA transcripts are then translated into transgene derived protein. Importantly, the more transgene that is expressed in a given cell, the more miRNA that is produced simultaneously, leading to greater destruction of transcripts. This relationship ultimately creates a genetic thermostat, which attenuates transgene expression, and thereby is designed to avoid the significant toxicity associated with variable gene expression related to conventional gene therapy.

The non-mammalian miRNA regulatory element that is part of an EXACT gene circuit is designed to minimize affinity to human mRNAs, and thereby avoid off-target gene regulation. We believe such construct design elements differentiate our EXACT technology from other miRNA mediated regulation approaches. The EXACT technology is also predicted to be delivery agnostic and compatible with viral and non-viral delivery platforms.

Using EXACT, we are advancing a pipeline of therapeutic programs intended to treat complex neurological disorders that we believe will not be suitable for treatment with conventional gene therapy.

Our Pipeline

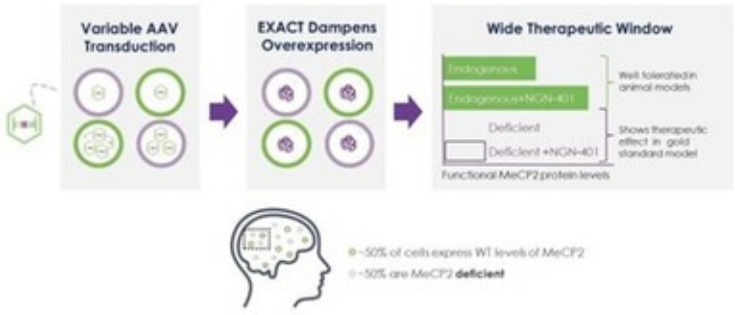
NGN-401

NGN-401 is our lead program utilizing the EXACT technology and is packaged in an adeno-associated virus 9 ("AAV9") capsid. In preclinical studies, we assessed a single ICV administration of NGN-401 in multiple preclinical models, including the male knockout mouse model for efficacy, the female Mecp2 mouse model for tolerability, and non-human primates ("NHPs") for biodistribution and toxicity.

Rett syndrome is an X-linked neurodevelopmental disorder caused by a pathogenic mutation in one copy of the MECP2 gene that leads to deficiency of the MeCP2 protein in approximately 50% of cells. MeCP2 is a critical protein responsible for normal function in the brain and other parts of the nervous system. Rett syndrome has an estimated global incidence of 1 in 10,000 to 1 in 15,000 live female births. In the United States, the prevalence of Rett syndrome is estimated to be approximately 6,000 to 9,000 patients. The estimated prevalence in the European Union ("EU") and select foreign countries is estimated in total to be greater than in the United States. Rett syndrome in females is marked by several cardinal clinical features, including significant impairments in communication (for example, an inability to communicate verbally or with their hands), gross and fine motor function, autonomic function, and a range of other disease manifestations. While there is one treatment approved to treat Rett syndrome, there remains a significant unmet need for new treatment options that target the root cause of the disease.

Rett syndrome as modeled in mice has been shown to be inducible and reversible, demonstrating that the MECP2 gene is critical throughout lifespan and offering the prospect of disease reversibility in humans. However, gene replacement therapy is not straightforward for Rett syndrome because too little MeCP2 causes Rett syndrome, while too much MeCP2 causes a similarly devastating disease known as MECP2 duplication syndrome. This MECP2 gene sensitivity results in a narrow therapeutic window for gene therapy in Rett syndrome. Therefore, we believe the goal in developing a gene replacement therapy for Rett syndrome is to supply enough MeCP2 to deficient cells, without causing toxicity to healthy cells. Achieving this goal requires precise control over the level of MECP2 expression on a cell-by-cell basis. We designed EXACT with achieving this goal in mind, and have selected Rett syndrome as the indication for our first EXACT product candidate.

EXACT Technology for Rett Syndrome



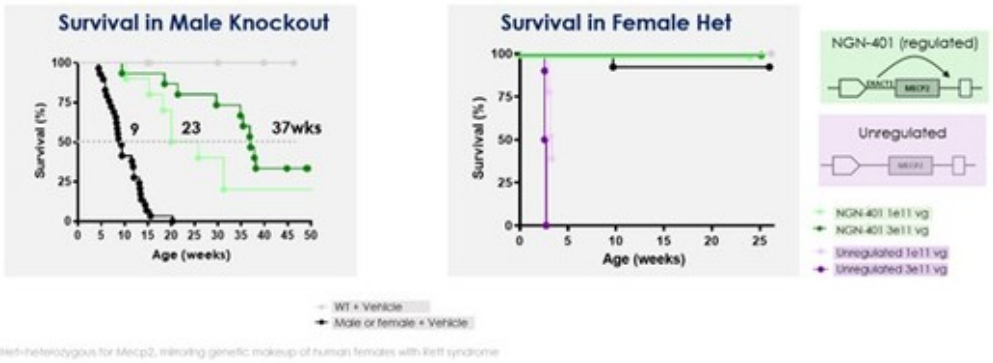
As shown in the left-hand panel above, an inherent limitation of AAV administration is that it produces variable levels of transduction across cells. Despite this variability, our preclinical data demonstrate the potential of EXACT to normalize the levels of MeCP2 protein (middle panel). The right-hand panel illustrates the aspiration of EXACT for Rett syndrome—to deliver transgene levels of functional MeCP2 that, when expressed on top of endogenous levels, can be well tolerated, while simultaneously delivering a therapeutically relevant level of MeCP2 to deficient cells to allow for efficacy. We believe our EXACT technology has the potential to overcome the limitations of the narrow therapeutic window for gene therapy in Rett syndrome and offers the possibility of making gene replacement a viable modality to treat complex disorders such as Rett syndrome.

NGN-401 Product Design

NGN-401 contains the EXACT regulatory elements shown above, which regulate the expression of the full-length human MECP2 gene. Expression is driven by a mammalian promoter that has been used in gene therapy clinical trials. This genetic construct is packaged into an AAV9 capsid.

NGN-401 Preclinical Data in Rett Syndrome Mouse Models

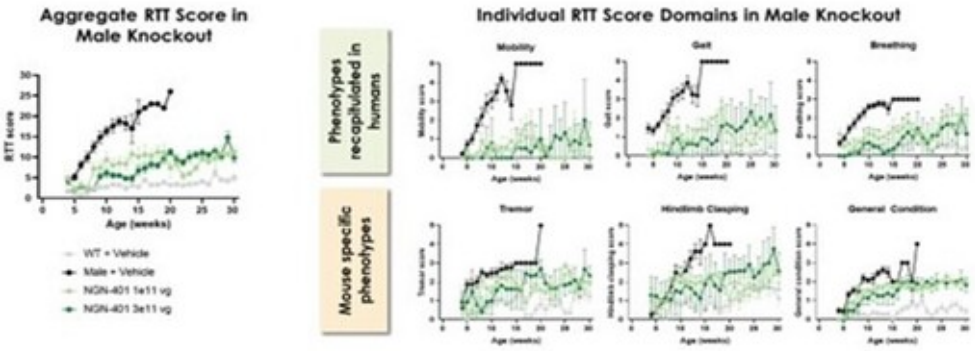
The male knockout mouse is the gold standard for evaluating efficacy in Rett syndrome because it has a robust phenotype that expresses certain cardinal features of Rett syndrome, including motor, gait, and breathing abnormalities. This model has a more severe disease course compared to human females with Rett syndrome, because 100% of male mouse cells are MeCP2 deficient. In contrast, human females have MeCP2 deficiency in approximately 50% of cells, due to a mosaic pattern of X-inactivation whereby the healthy MECP2 gene or the pathogenic gene is randomly selected to be silenced. Signs of disease in the male mouse model have been documented in the early post-natal period, with mice beginning to die or reach the humane endpoint as early as four to five weeks of life, with a median survival of approximately nine weeks.



Het=heterozygous for Mecp2, mirroring genetic makeup of human females with Rett syndrome

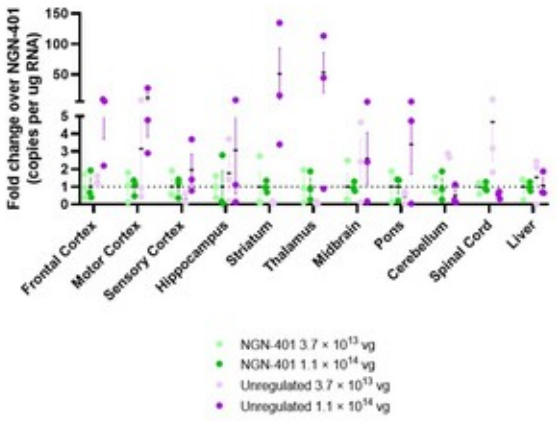
In the preclinical study described above, male knockout mice were administered a one-time administration of NGN-401 in the early postnatal period using an ICV procedure with either vehicle, or product doses of 1e11 or 3e11 vector genomes (“vg”) per mouse. The profile for NGN-401 in this mouse model demonstrated a dose-dependent improvement in survival (shown in the left-hand panel above) with concomitant improvements in Rett syndrome-like phenotypes compared to vehicle treated control animals.

To test tolerability, we evaluated the same doses of NGN-401 that demonstrated dose-dependent improvement in the male mouse model in a female mouse model (shown in the right-hand panel above). These female mice are genotypically comparable to human female patients, allowing us to demonstrate tolerability where approximately 50% of cells have normal levels of MeCP2 expression. NGN-401 (shown in green above) was well tolerated, with no negative effects on survival. In comparison, when we conducted a similar experiment using conventional gene therapy (depicted in purple above), which we refer to as “unregulated,” these mice experienced rapid toxicity and died or reached the humane endpoint within two to three weeks. These deaths were associated with significant overexpression of MeCP2, demonstrating the importance of controlling MECP2 transgene expression to provide tolerable protein levels, which we believe the EXACT technology is able to accomplish.

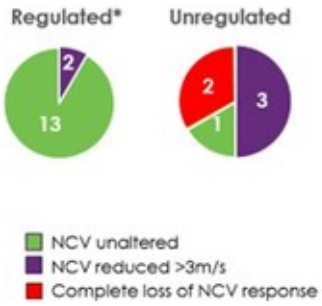


In the male knockout mouse model, phenotypic improvement was measured using an observational scoring system evaluating six disease phenotypes (referred to as the “RTT Score”). The aggregate observational score, shown in the left panel above, was improved with NGN-401 treatment, with the greatest amelioration of symptoms observed in translationally relevant domains of mobility, gait, and breathing (shown in the top right panel above).

NGN-401 Preclinical Wild-Type Non-Human Primate 30-day Data



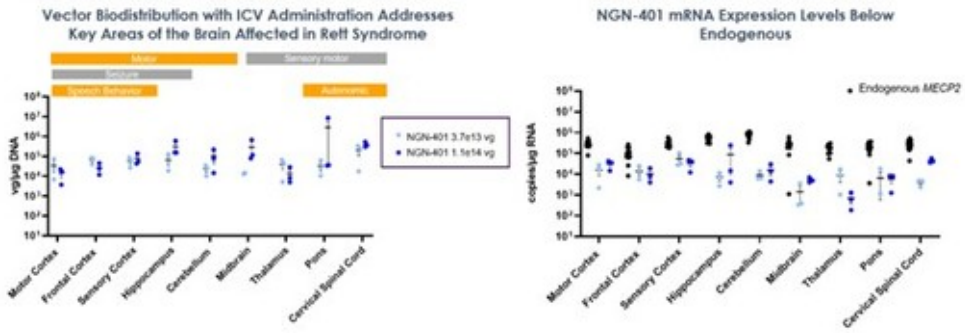
In an NHP study shown in the figure above, we evaluated NGN-401 and unregulated conventional gene therapy constructs that do not contain EXACT regulatory elements. The first NHP study was a 30-day expression and tolerability study, comparing the same doses of NGN-401 to the unregulated control. Results from this study show tight mRNA expression levels of NGN-401, with greater and more variable expression for the unregulated vector.



* Regulated includes NGN-401 and another EXACT vector; data at 30 days

NCV: nerve conduction velocity

These higher levels of MeCP2 in the unregulated treatment group were associated with early signs of toxicity in NHPs, shown by reduced or complete loss of sural nerve function as measured by nerve conduction velocity in most animals.

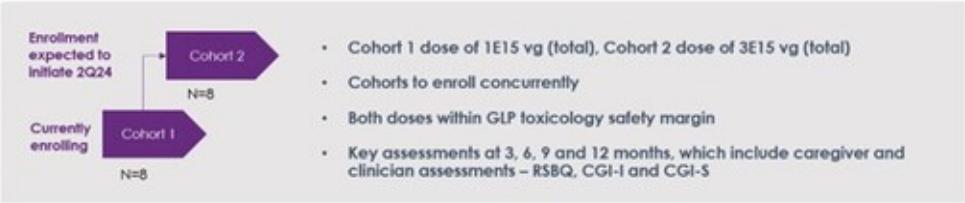


We also evaluated vector biodistribution and MECP2 mRNA for NGN-401 treated animals to assess how biodistribution and expression maps to key brain regions underlying Rett syndrome pathobiology in NHPs. We found that NGN-401 viral biodistribution tracks to key areas of the brain and spinal cord that underlie cardinal features of Rett syndrome, including speech, motor and autonomic function (shown in the left-hand panel above). In addition, we observed significant levels of transgene-derived MECP2 mRNA in key brain regions (shown in the right-hand panel above), supporting the prospect for therapeutic relevance to cardinal features of human disease and is consistent with the phenotypic improvements observed in the male knockout mouse model. We also observed that MECP2 mRNA levels derived from NGN-401 were below endogenous wild type NHP MECP2 levels, underscoring the potential safety profile of dampened MECP2 expression in these animals.

In a second NHP study, we conducted a Good Laboratory Practice (“GLP”) toxicology study with cohorts at two doses with endpoints at three and six months. This study assessed but found no signs or symptoms of MECP2 overexpression with a >4x safety margin from our starting clinical dose. Instead, we observed a typical profile for AAV9 administered product, with minimal to slight microscopic findings in the dorsal root ganglion (“DRG”), spinal cord, brain, and peripheral nerves. These observations were not dose dependent and there were no related clinical or electrophysiological observations. Early transient aminotransferase elevations were also observed, which returned to baseline or near baseline values within approximately the first three weeks without intervention. Based on these findings, the high dose cohort was considered the no-observed adverse effect level (“NOAEL”). Both of these observations (liver and DRG) are commonly observed in NHP models with AAV administration. While liver enzyme elevations have been connected with liver toxicity for certain gene therapy products in humans, these findings are typically resolved in humans without clinical sequalae. We do not believe that DRG toxicity has been reported in humans in connection with AAV administration.

NGN-401 Phase 1/2 Clinical Trial

We are advancing NGN-401 for the treatment of Rett syndrome. We received clearance for our investigational new drug (“ IND”) application from the U.S. Food and Drug Administration (“FDA”) in January 2023, and we announced clearance of our clinical trial application (“CTA”) from the United Kingdom (“UK”) Medical and Healthcare products Regulatory Agency (“MHRA”) in January 2024 to dose pediatric female patients ages four to 10 years old with Rett syndrome, and the study is currently enrolling patients. While it is typical for regulatory bodies to require establishing safety in adults prior to advancing to a pediatric population, the FDA and MRHA accepted our application for a pediatric trial based on our demonstration of a strong scientific rationale, a positive benefit-risk framework, and preclinical evidence that support a prospect of direct benefit in children with Rett syndrome. We believe this path may maximize our potential to determine efficacy signals early in the development process, potentially accelerating our ability to generate relevant clinical data. NGN-401 has been granted Orphan Drug Designation from the FDA and the European Medicines Agency (“EMA”), Rare Pediatric Disease Designation and Fast Track designation from the FDA.



The ongoing Phase 1/2 clinical trial is an open-label, multi-center clinical trial that is planned to assess the safety, tolerability, and efficacy of two doses of NGN-401 delivered using a one-time ICV procedure in female pediatric patients , ages four to 10 years old, with a confirmed diagnosis of classic Rett syndrome and a documented disease-causing mutation in the MECP2 gene. Patients must also have a Clinical Global Impression-Severity score of four to six. We have dosed three patients in Cohort 1, one each quarter beginning in the third quarter of 2023, with no treatment-emergent or procedure-related serious adverse events or signs of overexpression-related toxicity.

Consistent with our clinical development strategy to build flexibility and optionality early in the program, in February 2024 we amended the protocol and met a program milestone to expand Cohort 1 to include a total of eight patients and added a high dose cohort of eight patients, which we refer to as Cohort 2, for a total of 16 female pediatric patients. These previously planned updates to evaluate two doses concurrently are designed to enable a more robust dataset to inform a future registrational study. The dosing stagger has been removed from Cohort 1, enabling the remaining patients in the cohort to be dosed in parallel. We expect to complete enrollment of Cohort 1 in the second half of 2024.

Cohort 1 is evaluating a dose of 1e15 total vector genomes and Cohort 2 is evaluating a higher dose of 3e15 total vector genomes. These doses were chosen based on the results of our preclinical studies of NGN-401 and are each expected to be efficacious. We proactively updated the immunosuppression regimen in Cohort 2 to include a more targeted approach as a preventative measure to aid in avoiding potential AAV-related clinical events that have been observed with other AAV-based products in this dose range. Specifically, patients enrolled in Cohort 2 will receive rituximab and sirolimus, along with a shortened course of corticosteroids. The immunosuppression regimen of corticosteroids alone for Cohort 1 remains unchanged.

In addition, there are specific inclusion criteria related to trofinetide, a medicine approved by the FDA for Rett syndrome in March 2023. Patients enrolling in the Phase 1/2 clinical trial may be trofinetide naïve or trofinetide failures, with “failures” defined as having tried trofinetide and discontinued for tolerability or lack of efficacy or other reasons. Following NGN-401 dosing, trofinetide may be initiated after a specified time period and with the support of the treating clinician. Key assessments in the NGN-401 clinical trial will be taken at three, six, nine, and 12 months, with efficacy assessments of interest including autonomic function, hand function, communication, and gross motor function.

In January 2024, we announced the that the UK MHRA approved our CTA for NGN-401 in pediatric females with Rett syndrome, which allows us to enroll participants of the Phase 1/2 clinical trial in the UK.

We remain on track to report interim clinical data from Cohort 1 in the fourth quarter of 2024 and additional data, including from Cohort 2, in the second half of 2025.

EXACT Discovery Pipeline

We have a skilled team of scientists, both internally and in conjunction with our collaboration with the University of Edinburgh, with extensive gene therapy experience. Our team is focused on expanding our transgene regulation pipeline and leveraging EXACT beyond its NGN-401 clinical candidate for Rett syndrome. We expect our ongoing discovery efforts will support our ability to nominate one new development candidate for a commercially attractive indication for entry into the clinic in 2025.

NGN-101

NGN-101 is our non-EXACT, conventional gene therapy development candidate for the treatment of CLN5 Batten disease, designed to deliver the CLN5 gene and packaged in an AAV9 capsid. NGN-101 is currently being evaluated in a Phase 1/2 clinical trial using a dual route of administration to deliver NGN-101 via single ICV and intravitreal (“IVT”) administrations to treat the neurogenerative and ocular disease manifestations of Batten in pediatric patients between the age of three and nine years old who have a confirmed genetic diagnosis of CLN5 Batten disease. We have completed enrollment in the first two dosing cohorts and are currently enrolling a higher dosing cohort and expect interim clinical data in the second half of 2024.

In the fourth quarter of 2023, we completed a positive meeting with the FDA regarding the future potency assay. The FDA accepted our proposed potency assay strategy and provided alignment with the testing approach, which will allow release of all future NGN-101 batches. To enable a go/no-go decision to advance the program into a registration study, we are planning to request a clinical/regulatory strategy meeting with the FDA in the second half of 2024. The focus of this meeting will be to align with the FDA on the expected clinical requirements to support a streamlined registration pathway, which will be necessary to move this program forward into a pivotal clinical trial.

In preclinical studies, we assessed a single ICV administration, a single IVT administration, and the combination of ICV and IVT dosing of NGN-101 in a CLN5 Batten sheep model for efficacy and NHPs for biodistribution and toxicity.

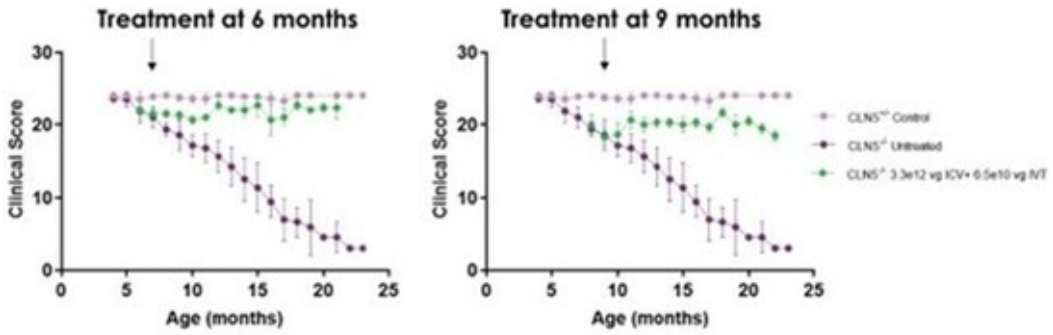
Batten disease is a family of rare neurodegenerative diseases caused by pathogenic changes in one of a series of genes that results in the accumulation of toxic deposits across multiple organ systems. CLN5 Batten disease is a rare, pediatric-onset and rapidly progressive condition caused by a pathogenic mutation in the CLN5 gene, leading to loss of function. It is characterized by loss of vision, seizures, and progressive decline in intellectual and motor capabilities beginning in childhood, leading to substantial impairments and early mortality. The incidence of Batten disease in estimated to be 1:100,000, with CLN5 Batten disease a small subset.

Currently, CLN5 Batten disease has no approved disease-specific treatment options.

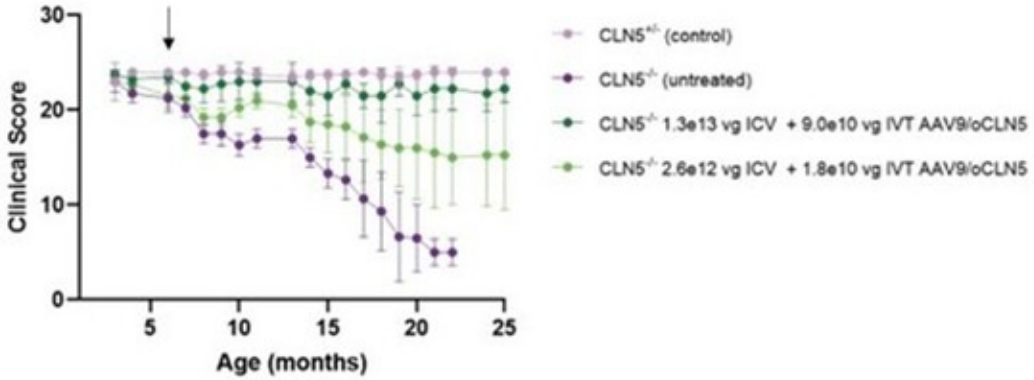
Preclinical CLN5 Data in Sheep Disease Model

There is a naturally occurring Borderdale sheep model that is deficient in the CLN5 protein and shows several of the symptoms found in human CLN5 Batten disease, including progressive vision loss, motor and gait abnormalities, and premature death. These animals typically reach the humane endpoint by 16-19 months, with a maximal life expectancy of 22 months. A clinical scoring system was developed by Lincoln University comprising 10 physical domains to evaluate the disease phenotype of these sheep, although only six domains developed a progressive change over time in the disease model. Data for a modified ovine Batten disease rating scale, consisting of the cumulative score of these six domains, are shown below, with a score of 24 reflecting a phenotypically normal animal.

In our preclinical study, sheep were administered a one-time IVT administration alone, ICV administration alone, or combination of IVT and ICV administration of an AAV9 vector containing an ovine version of the CLN5 transgene (AAV9/oCLN5). AAV9/oCLN5 slowed or halted key features of disease progression in the naturally occurring CLN5-deficient sheep model. While IVT administration alone preserved retinal layers within the eye, sheep ultimately succumbed to neurological disease and did not experience a survival benefit. In comparison, ICV administration alone significantly extended survival, but sheep experienced vision loss and blindness and subsequently experienced loss of function in other domains. Animals treated with concurrent administration employing both ICV and IVT routes of delivery experienced the most robust survival and phenotypic benefits, including preservation of translationally relevant phenotypes—visual and motor function.

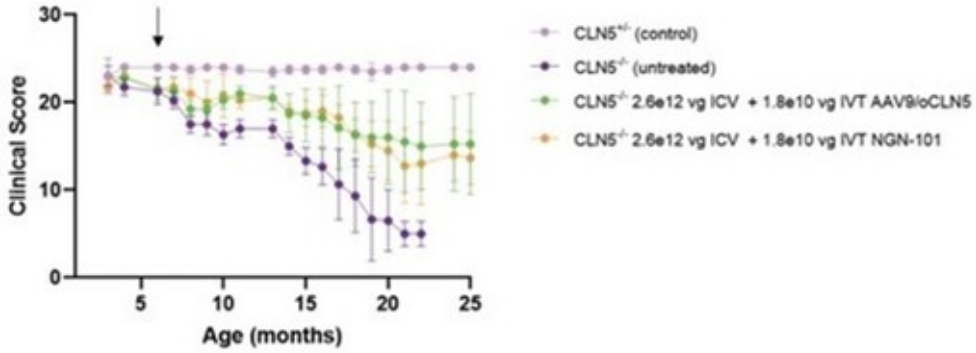


Animals that received AAV9/oCLN5 at either an early symptomatic (six months of age) or advanced symptomatic (nine months of age) disease state exhibited delayed disease progression and stabilized clinical function, demonstrated above in the clinical scoring data. AAV9/oCLN5 treatment preserved vision in the treated eye and mitigated declines in body weight, intracranial volume, and retinal function, as well as ameliorated brain and retinal pathology.



We conducted an additional study (shown above) in the ovine model of CLN5 disease to evaluate an approximately 4x higher ICV dose of AAV9/oCLN5 administered at an early symptomatic disease stage (six months of age), as well as to further explore IVT dosing. Data in this preclinical model demonstrated that the 4x higher ICV dose of AAV9/oCLN5 along with a modest IVT dose increase was generally well tolerated in this disease model and demonstrated an improved therapeutic effect as compared to the cohort of ovine animals receiving a similar ICV dose as previously tested, and approximately only 30% of the IVT dose. These data provide additional support for our clinical strategy for dose escalation in our ongoing Phase 1/2 clinical trial of NGN-101.

Bridging Sheep Study Comparing Ovine and Human CLN5 Transgene Administration

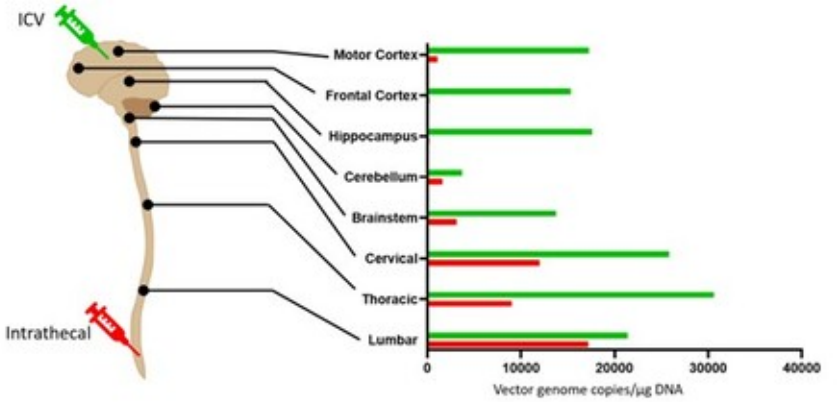


We also conducted a bridging sheep efficacy study that compared equivalent doses of AAV9/oCLN5 to NGN-101, the clinical product candidate containing the human CLN5 transgene. Based on the results of this study, we found the phenotypical improvements observed in the CLN5 knockout sheep were similar between the two transgenes.

We conducted a GLP toxicology and biodistribution study with NGN-101 in NHPs with three- and six-month timepoints. NGN-101 was generally well-tolerated in this study. Non-adverse transient aminotransferase elevations were observed, which were not associated with anatomic pathology findings. In addition, one animal inadvertently dosed with a two-fold higher dose than our highest planned IVT clinical dose experienced a moderately severe intraocular inflammatory response, which subsided with anti-inflammatory treatment. Based on these findings, the high dose cohort was considered the NOAEL.

Utilizing Optimal Drug Delivery to Treat CNS Disorders

To increase the probability of technical and regulatory success, we believe in utilizing the most optimal route of administration for AAV9 that best targets the underlying pathophysiology and biology of the disease.



The pathobiology of both Rett syndrome and CLN5 Batten disease involves structures across the nervous system. Therefore, it was critical to us to evaluate the optimal route of administration to achieve broad AAV9 distribution to key regions relevant for disease. To better appreciate each route of administration and to take a rational approach to choosing the optimal route of administration for our programs, we conducted a one-month study to evaluate a single total dose of an AAV9 vector containing a human CLN5 transgene comparing multiple routes of administration in NHPs. Shown above are vector genome biodistribution data specifically for unilateral ICV and intrathecal lumbar ("IT-L") delivery. ICV administration, shown in green, demonstrated broad biodistribution throughout the brain and spinal cord. When compared to IT-L delivery (shown in red above), ICV delivery achieved distribution that was significantly better to key areas of the nervous system underlying Rett syndrome and CLN5 Batten disease pathology. These areas include the cortex, hippocampus, and areas of the brain stem (pons and medulla). These data supported the selection of the ICV route of administration for the NGN-401 and NGN-101 programs.

Intellectual Property

We actively seek to protect our proprietary technology, inventions, and other intellectual property that is commercially important to the development of our business by a variety of means, including seeking, maintaining, and defending patent rights, whether developed internally or licensed from third parties. In particular, our patent strategy includes the filing of patent applications covering regulatory elements embodied by our EXACT technology and our unique gene sequences. We also may rely on trade secrets and know-how relating to our proprietary technology platform, including our EXACT platform technology, on continuing technological innovation and on in-licensing opportunities that may be important for the development of our business to develop, strengthen and maintain the strength of our position in the field of gene therapy. We also intend to seek patent protection or rely upon trade secret rights to protect other technologies that we may use to discover and validate targets, and that we may use to manufacture and develop novel gene therapy products. We are a party to license agreements that give us rights to use specific technologies in our gene therapy products and in manufacturing our products. Additional regulatory protection may also be afforded through data exclusivity, market exclusivity and patent term extensions where available.

As of December 31, 2023, Neurogene licenses 17 patent applications, including Patent Cooperation Treaty ("PCT"), U.S., and international patent applications as described below. Our policy is to file patent applications to protect technology, inventions and improvements to inventions that may be commercially important to the development of our business. Patent applications and patents directed to specific product candidates are summarized below:

EXACT Technology

We in-license from the University of Edinburgh 12 pending patent applications worldwide directed to regulatory control of transgene expression (including composition of matter, use, and process of making the therapeutic products). Any patents based on these applications, if issued, are expected to expire in 2041, without taking into account any possible patent term adjustment, regulatory extensions, or terminal disclaimers, and assuming payment of all annuities and/or maintenance fees.

NGN-401 for Rett Syndrome

We also in-license from the University of Edinburgh one pending PCT international patent application worldwide directed to recombinant MECP2 therapeutic constructs and methods for treating Rett syndrome and related conditions (including composition of matter, use, and process of making the therapeutic products). Any patents based on this application, if issued, are expected to expire in 2043, without taking into account any possible patent term adjustment, regulatory extensions, or terminal disclaimers, and assuming payment of all annuities and/or maintenance fees.

NGN-101 for CLN5 Batten Disease

We in-license from the University of North Carolina at Chapel Hill four pending patent applications worldwide directed to an optimized CLN5 therapeutic construct for treating Batten disease (including composition of matter, use, and process of making the therapeutic products). Any patents based on these applications, if issued, are expected to expire in 2039, without taking into account any possible patent term adjustment, regulatory extensions, or terminal disclaimers, and assuming payment of all annuities and/or maintenance fees.

Individual patents extend for varying periods depending on the date of filing of the patent application or the date of patent issuance and the legal term of patents in the countries in which they are obtained. Generally, patents issued for regularly-filed applications in the U.S. are effective for 20 years from the earliest effective non-provisional filing date. In addition, in certain instances, a patent term can be extended to recapture a portion of the U.S. Patent and Trademark Office's delay in issuing the patent as well as a portion of the term effectively lost as a result of the FDA regulatory review period. However, as to the FDA component, the restoration period cannot be longer than five years and the total patent term including the restoration period must not exceed 14 years following FDA approval. The duration of foreign patents varies in accordance with provisions of applicable local law, but typically is also 20 years from the earliest effective filing date. The actual protection afforded by a patent varies on a product-by-product basis, from country to country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent.

We also protect our trade secrets and other proprietary technology and processes, in part, by confidentiality and invention assignment agreements with our employees, consultants, scientific advisors and other contractors. These agreements may be breached, and we may not have adequate remedies for breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our employees, consultants, scientific advisors, or other contractors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Our commercial success will also depend in part on not infringing the proprietary rights of third parties. It is uncertain whether the issuance of any third-party patent would require us to alter our development or commercial strategies, alter our drugs or processes, obtain licenses, or cease certain activities. Our breach of any license agreements or failure to obtain a license to proprietary rights that we may require to develop or commercialize our future drugs may have a material adverse impact on our business, operations and financial condition.

Commercial

Should any of our product candidates be approved for commercialization, we intend to develop a plan to commercialize them in the U.S. and other key markets, through internal infrastructure and/or external partnerships in a manner that will enable us to realize the full commercial value of our programs. Given the company's stage of development, we have not yet established a commercial organization or distribution capabilities. We currently hold worldwide development and commercialization rights, including through exclusive licenses, to all of our product candidates.

Manufacturing

Our fully-operational, cGMP manufacturing facility is located in Houston, Texas, and includes process and analytical development labs. The site is approximately 42,000 square feet, with 6,000 square feet of cleanroom space dedicated to cGMP production of clinical product. Our manufacturing facility is also designed for commercial-grade drug product in the future (if regulatory approval is obtained). The facility includes our experienced team of approximately 41 employees that support process development, analytical development, quality assurance, quality control, manufacturing, supply chain, and maintenance. In addition to our process and analytical development capabilities, we have established a bioanalytical group that allows us to analyze vector biodistribution, mRNA expression, and protein expression from in-vivo preclinical studies. We believe this internal capability provides us with a lower cost structure and greater control over timelines driven by execution of our corporate priorities through dedicated oversight by our employees. We have produced nonclinical material to support our preclinical studies, including product candidates manufactured for use for IND-enabling studies.

We believe that our in-house manufacturing capabilities enable us to control product quality and development timelines, allow for strategic pipeline flexibility, and provide us with continuity in our process from preclinical to clinical to commercial manufacturing in the future (if regulatory approval is obtained). With in-house manufacturing capabilities designed to transition from preclinical to clinical-stage trials, beginning with NGN-401 for the treatment of Rett syndrome, we believe we are well positioned to avoid future product comparability challenges that other gene therapy companies have faced. NGN-401 has been successfully manufactured at our manufacturing facility and clinical-grade product is available for dosing in our ongoing Phase 1/2 clinical trial for female children with Rett syndrome that is currently enrolling patients. Product for the NGN-101 CLN5 Batten disease program was produced by a third-party manufacturer. We expect to manufacture in our facility subsequent cGMP campaigns for NGN-401, in addition to those for our early discovery pipeline. We believe internalizing our manufacturing capabilities has two significant financial advantages: (1) it provides us with the potential to have maximum flexibility to manufacture product candidates at a reduced cost and (2) it affords us greater control over CMC investments as programs progress through development.

The manufacturing facility is designed to be flexible, scalable, and a multi-product facility that can support two major scalable AAV production processes: transient transfection process using mammalian cells (HEK293) and an insect cell (Sf9) baculovirus based AAV production system. The processing suites are fitted with equipment that supports single-use technology, which we believe reduces the risk of cross-contamination and allows for multiple products to be manufactured utilizing either process. In addition, we designed the fill-finish suite to allow for final product to be vialed in-house, which we believe eliminates the need for a contract manufacturer and excessive shipping of product between facilities. AAV9 vector intended for IND-enabling studies is generated utilizing the same platform process (either HEK293 or Sf9 based) that is expected to be used in the clinic up to a 50L scale in our process development labs. Based on current program needs, the cGMP platform processes are executed at a 200L scale, and we believe we have the ability to scale up or scale out as material needs increase.

Competition

The biotechnology and pharmaceutical industries generally, and the gene therapy field specifically, are characterized by rapid evolution of technologies, competition and strong defense of intellectual property. Any product candidates that we develop and commercialize will face competition from existing therapies and new therapies that may become available in the future. While we believe our products, technology, scientific knowledge, talent and manufacturing capabilities differentiate us and provide us with competitive advantages, we face competition from other biotechnology companies, pharmaceutical and specialty pharmaceutical companies, as well as academic institutions. Our ability to compete will significantly depend upon our ability to complete necessary clinical trials and regulatory approval processes, and effectively market any drug that we may successfully develop.

While no disease-modifying therapies are currently available on the market for the treatment of Rett syndrome, we are aware of several companies that are in clinical or preclinical stages of developing gene therapies for the treatment of this disease. Taysha Gene Therapies, Inc. has a clinical-stage gene therapy program for the treatment of Rett syndrome. Stoke Therapeutics, Inc., in partnership with Acadia Pharmaceuticals Inc. (“Acadia”), and Alcyone Therapeutics, Inc. have disclosed the existence of early preclinical or discovery-stage gene therapy programs for the treatment of Rett syndrome. In July 2023, Acadia announced the acquisition of worldwide rights to NNZ-2591 for Rett syndrome, which is an investigational synthetic analogue of cyclo-glycyl-proline being developed in several neurodevelopmental syndromes.

DAYBUE (trofinetide) was approved by the FDA in March 2023 and is a commercially available treatment in the U.S. from Acadia for the treatment of Rett syndrome in adults and pediatric patients two years and older. Additionally, in July 2023, Acadia acquired ex-North American rights to trofinetide and announced plans to submit a New Drug Submission for trofinetide in Canada within 18 months and plans for Europe, Asia and other regions to be announced at a later date. However, we do not view trofinetide as directly competitive to our product candidate given the distinct mechanism of action of NGN-401, which we believe addresses the root cause of disease by replacing the missing protein.

The primary competitive factors that will affect the commercial success of any product candidate for which we may receive marketing approval include the efficacy, safety and tolerability profile, dosing convenience, price, coverage, reimbursement and public opinion. Some of our existing or potential competitors have substantially greater financial, technical and human resources than we do and significantly greater experience in the discovery and development of product candidates, as well as in obtaining regulatory approvals of those product candidates in the U.S. and in foreign countries. Some of our current and potential future competitors also have significantly more experience commercializing drugs that have been approved for marketing. Further, mergers, acquisitions and collaborations or partnerships in the biopharmaceutical industry could result in even more resources being concentrated among a small number of our competitors.

Accordingly, competitors may be more successful than us in obtaining regulatory approval for therapies and in achieving widespread market acceptance of their drugs. It is also possible that the development of a cure or more effective treatment method for any of our targeted indications by a competitor could render our product candidate non-competitive or obsolete, or reduce the demand for our product candidate before we can recover our development and commercialization expenses.

License Agreements

License Agreement with The University of North Carolina

In May 2019, we entered into an Exclusive License Agreement with the University of North Carolina at Chapel Hill ("UNC") to obtain an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses under certain patents to make, use, or sell products covered by such patents for prevention or treatment of disease or medical or genetic conditions, including CLN5 Batten disease or other diseases from dysfunction of the CLN5 gene. We are obligated to pay UNC up to $1.7 million in sales-related milestones for licensed products based on annual sales of the licensed product in excess of defined thresholds and low single-digit percentage royalties on net sales of licensed product for as long as there is a valid patent claim under the patent rights. We are also required to reimburse any patent expenses, as well as pay a nonrefundable annual maintenance fee which, when royalties become due and payable, will be creditable against such royalties.

License Agreement with The University of Edinburgh

In January 2020, we entered into an Option Agreement (the "Edinburgh Option Agreement") with the University Court of the University of Edinburgh ("University of Edinburgh") for an option to license certain patents covering the EXACT technology (the "Licensed Technology"). To secure the option, we were solely required to pay the costs associated with the filing, preparing, prosecution and maintenance of the patents covering the Licensed Technology during the option period. No other payments were payable under the Edinburgh Option Agreement. We subsequently exercised the option under the Edinburgh Option Agreement and in December 2020 entered into the MCA with the University of Edinburgh which superseded the Edinburgh Option Agreement.

Under the MCA, Neurogene and the University of Edinburgh agreed to collaborate on certain research and development projects ("Projects"), and we agreed to provide funding for such Projects for an initial term of 40 months, which term was extended in November 2023 for an additional 33 months to December 2026 and may be further extended by mutual agreement. In exchange for such funding, the University of Edinburgh granted us the option to exclusively license any intellectual property arising from such Projects. If we exercise an exclusive option for a particular Project, we will enter into a separate exclusive license agreement on its own terms with the University of Edinburgh. Under the MCA, we are obligated to pay semi-annual installment payments relating to funding of costs for personnel and lab consumables for the funding term of the MCA, through December 2026. Either party may terminate the MCA for convenience upon 90 days' notice. If we were to terminate the MCA, we would be responsible for all non-cancellable costs and commitments related to any particular Project and any and all funding costs for any person working on such Project.

In March 2022, we exercised our option under the MCA with respect to certain Projects, and entered into a License Agreement (the "March 2022 Edinburgh License Agreement") with University of Edinburgh, pursuant to which we license certain patents and know-how related to the EXACT technology and optimized MECP2 cassettes on an exclusive basis. Under the March 2022 Edinburgh License Agreement, we obtained an exclusive, worldwide license to the licensed patents to develop, manufacture, supply, sell, and commercialize any products that utilize the licensed patents (the "Licensed Products") in exchange for low single-digit percentage royalties on future commercial net sales of the Licensed Products. Royalties are payable on a Licensed Product-by-Licensed Product and country-by-country basis until the latest of the expiration of the last licensed patent covering such Licensed Product in the country where the Licensed Product is sold, or, if no licensed patent exists or has expired in such country, then ten years from first commercial sale of such Licensed Product in such country (the "Royalty Term"). The term of the March 2022 Edinburgh License Agreement continues until the end of the Royalty Term and the expiration of all of the payment obligations under that license. We may terminate the March 2022 Edinburgh License Agreement for convenience upon 90 days' notice. In connection with the license, we are also obligated to pay the University of Edinburgh up to $5.25 million in regulatory-related milestones and up to $25 million in sales-related milestones based on annual net sales of Licensed Products in excess of defined thresholds.

License Agreement with Virovek

In September 2020, we entered into a Non-Exclusive License Agreement with Virovek, Inc., pursuant to which we have a license to use certain patents and know-how on a non-exclusive basis related to our baculovirus process in exchange for low single-digit percentage royalties on future commercial net sales of each product using the baculovirus process, development milestone payments of up to $200,000 in the aggregate, and a nonrefundable annual license fee. This agreement continues until the later of (a) the expiration of the last to expire patent right that covers the manufacture, use, offer for sale, sale, importation, export or supply of any licensed product, (b) ten years after the first commercial sale of any licensed product, or (c) the expiration of all regulatory or market exclusivities. We may terminate this agreement for convenience upon 60 days' notice.

License Agreement with Sigma-Aldrich Co

In January 2023, we entered into a Non-Exclusive License Agreement with Sigma-Aldrich Co. LLC, pursuant to which we have a license to certain patents and know-how on a non-exclusive basis related to certain cell lines used in our baculovirus process in exchange for a small annual fee on a product-by-product basis, payable once the first product candidate enters the clinic. In addition, on a product-by-product basis, we are obligated to pay up to $2.5 million in the aggregate for development-related milestones. This agreement remains in force for as long as we continue to possess and use the licensed technology. We may terminate this agreement for convenience upon 60 days' notice.

Government Regulation

The FDA and other regulatory authorities at federal, state and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring and post-approval reporting of biological products ("biologics"), such as those we are developing. We, along with our third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates. Generally, before a new therapeutic product can be marketed, considerable data demonstrating a biological product candidate's quality, safety, purity and potency, or a small molecule drug candidate's quality, safety and efficacy, must be obtained, organized into a format specific for each regulatory authority, submitted for review and approved by the regulatory authority. For biological product candidates, potency is similar to efficacy and is interpreted to mean the specific ability or capacity of the product, as indicated by appropriate laboratory tests or by adequately controlled clinical data obtained through the administration of the product in the manner intended, to effect a given result.

Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or post-marketing may subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the FDA's refusal to approve pending applications from the sponsor, withdrawal of an approval, a clinical hold, untitled or warning letters, product recalls or market withdrawals, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement and civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on our company and our products or product candidates.

U.S. Biologics Regulation

In the U.S., biological products like the product candidates we are developing are subject to regulation under the Federal Food, Drug, and Cosmetic Act ("FDCA") and the Public Health Service Act ("PHSA") and their implementing regulations, as well as other federal, state, local, and foreign statutes and regulations. Within the FDA, the Center for Biologics Evaluation and Research ("CBER") regulates biological products, including gene and cell therapies. CBER's Office of Therapeutic Products is responsible for oversight of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee advises CBER on its reviews. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, and local statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or following approval may subject an applicant to administrative action and judicial sanctions. The process required by the FDA before biologic product candidates may be marketed in the U.S. generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with applicable regulations, including the FDA's current Good Laboratory Practices;
- submission to the FDA of an IND, which must become effective before clinical trials may begin and must be updated annually or when significant changes are made;
- approval by an independent institutional review board ("IRB"), or ethics committee at each clinical site before the trial may be commenced;
- manufacture of the proposed biologic candidate in accordance with cGMPs, with methods and controls to ensure the product's identity, strength, quality, purity, safety and efficacy or potency;
- performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, current Good Clinical Practice ("cGCP") requirements and other clinical-trial related regulations to establish the safety, purity and efficacy or potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a biologics license application ("BLA"), after completion of pivotal clinical trials;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- satisfactory completion of an FDA pre-license inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with cGMPs, and to assure that the facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and efficacy or potency, and potential audit of selected clinical investigation sites to assess compliance with cGCPs;
- FDA review and approval of a BLA to permit commercial marketing of the product for a particular indication(s) for use in the United States.
- payment of user fees under the Prescription Drug User Fee Act, unless waived;
- securing FDA approval of the BLA and licensure of the new biologic product; and
- compliance with any post-approval requirements, including, as applicable, the potential requirement to implement a Risk Evaluation and Mitigation Strategy ("REMS"), and any post-approval studies or other post-marketing commitments required by the FDA.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol or protocols for clinical trials. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the product (as applicable), chemistry, manufacturing and controls information, and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on a partial or full clinical hold. In the event of a clinical hold, the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with cGCPs, which include the requirement that all research subjects provide their informed consent for their participation in a clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to an existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site, and must monitor the study until completed.

Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may recommend halting the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as the absence of efficacy. There are also requirements governing the reporting of ongoing preclinical studies and clinical trials and clinical study results to public registries. Sponsors of clinical trials of FDA-regulated products, including biological products, are required to register and disclose certain clinical trial information, which is publicly available at *www.clinicaltrials.gov.*

A sponsor who wishes to conduct a clinical trial outside of the U.S. may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. If a foreign clinical trial is not conducted under an IND, the sponsor may submit data from the clinical trial to the FDA in support of a BLA. The FDA will accept a well-designed and well-conducted foreign clinical trial not conducted under an IND if the trial was conducted in accordance with cGCP requirements and the FDA is able to validate the data through an onsite inspection if deemed necessary.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- *Phase 1*. The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.

- *Phase 2*. The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- *Phase 3*. The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may be made a condition to approval of the BLA. Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and efficacy or potency. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data and clinical study investigators. Written IND safety reports must be promptly submitted to the FDA and the investigators for serious and unexpected suspected adverse reactions, any findings from other studies, tests in laboratory animals or in vitro testing that suggest a significant risk for human subjects, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. FDA approval of a BLA must be obtained before a biologic may be marketed in the U.S. The BLA must include all relevant data available from pertinent preclinical studies 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 studies intended to test the safety and effectiveness of the product, or from a number of alternative sources, including studies initiated and sponsored by investigators. The submission of a BLA requires payment of a substantial application user fee to the FDA, unless a waiver or exemption applies.

In addition, under the Pediatric Research Equity Act ("PREA"), a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the biological product candidate 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. The Food and Drug Administration Safety and Innovation Act requires that a sponsor who is planning to submit a marketing application for a biological product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration submit an initial pediatric study plan ("PSP") within sixty days after an end-of-Phase 2 meeting or, if there is no such meeting, as early as practicable before the initiation of the Phase 3 or Phase 2/3 study as may be agreed between the sponsor and FDA. The initial PSP must include an outline of the pediatric study or studies that the sponsor plans to conduct, including study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. The FDA and the sponsor must reach an agreement on the PSP before initiation of pediatric studies. A sponsor can request amendments to an agreed-upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from preclinical studies, early phase clinical trials and/or other clinical development programs. Amendments should not be considered agreed upon until the FDA issues a letter stating that the amendments are acceptable. Unless otherwise required by regulation, PREA does not apply to any biological product for an indication for which orphan designation has been granted.

Within 60 days following submission of the BLA, the FDA reviews the application to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. Once a BLA has been accepted for filing, the FDA's goal is to review standard applications within ten months after the filing date, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process may also be extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed or held meets standards designed to assure the product's continued safety, purity and efficacy or potency. The FDA may convene an advisory committee to provide clinical insight on application review questions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving a BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. 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 a BLA, the FDA will typically inspect one or more clinical sites to assure compliance with cGCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it typically will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

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

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

Additional Considerations for Gene Therapy Products

In addition to the regulations discussed above, there are a number of additional considerations that apply to clinical trials involving the use of gene therapy. Supervision of human gene transfer trials includes evaluation and assessment by an institutional biosafety committee ("IBC") a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. The FDA has issued various guidance documents regarding gene therapies, which outline additional factors that the FDA will consider at each of the above stages of development and relate to, among other things: the proper preclinical assessment of gene therapies; the CMC information that should be included in an IND application; the proper design of tests to measure product efficacy or potency in support of an IND or BLA application; and measures to observe delayed adverse effects in subjects who have been exposed to investigational gene therapies when the risk of such effects is high. For instance, the FDA usually recommends that sponsors observe all surviving subjects who receive treatment using gene therapies that are based on adeno-associated virus vectors in clinical trials for potential gene therapy-related delayed adverse events for a minimum five-year period. FDA does not require the long-term tracking to be complete prior to its review of the BLA.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. The fast track program is intended to expedite or facilitate the process for reviewing new products that meet certain criteria. Specifically, new products are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and data demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a new biological product may request the FDA to designate the biological product as a Fast Track product at any time during the clinical development of the product. The sponsor of a fast track product has opportunities for more frequent interactions with the review team during product development and, once a BLA is submitted, the product may be eligible for priority review. A fast track product may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA. We have received fast track designation for both of our product candidates that are currently in Phase 1/2 clinical trials, NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease.

A product may also be eligible for breakthrough therapy designation to expedite its development and review if it is intended to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product, including involvement of senior managers. We may seek breakthrough therapy designation for one or more of our product candidates, including NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease.

Regenerative medicines, which include AAV gene therapies like the ones we are using in both our NGN-401 clinical trial for the treatment of Rett syndrome and our NGN-101 clinical trial for the treatment of CLN5 Batten disease, are eligible to receive the regenerative medicine advanced therapy ("RMAT") designation. An RMAT is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions. Such a product is eligible for RMAT designation if it is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition and preliminary clinical evidence indicates it has the potential to address unmet medical needs for such disease or condition. Advantages of the RMAT designation include early interactions with the FDA to discuss the development plan for the product candidate, including potential surrogate or intermediate endpoints, and eligibility for rolling and priority review. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites. RMAT-designated products that receive accelerated approval may, as appropriate, fulfill their post-approval requirements through the submission of clinical evidence, clinical studies, patient registries, or other sources of real-world evidence (such as electronic health records); through the collection of larger confirmatory data sets; or via post-approval monitoring of all patients treated with such therapy prior to approval of the therapy. While we have not yet sought RMAT designation for any of our products to date, we may request such a designation on one or more products in the future, including NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease.

Any marketing application for a biologic submitted to the FDA for approval, including a product with a fast track designation, breakthrough therapy designation and/or RMAT designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide a significant improvement in the safety or effectiveness of the treatment, diagnosis or prevention of a serious disease or condition. For original BLAs, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (as compared to ten months under a standard review). We have not sought priority review for any of our product candidates to date, but may do so in the future, including for our product candidates currently in clinical trials: NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease.

Additionally, products intended for use in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product has 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, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies with due diligence to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022 ("FDORA"), the FDA may require, as appropriate, that such studies be underway prior to approval or within a specific time period after the date of approval for a product granted accelerated approval. Under FDORA, the FDA has increased authority for expedited procedures to withdraw approval of a product or indication approved under accelerated approval if the sponsor fails to conduct the required post-marketing studies or if such studies fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Fast track designation, breakthrough therapy designation, RMAT designation and priority review do not change the standards for approval but may expedite the development or approval process. Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Orphan Drug Designation and Exclusivity

Under the Orphan Drug Act of 1983, the FDA may grant orphan drug designation to a product candidate intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the U.S., or 200,000 or more individuals in the U.S. for which there is no reasonable expectation that the cost of developing and making available in the U.S. a drug or biologic for this type of disease or condition will be recovered from sales in the U.S. for that product candidate. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. We have received an orphan drug designation for both of our product candidates that are currently in Phase 1/2 clinical trials, NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity by means of greater effectiveness, greater safety or providing a major contribution to patient care or if the holder of the orphan drug exclusivity cannot assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the product was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan drug designation. In addition, exclusive marketing rights in the U.S. may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

There is some uncertainty with respect to the FDA's interpretation of the scope of orphan drug exclusivity. Historically, exclusivity was specific to the orphan indication for which the drug was approved. As a result, the scope of exclusivity was interpreted as preventing approval of a competing product. However, in 2021, the federal court in Catalyst Pharmaceuticals, Inc. v. Becerra suggested that orphan drug exclusivity covers the full scope of the orphan-designated “disease or condition” regardless of whether a drug obtained approval for a narrower use.

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA-approved applications are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. As part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. After a BLA is approved for a biological product, the product also may be subject to official lot release. If the product is subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer’s tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, and potency or effectiveness of biologics. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which the FDA assesses an annual program fee for each product identified in an approved BLA. Biologic manufacturers like us and their subcontractors 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 cGMPs, which impose certain procedural and documentation requirements upon such companies and their third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs and impose reporting requirements upon such companies and any third-party manufacturers that they may decide to use. Accordingly, we must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards 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, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

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

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by drug manufacturers and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

In addition, the distribution of prescription drug products, including most biological products that require a prescription, are subject to the Prescription Drug Marketing Act, or the PDMA, which regulates the distribution of drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription drug product samples and impose requirements to ensure accountability in distribution.

Biosimilars and Reference Product Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the "ACA"), includes a subtitle called the Biologics Price Competition and Innovation Act of 2009 ("BPCIA"), which created an abbreviated approval pathway for biological products that are highly similar, or "biosimilar," to or interchangeable with an FDA-approved reference biological product. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and efficacy or potency, is generally shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. A product shown to be biosimilar or interchangeable with an FDA-approved reference biological product may rely in part on the FDA's previous determination of safety and effectiveness for the reference product for approval, which can potentially reduce the cost and time required to obtain approval to market the product. Complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA. In September 2021, the FDA issued two guidance documents intended to inform prospective applicants and facilitate the development of proposed biosimilars and interchangeable biosimilars, as well as to describe the FDA's interpretation of certain statutory requirements added by the BPCIA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and efficacy or potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. FDA-approved interchangeable biosimilars may be substituted for the reference product without the intervention of the prescribing health care provider, subject to state laws, which differ by state.

A reference biologic is granted 12 years of exclusivity from the time of first licensure of the reference product. The first biologic product submitted under the abbreviated approval pathway that is determined to be interchangeable with the reference product has exclusivity against other biologics submitted under the abbreviated approval pathway for the lesser of (i) one year after the first commercial marketing, (ii) 18 months after approval if there is no legal challenge, (iii) 18 months after the resolution in the applicant's favor of a lawsuit challenging the biologics' patents if an application has been submitted, or (iv) 42 months after the application has been approved if a lawsuit is ongoing within the 42-month period.

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

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In July 2018, the FDA announced an action plan to encourage the development and efficient review of biosimilars, including the establishment of a new office within the agency that will focus on therapeutic biologics and biosimilars. On December 20, 2020, Congress amended the PHSA as part of the COVID-19 relief bill to further simplify the biosimilar review process by making it optional to show that conditions of use proposed in labeling have been previously approved for the reference product, which used to be a requirement of the application. In addition, government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

As discussed below, the Inflation Reduction Act of 2022 ("IRA") is a significant new law that intends to foster generic and biosimilar competition and to lower drug and biologic costs.

Patent Term Extension

In the U.S., after a BLA is approved, owners of relevant drug patents may apply for up to a five-year patent extension, which permits patent term restoration as compensation for the patent term lost during the FDA regulatory process. The allowable patent term extension is typically calculated as one-half the time between, the latter of the effective date of an IND and issue date of the patent for which extension is sought, and the submission date of a BLA, plus the time between BLA submission date and the BLA approval date up to a maximum of five years. The time can be shortened if the FDA determines that the applicant did not pursue licensure with due diligence. The total patent term after the extension may not exceed 14 years from the date of product licensure. Only one patent applicable to a licensed biological product is eligible for extension and only those claims covering the product, a method for using it, or a method for manufacturing it may be extended and the application for the extension must be submitted prior to the expiration of the patent in question. However, Neurogene may not be granted an extension 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. Some, but not all, foreign jurisdictions possess patent term extension or other additional patent exclusivity mechanisms that may be more or less stringent and comprehensive than those of the U.S.

Rare Pediatric Disease Designation and Priority Review Vouchers

Under the FDCA, as amended, the FDA incentivizes the development of drugs and biologics intended to treat conditions that meet the definition of a "rare pediatric disease," defined to mean a serious or life-threatening disease in which the serious or life-threatening manifestations primarily affect individuals aged from birth to 18 years and the disease affects fewer than 200,000 individuals in the U.S. or affects more than 200,000 in the U.S. and for which there is no reasonable expectation that the cost of developing and making in the U.S. a drug for such disease or condition will be received from sales in the U.S. of such drug. Both Rett syndrome and CLN5 Batten disease qualify as rare pediatric diseases, and we have received rare pediatric disease designation for both NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Batten disease, and we may request such designation for future product candidates if the diseases they are intended to treat meet the definition of a rare pediatric disease. The sponsor of a product candidate for a rare pediatric disease may be eligible for a voucher that can be used to obtain a priority review for a subsequent human drug or biologic application after the date of approval of the rare pediatric disease drug product, referred to as a priority review voucher (a "PRV"). A sponsor may request rare pediatric disease designation from the FDA prior to the submission of its BLA. A rare pediatric disease designation does not guarantee that a sponsor will receive a PRV upon approval of its BLA. Moreover, a sponsor who chooses not to submit a rare pediatric disease designation request may nonetheless receive a PRV upon approval of their marketing application if they request such a voucher in their original marketing application and meet all of the eligibility criteria. If a PRV is received, it may be sold or transferred an unlimited number of times. Congress has extended the PRV program through September 30, 2024, with the potential for PRVs to be granted through September 30, 2026. If Congress does not further extend this program, we may not meet the deadline for PRVs to be granted for our current programs given the expected timeline of development.

Other Healthcare Laws and Compliance Requirements

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation: the federal Anti-Kickback Statute ("AKS"); the federal False Claims Act ("FCA"); the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"); and similar foreign, federal and state fraud, abuse and transparency laws.

The AKS prohibits, among other things, persons and entities from knowingly and willfully soliciting, receiving, offering or paying remuneration, to induce, or in return for, either the referral of an individual, or the purchase, lease, order, arrangement, or recommendation of an item or service for which payment may be made under any federal healthcare program. The term remuneration has been interpreted broadly to include anything of value. The AKS has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand, and prescribers and purchasers on the other. The government often takes the position that to violate the AKS, only one purpose of the remuneration need be to induce referrals, even if there are other legitimate purposes for the remuneration. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from AKS prosecution, but they are drawn narrowly and practices that involve remuneration, such as consulting agreements, that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the AKS. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Violations are subject to civil and criminal fines and penalties for each violation, plus up to three times the remuneration involved, imprisonment, and exclusion from government healthcare programs. In addition, the government may assert that a claim including items or services resulting from a violation of the AKS constitutes a false or fraudulent claim for purposes of the FCA or federal civil monetary penalties.

Civil and criminal false claims laws, including the FCA, and civil monetary penalty laws, which impose criminal and civil penalties and can be enforced through civil whistleblower or qui tam actions, prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment of federal government funds, including in federal healthcare programs, that are false or fraudulent; knowingly making, using or causing to be made or used, a false statement of record material to a false or fraudulent claim or obligation to pay or transmit money or property to the federal government or knowingly concealing or knowingly and improperly avoiding or decreasing an obligation to pay money to the federal government. Pharmaceutical and other healthcare companies have been prosecuted under these laws for engaging in a variety of different types of conduct that "caused" the submission of false claims to federal healthcare programs. Under the AKS, for example, a claim resulting from a violation of the AKS is deemed to be a false or fraudulent claim for purposes of the FCA. The FCA imposes mandatory treble damages and per-violation civil penalties up to approximately $27,000. The FCA also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the FCA and to share in any monetary recovery.

HIPAA created additional federal criminal statutes that prohibit, among other things, executing a scheme to defraud any healthcare benefit program, including private third-party payors, and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements or representations relating to healthcare matters.

The FDCA addresses, among other things, the design, production, labeling, promotion, manufacturing, and testing of drugs, biologics and medical devices, and prohibits such acts as the introduction into interstate commerce of adulterated or misbranded drugs or devices. The PHSA also prohibits the introduction into interstate commerce of unlicensed or mislabeled biological products.

The U.S. federal Physician Payments Sunshine Act (the "Physician Payments Sunshine Act") requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to annually report to the Centers for Medicaid & Medicare Services ("CMS") information related to payments or other transfers of value to various healthcare professionals including physicians, certain other licensed health care practitioners, and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Beginning on January 1, 2023, California Assembly Bill 1278 requires California physicians and surgeons to notify patients of the Open Payments database established under the Physician Payments Sunshine Act.

We are also subject to federal price reporting laws and federal consumer protection and unfair competition laws. Federal price reporting laws require manufacturers to calculate and report complex pricing metrics to government programs, where such reported prices may be used in the calculation of reimbursement and/ or discounts on approved products. Federal consumer protection and unfair competition laws broadly regulate marketplace activities and activities that potentially harm consumers.

Further, we are subject to additional similar U.S. state and foreign law equivalents of each of the above federal laws, which, in some cases, differ from each other in significant ways, and may not have the same effect, thus complicating compliance efforts. If our operations are found to be in violation of any of such laws or any other governmental regulations that apply, we may be subject to penalties, including, without limitation, civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations.

Data Privacy and Security

Numerous state, federal, and foreign laws govern the collection, dissemination, use, access to, confidentiality, and security of personal information, including health-related information. In the U.S., numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws and regulations that govern the collection, use, disclosure, and protection of health-related and other personal information apply to our operations or the operations of our partners. For example, HIPAA, as amended by the Health Information Technology for Economic and Clinical Health ("HITECH"), and their respective implementing regulations imposes privacy, security, and breach notification obligations on certain health care providers, health plans, and health care clearinghouses, known as covered entities, as well as their business associates and subcontractors that perform services on their behalf that involve using, disclosing, creating, receiving, maintaining, or transmitting individually identifiable health information for or on behalf of such covered entities. The requirements imposed by HIPAA and HITECH on covered entities and business associates include entering into agreements that require business associates protect protected health information ("PHI") provided by the covered entity against improper use or disclosure, among other things; following certain standards for the privacy of PHI, which limit the disclosure of a patient's past, present or future physical or mental health or condition or information about a patient's receipt of health care if the information identifies, or could reasonably be used to identify, the individual; ensuring the confidentiality, integrity and availability of all PHI created, received, maintained or transmitted in electronic form, in particular in order to identify and protect against reasonably anticipated threats or impermissible uses or disclosures to the security and integrity of such PHI; and reporting of such breaches of PHI to individuals, the U.S. Department of Health and Human Services ("HHS") and, in certain circumstances, the media.

Significant civil and criminal fines and other penalties may be imposed for violating HIPAA. A covered entity or business associate is also liable for civil money penalties for a violation that is based on an act or omission of any of its agents, which may include a downstream business associate, as determined according to the federal common law of agency. HITECH also increased the civil and criminal penalties applicable to covered entities and business associates and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys' fees and costs associated with pursuing federal civil actions. To the extent that we submit electronic healthcare claims and payment transactions that do not comply with the electronic data transmission standards established under HIPAA and HITECH, payments to us may be delayed or denied.

Even when HIPAA does not apply, according to the FTC, violating consumers' privacy rights or failing to take appropriate steps to keep consumers' personal information secure may constitute unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act. Many state consumer protection laws similarly provide state-law causes of action for allegedly unfair or deceptive acts or practices, among other things, including causes of action for alleged data privacy violations.

In addition, certain state laws, such as the California Consumer Privacy Act of 2018 ("CCPA"), as amended by the California Privacy Rights Act of 2020 ("CPRA") and California's Confidentiality of Medical Information Act, govern the privacy and security of personal information, including health-related information in certain circumstances, some of which are more stringent than HIPAA and many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. The CCPA/CPRA applies to personal data of consumers, business representatives, and employees, and imposes obligations on certain businesses that do business in California, including to provide specific disclosures in privacy notices and certain rights to California residents in relation to their personal information. Failure to comply with these laws, where applicable, can result in the imposition of significant civil and/or criminal penalties and, in some cases, private litigation, as well as injunctive restrictions on data processing. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other, which complicates compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing. Additionally, our use of artificial intelligence and machine learning may be subject to laws and evolving regulations regarding the use of artificial intelligence/machine learning, controlling for data bias, and anti-discrimination.

Coverage and Reimbursement

In the U.S. and markets in other countries, patients generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Our ability to successfully commercialize our product candidates 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. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow it to establish or maintain pricing sufficient to realize a sufficient return on its investment. 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.

Significant uncertainty exists as to the coverage and reimbursement status of any pharmaceutical or biological product for which we may obtain regulatory approval. Sales of any product, if approved, depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement, if any, for such product by third-party payors. Decisions regarding whether to cover any of its product candidates, if approved, the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. Further, no uniform policy for coverage and reimbursement exists in the U.S., and coverage and reimbursement can differ significantly from payor to payor. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. As a result, the coverage determination process is often a time-consuming and costly process that will require it to provide scientific and clinical support for the use of its product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Factors payors consider in determining reimbursement are based on whether the 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.

Third-party payors are increasingly challenging the prices charged for medical products and services, examining the medical necessity and reviewing the cost effectiveness of pharmaceutical or biological products, medical devices and medical services, in addition to questioning safety and efficacy. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product that receives approval. Decreases in third-party reimbursement for any product or a decision by a third-party not to cover a product could reduce physician usage and patient demand for the product.

For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. In addition, companion diagnostic tests require coverage and reimbursement separate and apart from the coverage and reimbursement for their companion pharmaceutical or biological products. Similar challenges to obtaining coverage and reimbursement, applicable to pharmaceutical or biological products, will apply to companion diagnostics.

In addition, 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 U.S. 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. We cannot be sure that reimbursement will be available for any product candidate that we may commercialize and, if reimbursement is available, the level of reimbursement. In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price, or ASP, and best price. Penalties may apply in some cases when such metrics are not submitted accurately and timely. Further, these prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs.

Finally, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. 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 of our product candidates. Historically, products launched in the European Union do not follow price structures of the U.S. and generally prices tend to be significantly lower.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted a number of reform proposals to change the healthcare system. There is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality or expanding access. In the U.S., the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by federal and state legislative initiatives, including those designed to limit the pricing, coverage, and reimbursement of pharmaceutical and biopharmaceutical products, especially under government-funded health care programs, and increased governmental control of drug pricing.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (“ACA”), which was enacted in 2010, substantially changed the way healthcare is financed by both governmental and private insurers in the U.S., and significantly affected the pharmaceutical industry. The ACA contains a number of provisions of particular import to the pharmaceutical and biotechnology industries, including, but not limited to, those governing enrollment in federal healthcare programs. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA, and Neurogene expects there will be additional challenges and amendments to the ACA in the future.

Other legislative changes have been proposed and adopted since the ACA was enacted. For example, the Budget Control Act of 2011 and subsequent legislation, among other things, created measures for spending reductions by Congress that include aggregate reductions of Medicare payments to providers of 2% per fiscal year, which remain in effect through 2032. 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. The U.S. 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.

In addition, the Bipartisan Budget Act of 2018, among other things, amended the Medicare Act (as amended by the ACA) to increase the point-of-sale discounts that manufacturers must agree to offer under the Medicare Part D coverage discount program to 70% off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer’s outpatient drugs being covered under Medicare Part D.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state measures designed to, among other things, reduce the cost of prescription drugs, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. For example, in May 2019, CMS adopted a final rule allowing Medicare Advantage Plans the option to use step therapy for Part B drugs, permitting Medicare Part D plans to apply certain utilization controls to new starts of five of the six protected class drugs, and requiring the Explanation of Benefits for Part D beneficiaries to disclose drug price increases and lower cost therapeutic alternatives.

In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. The IRA includes several provisions that may impact our business to varying degrees, including provisions that reduce the out-of-pocket spending cap for Medicare Part D beneficiaries from $7,050 to $2,000 starting in 2025, thereby effectively eliminating the coverage gap; 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 until January 1, 2032 the implementation of the HHS rebate rule that would have limited 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 designation and for which the only approved indication is for that disease or condition. If a product receives multiple rare disease designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The effects of the IRA on its business and the healthcare industry in general is not yet known.

President Biden has also 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.

Notwithstanding the IRA and President Biden's executive orders, continued legislative and enforcement interest exists in the U.S. with respect to specialty drug pricing practices. Specifically, we expect regulators to continue pushing for transparency to drug pricing, reducing the cost of prescription drugs under Medicare, reviewing the relationship between pricing and manufacturer patient programs, and reforming government program reimbursement methodologies for drugs.

Individual states in the U.S. have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain drug access and marketing cost disclosure and transparency measures, and designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, financial condition, results of operations and prospects. In addition, regional healthcare 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 healthcare programs. This could reduce the ultimate demand for its drugs or put pressure on its drug pricing, which could negatively affect our business, financial condition, results of operations and prospects.

Other Government Regulation Outside of the United States

In addition to regulations in the U.S., we are subject to a variety of regulations in other jurisdictions governing, among other things, research and development, clinical trials, testing, manufacturing, safety, efficacy, quality control, labeling, packaging, storage, record keeping, distribution, reporting, export and import, advertising, marketing and other promotional practices involving biological products as well as authorization, approval as well as post-approval monitoring and reporting of its products. Because biologically sourced raw materials are subject to unique contamination risks, their use may be restricted in some countries.

Whether or not we obtain FDA approval for a product, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the U.S. have a similar process that requires the submission of a clinical trial application much like an IND prior to the commencement of human clinical trials.

The requirements and process governing the conduct of clinical trials, including requirements to conduct additional clinical trials, product licensing, safety reporting, post-authorization requirements, marketing and promotion, interactions with healthcare professionals, pricing and reimbursement may vary widely from country to country. No action can be taken to market any product in a country until an appropriate approval application has been approved by the regulatory authorities in that country. The current approval process varies from country to country, and the time spent in gaining approval varies from that required for FDA approval. In certain countries, the sales price of a product must also be approved. The pricing review period often begins after market approval is granted. Even if a product is approved by a regulatory authority, satisfactory prices may not be approved for such product, which would make launch of such products commercially unfeasible in such countries.

Regulation in the European Union

European Data Protection Laws

The collection and use of personal health data and other personal data regarding individuals in the European Economic Area ("EEA") is governed by the provisions of the European General Data Protection Regulation 2016/679 ("EU GDPR") and related data protection laws in individual EEA member states, including additional requirements relating to health, genetic and biometric data implemented through national legislation. Similar processing of personal health data and other personal data regarding individuals in the UK is governed by the UK General Data Protection Regulation ("UK GDPR") and the UK Data Protection Act 2018. In this document, "GDPR" refers to both the EU GDPR and the UK GDPR, unless specified otherwise. The GDPR imposes a number of strict obligations and restrictions on the ability to process, including collecting, analyzing and transferring, personal data of individuals, in particular with respect to health data from clinical trials and adverse event reporting. The GDPR includes requirements relating to the legal basis of the processing (such as consent of the individuals to whom the personal data relates), the information provided to the individuals prior to processing their personal data, the notification obligations to the national data protection authorities, and the security and confidentiality of the personal data. Because we are conducting a portion of our ongoing clinical trials in the UK, these requirements will apply to us with respect to the data generated from individuals participating in those trials in the UK.

In addition, the GDPR imposes specific restrictions on the transfer of personal data to countries outside of the EEA/UK that are not considered by the European Commission ("EC") and the UK government as providing an adequate level of data protection. Appropriate safeguards are required to enable such transfers. Among the appropriate safeguards that can be used, the data exporter may use the European Commission approved standard contractual clauses ("SCCs") and the UK International Data Transfer Agreement/Addendum ("UK IDTA"). Where relying on the SCCs or UK IDTA for data transfers, we may also be required to carry out transfer impact assessments to assess whether the recipient is subject to local laws which allow public authority access to personal data. The international transfer obligations under the EEA/UK data protection regimes will require effort and cost and may result in us needing to make strategic considerations around where EEA/UK personal data are located and which service providers we can utilize for the processing of EEA/UK personal data. Although the UK is regarded as a third country under the EU GDPR, the European Commission has issued a decision recognizing the UK as providing adequate protection under the EU GDPR ("Adequacy Decision") and, therefore, transfers of personal data originating in the EEA to the UK remain unrestricted. However, the Adequacy Decision include a 'sunset clause' which entails that the decision will automatically expire four years after its entry into force, unless renewed. On February 2, 2022, the UK Secretary of State laid before the UK Parliament the international data transfer agreement ("IDTA") and the international data transfer addendum to the European Commission's standard contractual clauses for international data transfers ("Addendum") and a document setting out transitional provisions. The IDTA and Addendum came into force on March 21, 2022, and replaced the old SCCs for the purposes of the UK regime. However, the transitional provisions, adopted with the IDTA and the Addendum, provide that contracts concluded on or before September 21, 2022 on the basis of any old SCCs continue to provide appropriate safeguards for the purpose of the UK regime until March 21, 2024, provided that the processing operations that are the subject matter of the contract remain unchanged and reliance on those clauses ensures that the transfer of personal data is subject to appropriate safeguards. The UK government has confirmed that personal data transfers from the UK to the EEA remain free flowing. The UK government has also now introduced a Data Protection and Digital Information Bill ("UK Data Protection Bill") into the UK legislative process with the intention for this bill to reform the UK's data protection regime following the UK's succession from the EU. If passed, the final version of the UK Data Protection Bill may have the effect of further altering the similarities between the UK and EU data protection regime. This may lead to additional compliance costs and could increase our overall risk. The respective provisions and enforcement of the EU GDPR and UK GDPR may further diverge in the future and create additional regulatory challenges and uncertainties.

With regard to the transfer of data from the EEA to the U.S., on July 10, 2023, the European Commission adopted its adequacy decision for the EU-US Data Privacy Framework. On the bases of the new adequacy decision, personal data can flow from the EEA to US companies participating in the framework.

Failure to comply with the requirements of the GDPR and the related national data protection laws of the EEA member states/UK may result in significant monetary fines for noncompliance of up to €20 million (£17.5 million for the UK) or 4% of the annual global revenues of the noncompliant company, whichever is greater, other administrative penalties and a number of criminal offenses (punishable by uncapped fines) for organizations and, in certain cases, their directors and officers, as well as civil liability claims from individuals whose personal data was processed. Data protection authorities from the different EEA member states/UK may still implement certain variations, enforce the GDPR and national data protection laws differently, and introduce additional national regulations and guidelines, which adds to the complexity of processing personal data subject to the EEA/UK data protection regimes. Guidance developed at both the EU level and at the national level in individual EU member states concerning implementation and compliance practices are often updated or otherwise revised.

With regard to the transfer of personal data from the UK to the U.S., the UK government has adopted an adequacy decision for the U.S. (the "UK-US Data Bridge"), which came into force on October 12, 2023. The UK-US Data Bridge recognizes the U.S. as offering an adequate level of data protection where the transfer is to a U.S. company participating in the EU-US Data Privacy Framework and the UK Extension to the EU-US Data Privacy Framework.

Compliance with the GDPR is a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines, penalties and litigation in connection with European activities, which could in turn have a negative effect on our reputation and materially harm our business.

Furthermore, there is a growing trend towards the required public disclosure of clinical trial data in the EU, which adds to the complexity of obligations relating to processing health data from clinical trials. Such public disclosure obligations are provided in the new EU Clinical Trials Regulation (EU) No. 536/2014 (the "CTR"), EMA disclosure initiatives and voluntary commitments by industry. Failure to comply with these obligations could lead to government enforcement actions and significant penalties against it, harm to its reputation, and adversely impact its business and operating results. The uncertainty regarding the interplay between different regulatory frameworks, such as the CTR and the GDPR, further adds to the complexity that we face with regard to data protection regulation.

Drug and Biologic Development Process

Regardless of where they are conducted, all clinical trials included in applications for marketing authorization for human medicines in the EU must have been carried out in accordance with EU regulations. This means that clinical trials conducted in the EU have to comply with EU clinical trial legislation but also that clinical trials conducted outside the EU have to comply with ethical principles equivalent to those set out in the EU, including adhering to international good clinical practice and the Declaration of Helsinki. The conduct of clinical trials in the EU is governed by the CTR, which entered into force on January 31, 2022. The CTR replaced the Clinical Trials Directive 2001/20/EC, ("Clinical Trials Directive") and introduced a complete overhaul of the existing regulation of clinical trials for medicinal products in the EU.

Under the former regime, which will expire after a transition period of one or three years from the date the CTR came into effect, respectively, as outlined below in more detail, before a clinical trial can be initiated it must be approved in each EU member state where there is a site at which the clinical trial is to be conducted. The approval must be obtained from two separate entities: the national competent authority in the applicable EU member state(s) and one or more ethics committees. The national competent authority of all EU member states in which the clinical trial will be conducted must authorize the conduct of the trial, and the independent ethics committee must grant a positive opinion in relation to the conduct of the clinical trial in the relevant EU member state before the commencement of the trial. Any substantial changes to the trial protocol or other information submitted with the clinical trial applications must be submitted to or approved by the relevant national competent authorities and ethics committees. Under the current regime all suspected unexpected serious adverse reactions to the investigated drug that occur during the clinical trial must be reported to the national competent authority and to the ethics committees of the EU member state where they occur.

A more unified procedure applies under the CTR. A sponsor can submit a single application for approval of a clinical trial through a centralized EU clinical trials portal (the "Clinical Trials Information System" or "CTIS"). One national competent authority (the reporting EU member state proposed by the applicant) will take the lead in validating and evaluating the application, and will consult and coordinate with the other concerned EU member states. If an application is rejected, it may be amended and resubmitted through the EU clinical trials portal. If an approval is issued, the sponsor may start the clinical trial in all concerned EU member states. However, a concerned EU member state may in limited circumstances declare an "opt-out" from an approval and prevent the clinical trial from being conducted in such member state. The CTR also aims to streamline and simplify the rules on safety reporting, and introduces enhanced transparency requirements such as mandatory submission of a summary of the clinical trial results to the EU database. The CTR foresees a three-year transition period from the date the CTR went into effect. Since January 31, 2023, submission of initial clinical trial applications via CTIS is mandatory, and by January 31, 2025, all ongoing trials approved under the former Clinical Trials Directive will need to comply with the CTR and have to be transitioned to CTIS. On July 19, 2023, the European Commission published guidance concerning the steps to be taken in this transition. This guidance provides, among other things, that (i) documentation which was previously assessed will not be reassessed, (ii) templates that were developed and endorsed by the EU Clinical Trials Expert Group to provide compliance with the CTR do not need to be updated and (iii) there is no need to retrospectively create a site suitability form, which are only necessary for new trial sites.

Under both the former regime and the CTR, national laws, regulations, and the applicable GCP and GLP standards must also be respected during the conduct of the trials, including the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use guidelines on Good Clinical Practice and the ethical principles that have their origin in the Declaration of Helsinki.

During the development of a medicinal product, the EMA and national regulators within the EU provide the opportunity for dialogue and guidance on the development program. At the EMA level, this is usually done in the form of scientific advice, which is given by the Committee for Medicinal Products for Human Use ("CHMP") on the recommendation of the Scientific Advice Working Party. A fee is incurred with each scientific advice procedure but is significantly reduced for designated orphan medicines. Advice from the EMA is typically provided based on questions concerning, for example, quality (chemistry, manufacturing and controls testing), nonclinical testing and clinical studies, and pharmacovigilance plans and risk-management programs. Advice is not legally binding with regard to any future marketing authorization application ("MAA") for the product concerned.

Drug Marketing Authorization

In the EU, medicinal products are subject to extensive pre- and post-market regulation by regulatory authorities at both the EU and national levels. To obtain regulatory approval of a product under the EU regulatory systems, we must submit an MAA under either the EU centralized procedure, or one of the national procedures in the EU.

To be used or sold in the UK, a drug must have an effective marketing authorization obtained by a centralized application through EMA or a national application. National applications are governed by the Human Medicines Regulations (SI 2012/1916) (the "HMRs"). Applications are made electronically through the UK's MHRA Submissions Portal. The process from application to authorizations generally takes up to 210 days, excluding time taken to provide any additional information or data required by the MHRA.

On August 30, 2023, the MHRA published detailed guidance on its recently announced new International Reliance Procedure ("IRP") for MAAs. The IRP applies since January 1, 2024, and replaces existing EU reliance procedures to apply for authorizations from 7 international regulators (e.g. Health Canada, Swiss Medic, FDA, EMA, among others). The IRP allows medicinal products approved in other jurisdictions that meet certain criteria to undergo a fast-tracked MHRA review to obtain and/or update a marketing authorization in the UK or Great Britain.

Applicants can submit initial MAAs to the IRP but the procedure can also be used throughout the lifecycle of a product for post-authorization procedures including line extensions, variations and renewals. Any authorization which is not followed by the actual placing of the drug on the EU market (in case of centralized procedure) or on the market of the authorizing member state within three years after authorization ceases to be valid.

Centralized Authorization Procedure

The centralized procedure provides for the grant of a single marketing authorization ("MA") that is issued by the EC following the scientific assessment of the application by the EMA and that is valid for all EU member states as well as in the three additional EEA member states (Norway, Iceland and Liechtenstein). The centralized procedure is compulsory for certain types of medicinal products, including for medicines developed by means of certain biotechnological processes, products designated as orphan medicinal products, advanced therapy medicinal products (gene therapy, somatic cell therapy or tissue-engineered medicines) and medicinal products with a new active substance indicated for the treatment of certain diseases (HIV/AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and other immune dysfunctions and viral diseases). The centralized procedure is optional for medicinal 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 for which the grant of an MA through the centralized procedure would be in the interest of public health at EU level.

Under the centralized procedure, the CHMP established at the EMA, is responsible for conducting the initial assessment of a drug. The CHMP is also responsible for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure, the timeframe for the evaluation of an MAA by the EMA's CHMP is, in principle, 210 days from receipt of a valid MAA. However, this timeline excludes clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP, so the overall process typically takes a year or more, unless the application is eligible for an accelerated assessment. Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is expected to be of a major public health interest, particularly from the point of view of therapeutic innovation.

Upon request, the CHMP can reduce the time frame to 150 days if the applicant provides sufficient justification for an accelerated assessment. The CHMP will provide a positive opinion regarding the application only if it meets certain quality, safety and efficacy requirements. This opinion is then transmitted to the EC, which has the ultimate authority for granting the MA within 67 days after receipt of the CHMP opinion.

Decentralized and Mutual Recognition Procedures

Medicines that fall outside the mandatory scope of the centralized procedure can be authorized under a decentralized procedure where an applicant applies for simultaneous authorization in more than one EU member state, or they can be authorized in an EU member state in accordance with that state's national procedures and then be authorized in other EU countries by a procedure whereby the countries concerned agree to recognize the validity of the original, national marketing authorization (mutual recognition procedure).

The decentralized procedure permits companies to file identical MA applications for a medicinal product to the competent authorities in various EU member states simultaneously if such medicinal product has not received marketing approval in any EU member state before. The competent authority of a single EU member state, the reference member state, is appointed to review the application and provide an assessment report. The competent authorities of the other EU member states, the concerned member states, are subsequently required to grant a marketing authorization for their territories on the basis of this assessment. The only exception to this is where the competent authority of an EU member state considers that there are concerns of potential serious risk to public health, the disputed points are subject to a dispute resolution mechanism and may eventually be referred to the EC, whose decision is binding for all EU member states.

Risk Management Plan

All new MAAs must include a Risk Management Plan ("RMP") describing the risk management system that the company will put in place and documenting measures to prevent or minimize the risks associated with the product. RMPs are continually modified and updated throughout the lifetime of the medicine as new information becomes available. An updated RMP must be submitted: (i) at the request of EMA or a national competent authority, or (ii) whenever the risk-management system is modified, especially as the result of new information being received that may lead to a significant change to the benefit-risk profile or as a result of an important pharmacovigilance or risk-minimization milestone being reached. The regulatory authorities may also impose specific obligations as a condition of the MA. Since October 20, 2023, all RMPs for centrally authorized products are published by the EMA, subject to only limited redactions.

MA Validity Period

In the EU, an MA has an initial duration of five years. After these five years, the authorization may subsequently be renewed on the basis of a reevaluation of the risk-benefit balance. Once renewed, the MA is valid for an unlimited period unless the EC or the national competent authority decides on justified grounds relating to pharmacovigilance, to proceed with only one additional five-year renewal. Applications for renewal must be made to the EMA at least nine months before the five-year period expires.

Any authorization which is not followed by the actual placing of the drug on the EU market (in case of centralized procedure) or on the market of the authorizing member state within three years after authorization ceases to be valid.

For the UK, the period of three years during which the drug has not been marketed in Great Britain will be restarted from the date of conversion to a Great Britain marketing authorization. Conversion refers to the procedure by which, as of January 1, 2021, MAs granted on the basis of a centralized procedure in the EU are only valid in Northern Ireland but not in Great Britain, whereas, prior EU authorizations have all been automatically converted into UK MAs effective in Great Britain only.

On the other hand, for the EU, in case the drug has been marketed in the UK, the placing on the UK market before the end of the period starting when the UK left the EU on January 31, 2020, and ending on December 31, 2020 (the Brexit Transition Period) will be taken into account. If, after the end of the Brexit Transition Period, the drug is not placed on any other market of the remaining member states of the EU, the three-year period will start running from the last date the drug was placed on the UK market before the end of the Brexit Transition Period.

Exceptional Circumstances/Conditional Approval

Similar to accelerated approval regulations in the U.S., conditional MAs can be granted in the EU for medicines intended for treating, preventing or diagnosing seriously debilitating or life-threatening diseases, or in a public health emergency. A conditional MA can be granted for medicinal products where, although comprehensive clinical data referring to the safety and efficacy of the medicinal product have not been supplied, the following criteria are fulfilled: (i) the benefit/risk balance of the product is positive, (ii) it is likely that the applicant will be in a position to provide the comprehensive clinical data post-authorization, (iii) unmet medical needs will be fulfilled by the grant of the MA 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. Once a conditional MA has been granted, the MA holder must fulfil specific obligations within defined timelines. A conditional MA must be renewed annually, but can be converted into a standard MA once the MA holder fulfils the obligations imposed and the complete data confirm that the medicine's benefits continue to outweigh its risks.

Data and Market Exclusivity

As in the U.S., it may be possible to obtain a period of market and/or data exclusivity in the EU that would have the effect of postponing the entry into the marketplace of a competitor's generic, hybrid or biosimilar product (even if the pharmaceutical product has already received a MA) and prohibiting another applicant from relying on the MA holder's pharmacological, toxicological and clinical data in support of another MA for the purposes of submitting an application, obtaining an MA or placing the product on the market. Innovative medicinal products (sometimes referred to as new chemical entities) approved in the EU generally qualify for eight years of data exclusivity and 10 years of marketing exclusivity.

If granted, the data exclusivity period begins on the date of the product's first MA in the EU and prevents generic or biosimilar applicants from referencing the innovator's preclinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar marketing authorization in the EU. After eight years, a generic product application may be submitted and generic companies may rely on the MA holder's data. However, a generic product cannot launch until two years later (or a total of 10 years after the first MA in the EU of the innovator product). An additional one-year period of marketing exclusivity is possible if, during the data exclusivity period (the first eight years of the 10-year marketing exclusivity period), the MA holder obtains an authorization for one or more new therapeutic indications that are deemed to bring a significant clinical benefit compared to existing therapies. Additionally, a standalone one-year period of data exclusivity can be granted where an application is made for a new indication for a well-established substance, provided that significant pre-clinical or clinical studies were carried out in relation to the new indication. Where a change of classification of a pharmaceutical product has been authorized on the basis of significant pre-trial tests or clinical trials, when examining an application by another applicant for or holder of an MA for a change of classification of the same substance the competent authority will not refer to the results of those tests or trials for one year after the initial change was authorized.

Products may not be granted data exclusivity since there is no guarantee that a product will be considered by the European Union's regulatory authorities to include a new chemical entity ("NCE"). Even if a compound is considered to be a NCE and the MA applicant is able to gain the prescribed period of data exclusivity, another company nevertheless could also market another version of the medicinal product if such company can complete a full MAA with their own complete database of pharmaceutical tests, preclinical studies and clinical trials and obtain MA for its product.

On April 26, 2023, the EC submitted a proposal for the reform of the European pharmaceutical legislation. The current draft envisages, e.g., a shortening of the periods of data exclusivity, however, there is currently neither a final version of this draft nor a date for its entry into force.

Orphan Designation and Exclusivity

The criteria for designating an orphan medicinal product in the EU are similar in principle to those in the U.S. Under Article 3 of Regulation (EC) 141/2000, a medicinal product may be designated as an orphan product if its sponsor can establish that (1) it 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 in 10,000 persons in the EU when the application is made, or (b) the product, without the benefits derived from orphan status, would not 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 a method exists, the product will be of significant benefit to those affected by the condition, as defined in Regulation (EC) 847/2000. Orphan medicinal products are eligible for financial incentives such as reduction of fees or fee waivers and are, upon grant of a marketing authorization, entitled to ten years of market exclusivity for the approved therapeutic indication. An application for orphan drug designation (which is not a marketing authorization, as not all orphan-designated medicines reach the authorization application stage) must be submitted first before an MAA of the medicinal product is submitted. 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 MAA is submitted, and sponsors must submit annual reports to EMA summarizing the status of development of the medicine. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. Designated orphan medicines are eligible for conditional marketing authorization.

The EMA's Committee for Orphan Medicinal Products reassesses the orphan drug designation of a product in parallel with the review for a marketing authorization; for a product to benefit from market exclusivity it must maintain its orphan drug designation at the time of marketing authorization review by the EMA and approval by the EC. Additionally, any marketing authorization granted for an orphan medicinal product must only cover the therapeutic indication(s) that are covered by the orphan drug designation. We have received orphan drug designation from the EMA's Committee for NGN-401 for the treatment of Rett syndrome and NGN-101 for the treatment of CLN5 Battens disease.

During the 10-year period of market exclusivity, with a limited number of exceptions, the regulatory authorities of the EU member states and the EMA may not accept applications for marketing authorization, accept an application to extend an existing marketing authorization or grant marketing authorization for other similar medicinal products for the same therapeutic indication. A similar medicinal product is defined as a medicinal product containing a similar active substance or substances as contained in a currently authorized orphan medicinal product, and which is intended for the same therapeutic indication. An orphan medicinal product can also obtain an additional two years of market exclusivity for an orphan-designated condition when the results of specific studies are reflected in the Summary of Product Characteristics (“SmPC”) addressing the pediatric population and completed in accordance with a fully compliant Pediatric Investigation Plan (“PIP”). No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications.

The 10-year market exclusivity may 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, i.e., the condition prevalence or financial returns criteria under Article 3 of Regulation (EC) No. 141/2000 on orphan medicinal products. When the period of orphan market exclusivity for an indication ends, the orphan drug designation for that indication expires as well. Orphan exclusivity runs in parallel with normal rules on data exclusivity and market protection. During the period of market exclusivity, an MA may only be granted to a “similar medicinal product” for the same therapeutic indication if: (i) a second applicant can establish that its product, although similar to the authorized product, is safer, more effective or otherwise clinically superior; (ii) the MA holder for the authorized product consents to a second orphan medicinal product application; or (iii) the MA holder for the authorized product cannot supply enough orphan medicinal product.

In the UK, following the post-Brexit transition period, a system for incentivizing the development of orphan medicines was introduced. Overall, the requirements for orphan designation largely replicate the requirements in the EU and the benefit of market exclusivity has been retained. Products with an orphan designation in the EU can be considered for an orphan marketing authorization in Great Britain, but a UK-wide orphan marketing authorization can only be considered in the absence of an active EU orphan designation. The MHRA will review applications for orphan designation at the time of a marketing authorization, and will offer incentives, such as market exclusivity and full or partial refunds for marketing authorization fees to encourage the development of medicines in rare diseases.

Pediatric Development

In the EU, companies developing a new medicinal product are obligated to study their product in children and must therefore submit a PIP together with a request for agreement to the EMA, 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 EMA issues a decision on the PIP based on an opinion of the EMA's Pediatric Committee. Companies must conduct pediatric clinical trials in accordance with the PIP approved by the EMA, unless a deferral (e.g., until enough information to demonstrate its effectiveness and safety in adults is available) or waiver (e.g., because the relevant disease or condition occurs only in adults) has been granted by the EMA. The MAA for the medicinal product must include the results of all pediatric clinical trials performed and details of all information collected in compliance with the approved PIP, unless such a waiver or a deferral has been granted. Medicinal products that are granted an MA on the basis of the pediatric clinical trials conducted in accordance with the approved PIP are eligible for a six month extension of the protection under a supplementary protection certificate ("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, or, in the case of orphan medicinal products, a two-year extension of the orphan market exclusivity. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the approved PIP are developed and submitted. An approved PIP is also required when an MA holder wants to add a new indication, medicinal form or route of administration for a medicine that is already authorized and covered by intellectual property rights.

In the UK, the MHRA has published guidance on the procedures for UK PIPs which, where possible, mirror the submission format and requirements of the EU system. EU PIPs remain applicable for Northern Ireland and EU PIPs agreed by the EMA prior to January 1, 2021 have been adopted as UK PIPs.

PRIME Designation

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 ("PRIME") scheme is intended to encourage drug development in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation reviewed under the centralized procedure. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies on the basis of compelling non-clinical data and tolerability data from initial clinical trials. 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 potentially accelerated marketing authorization application assessment once a dossier has been submitted. Importantly, once a candidate medicine has been selected for the PRIME scheme, a dedicated contact point and rapporteur from the CHMP or from EMA's Committee for Advanced Therapies ("CAT") are appointed facilitating increased understanding of the product at EMA's committee level. A kick-off meeting with the CHMP/CAT rapporteur initiates these relationships and includes a team of multidisciplinary experts to provide guidance on the overall development plan and regulatory strategy. PRIME eligibility does not change the standards for product approval, and there is no assurance that any such designation or eligibility will result in expedited review or approval.

Post-Approval Regulation

Similar to the U.S., both MA holders and manufacturers of medicinal products are subject to comprehensive regulatory oversight by the EMA, the EC and/or the competent regulatory authorities of the EU member states. This oversight applies both before and after grant of manufacturing licenses and marketing authorizations. It includes control of compliance with EU good manufacturing practices rules, manufacturing authorizations, pharmacovigilance rules and requirements governing advertising, promotion, sale, and distribution, recordkeeping, importing and exporting of medicinal products.

Failure by us or by any of our third-party partners, including suppliers, manufacturers and distributors to comply with EU laws and the related national laws of individual EU member states governing the conduct of clinical trials, manufacturing approval, MA of medicinal products and marketing of such products, both before and after grant of MA, statutory health insurance, bribery and anti-corruption or other applicable regulatory requirements may result in administrative, civil or criminal penalties. These penalties could include delays or refusal to authorize the conduct of clinical trials or to grant an MA, product withdrawals and recalls, product seizures, suspension, withdrawal or variation of the MA, total or partial suspension of production, distribution, manufacturing or clinical trials, operating restrictions, injunctions, suspension of licenses, fines and criminal penalties.

The holder of an MA for a medicinal product must also comply with EU pharmacovigilance legislation and its related regulations and guidelines, which entail many requirements for conducting pharmacovigilance, or the assessment and monitoring of the safety of medicinal products.

MA holders must establish and maintain a pharmacovigilance system and appoint an individual qualified person for pharmacovigilance, who is responsible for oversight of that system. Key obligations include expedited reporting of suspected serious adverse reactions and submission of Periodic Safety Update Reports ("PSURs") in relation to medicinal products for which they hold MAs. The EMA reviews PSURs for medicinal products authorized through the centralized procedure. If the EMA has concerns that the risk benefit profile of a product has varied, it can adopt an opinion advising that the existing MA for the product be suspended, withdrawn or varied. The EMA can advise that the MA holder be obliged to conduct post-authorization Phase 4 safety studies. If the EC agrees with the opinion, it can adopt a decision varying the existing MA. Failure by the MA holder to fulfill the obligations for which the EC's decision provides can undermine the ongoing validity of the MA.

More generally, non-compliance with pharmacovigilance obligations can lead to the variation, suspension or withdrawal of the MA for the product or imposition of financial penalties or other enforcement measures.

The manufacturing process for pharmaceutical products in the EU is highly regulated and regulators may shut down manufacturing facilities that they believe do not comply with regulations. Manufacturing requires a manufacturing authorization, and the manufacturing authorization holder must comply with various requirements set out in the applicable EU laws, regulations and guidance, including Directive 2001/83/EC, Directive 2003/94/EC (repealed by Directive 2017/1572 on January 31, 2022), Regulation (EC) No 726/2004 and the European Commission Guidelines for GMP. These requirements include compliance with cGMP standards when manufacturing pharmaceutical products and active pharmaceutical ingredients, including the manufacture of active pharmaceutical ingredients outside of the EU with the intention to import the active pharmaceutical ingredients into the EU. Similarly, the distribution of pharmaceutical products into and within the EU is subject to compliance with the applicable EU laws, regulations and guidelines, including the requirement to hold appropriate authorizations for distribution granted by the competent authorities of the EU member states. The manufacturer or importer must have a qualified person who is responsible for certifying that each batch of product has been manufactured in accordance with cGMP, before releasing the product for commercial distribution in the EU or for use in a clinical trial. Manufacturing facilities are subject to periodic inspections by the competent authorities for compliance with cGMP.

Sales and Marketing Regulations

The advertising and promotion of our product candidates and any products we may develop are also subject to EU laws concerning promotion of medicinal products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. In addition, other national legislation of individual EU member states may apply to the advertising and promotion of medicinal products and may differ from one country to another. These laws require that promotional materials and advertising in relation to medicinal products comply with the product's SmPC as approved by the national competent authorities. The SmPC is the document that provides information to physicians concerning the safe and effective use of the medicinal product. It forms an intrinsic and integral part of the marketing authorization granted for the medicinal product. Promotion of a medicinal product that does not comply with the SmPC is considered to constitute off-label promotion, which is prohibited in the EU. Direct-to-consumer advertising of prescription-only medicines is also prohibited in the EU. Violations of the rules governing the promotion of medicinal products in the EU could be penalized by administrative measures, fines and imprisonment.

EU regulation with regards to dispensing, sale and purchase of medicines has generally been preserved in the UK following Brexit, through the HMRs. However, organizations wishing to sell medicines online need to register with the MHRA. Following Brexit, the requirements to display the common logo no longer apply to UK-based online sellers, except for those established in Northern Ireland.

Anti-Corruption Legislation

In the EU, interactions between pharmaceutical companies and physicians are also governed by strict laws, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct both at EU level and in the individual EU member states. The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is prohibited in the EU. The provision of benefits or advantages to physicians is also governed by the national anti-bribery laws of the EU member states. Violation of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain EU member states also must be publicly disclosed. Moreover, agreements with physicians must often be the subject of prior notification and approval by the physician's employer, his/her regulatory professional organization, and/or the competent authorities of the individual EU member states. These requirements are provided in the national laws, industry codes, or professional codes of conduct, applicable in the individual EU member states. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Regulation in the UK and Other Markets

The UK formally left the EU on January 31, 2020, and EU laws now only apply to the UK in respect to Northern Ireland as laid out in the Protocol on Ireland and Northern Ireland and as amended by the Windsor Framework agreed by the UK and EU on February 27, 2023. Amongst other things, the Windsor Framework sets out a long-term set of arrangements for the supply of medicines into Northern Ireland. From January 1, 2025, medicines will need to be approved and licensed on a UK-wide basis by the MHRA, with medicines using the same packaging and labelling across the UK. The EMA will have no role in approving or licensing new drugs for provision in Northern Ireland. The EU and the UK have agreed on a trade and cooperation agreement, which includes specific provisions concerning pharmaceuticals, which include the mutual recognition of cGMP, inspections of manufacturing facilities for medicinal products and cGMP 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 HMRs.

The UK government has adopted the Medicines and Medical Devices Act 2021 ("MMDA") to enable the UK's regulatory frameworks to be updated following the UK's departure from the EU. The MMDA introduces regulation-making, delegated powers covering the fields of human medicines, clinical trials of human medicines, veterinary medicines and medical devices. The MHRA has since been consulting on future regulations for medicines and medical devices in the UK. Specified provisions of the MMDA entered into force on February 11, 2021. The remaining provisions came into effect within two months of February 11, 2021 or will otherwise come into effect as stipulated in subsequent statutory instruments.

For other countries outside of the EU, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials must be conducted in accordance with cGCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension of clinical trials, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Employees and Human Capital Resources

Our Values

Neurogene was founded on a passionate belief that innovation in gene therapy can bring treatment options to patients with complex neurological diseases—patients who are waiting with unmet needs and often overlooked. Our behaviors reflect our values and encompass how our teams work together with open minds, reimagining the future and advocating for patients and families to achieve our mission. Our vision is to turn devastating neurological diseases into treatable conditions and improve the lives of patients and their families. We are focused on building a corporate culture that nurtures innovation, creative problem solving and a strong sense of purpose with patient and caregiver mindsets at the forefront. Our core values include:

- Patients and Families are Waiting: We do what is right for our patients, our teams and our community
- It's Better Together: We are passionate about our work, our colleagues and our patients, caregivers and families
- Keep an Open Mind: We actively listen to and value diverse opinions
- Reimagine the Future: We drive, innovate, take balanced risks and advance therapies with a sense of urgency

We seek to prioritize employee development and align employees' goals with our vision, mission, and overall strategic direction. Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain and motivate selected employees, consultants and directors through the granting of stock-based compensation awards and cash-based performance bonus awards, in order to align such individuals' goals with increasing stockholder value and the success of Neurogene.

As of December 31, 2023, we had 91 employees, all of whom were employed full time and 70 of whom were engaged in research, development and technical operations activities. 23 of our employees hold Ph.D. or M.D. degrees.

None of our employees are represented by a labor union or covered under a collective bargaining agreement. We consider our relationship with our employees to be good.

Corporate Information

We were incorporated in Delaware in May 2007 under the name Aquinox Pharmaceuticals (USA) Inc. ("Aquinox"). In August 2019, a wholly-owned subsidiary of Aquinox completed its merger with Neoleukin Therapeutics, Inc., with Neoleukin Therapeutics, Inc. continuing as the surviving entity. Upon completion of the merger, Aquinox was renamed Neoleukin Therapeutics, Inc. ("Neoleukin"). In December 2023, a wholly-owned subsidiary of Neoleukin completed its merger with Neurogene Inc., a Nevada corporation in operation since 2018 ("Former Neurogene"), with Former Neurogene continuing as the surviving entity. Upon completion of the merger, Neoleukin was renamed Neurogene Inc. Our corporate office is located at 535 W 24th St. 5th Floor, New York, NY, and our telephone number is (855) 508-3568. Our website address is www.neurogene.com. Information contained on or accessible through our website is not a part of this Annual Report on Form 10-K, and the inclusion of our website address in this Annual Report on Form 10-K is for convenience only and the information on the referenced website does not constitute a part of nor is incorporated by reference into this report.

Our reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, including our annual reports on Form 10-K, our quarterly reports on Form 10-Q and our current reports on Form 8-K, and amendments to those reports, are accessible through our website, free of charge, as soon as reasonably practicable after these reports are filed electronically with, or otherwise furnished to, the SEC. These SEC reports can be accessed through the "Investors" section of our website.

Item 1A. Risk Factors

Investing in shares of our common stock involves a high degree of risk. You should carefully consider the following risks and uncertainties, together with all of the other information contained in this Annual Report on Form 10-K before making an investment decision. The occurrence of any of the following risks could materially and adversely affect our business, financial condition, reputation, or results of operations. In such case, the trading price of shares of our common stock could decline, and you may lose all or part of your investment. It is not possible to predict or identify all such risks; our operations could also be affected by factors, events or uncertainties that are not presently known to us or that we currently do not consider to present significant risks to our operations. Therefore, you should not consider the following risks to be a complete statement of all the potential risks or uncertainties that we face.

Summary of Risk Factors

- We have a limited operating history, have not completed any clinical trials, and have no products approved for commercial sale, and our results may vary from quarter to quarter.
- We will require substantial additional capital to finance our operations in the future. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce or eliminate clinical trials, product development programs or future commercialization efforts.
- We have incurred significant losses since inception, and expect to incur significant losses for the foreseeable future and may not be able to achieve or sustain profitability in the future. We have no products for sale, have not generated any product revenue and may never generate product revenue or become profitable.
- NGN-401, NGN-101 and our other programs are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability.
- We are substantially dependent on the success of our most advanced product candidates, NGN-401 and NGN-101, and our ongoing and anticipated clinical trials of such candidates may not be successful.
- Delays in developing our manufacturing capabilities or failure to achieve operating efficiencies from such capabilities may require us to devote additional resources and management time to manufacturing operations and may delay our product development timelines.
- We have a number of academic collaborations, and currently rely on our collaboration with the University of Edinburgh for certain aspects of our preclinical research and development programs, including working in collaboration to discover and preclinically develop our lead product candidate for Rett syndrome and our near-term future pipeline. Failure or delay of the University of Edinburgh or any other collaborator to fulfil all or part of its obligations under our agreement, a breakdown in collaboration between the parties or a complete or partial loss of the relationship would materially harm our business.
- In order to successfully implement our plans and strategies, we will need to grow the size of our organization and we may experience difficulties in managing this growth.
- The regulatory approval processes of the U.S. Food and Drug Administration (“FDA”) and other comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for our product candidates, we will not be able to commercialize, or will be delayed in commercializing, such product candidates, and our ability to generate revenue will be materially impaired.
- The market price of our common stock may continue to be volatile.
- If our legacy lease obligations are not subleased, assigned, terminated or otherwise addressed or the legacy assets subject to the CVR Agreement are not sold, respectively, in a timely manner, we may have to incur time and resources to take such actions.
- Future sales of shares by existing stockholders could cause our stock price to decline.

- Our executive officers, directors and principal stockholders have the ability to control or significantly influence all matters submitted to our stockholders for approval.

Risks Related to Neurogene's Limited Operating History, Financial Position and Capital Requirements

We have a limited operating history, have not completed any clinical trials, and have no products approved for commercial sale, and our results may vary from quarter to quarter.

We are a clinical-stage biotechnology company with limited operating history. Since our inception in 2018, we have incurred significant operating losses and have used substantially all of our resources to conduct research and development activities, preclinical studies and Phase 1/2 clinical trials of our most advanced product candidates, establish in-house manufacturing capabilities, including analytical and process development operations to support ongoing manufacturing operations, manufacture product candidates, conduct business planning, develop and maintain our intellectual property portfolio, hire personnel, raise capital, and provide general and administrative support for these activities. We have little experience as a company in initiating, conducting or completing clinical trials. In part because of this lack of experience, we cannot be certain that our current and planned clinical trials will begin or be completed on time, if at all. In addition, while we are conducting a Phase 1/2 clinical trial of NGN-401 in patients with Rett syndrome and a Phase 1/2 clinical trial of NGN-101 in patients with CLN5 Batten disease, we have not yet demonstrated our ability to successfully complete clinical trials (including Phase 3 or other pivotal clinical trials), obtain regulatory or marketing approvals, manufacture a commercial-scale product or arrange for a third party to do so on our behalf, or conduct sales, marketing and distribution activities necessary for successful product commercialization. Additionally, we expect our financial condition and operating results to continue to fluctuate significantly from period to period due to a variety of factors, many of which are beyond our control. Consequently, any predictions made about our future success or viability may not be as accurate as they could be if we had a longer operating history.

In addition, as our business grows, we may encounter unforeseen expenses, restrictions, difficulties, complications, delays and other known and unknown factors. We will need to transition at some point from a company with an early research and development focus to a company capable of supporting larger pivotal clinical trials and eventually commercial activities, including the manufacture of commercial scale product. We may not be successful in such a transition.

We will require substantial additional capital to finance our operations in the future. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce or eliminate clinical trials, product development programs or future commercialization efforts.

Developing biotechnology products is a long, time-consuming, expensive and uncertain process that takes years to complete. Since our inception, we have funded our operations primarily through private financings and have incurred significant recurring losses, including net losses of $36.3 million and $55.2 million for the years ended December 31, 2023 and 2022, respectively. We expect our expenses to increase in connection with our ongoing activities, particularly as we continue to conduct a Phase 1/2 clinical trial of NGN-401 in patients with Rett syndrome and a Phase 1/2 clinical trial of NGN-101 in patients with CLN5 Batten disease, with the expectation that we will also initiate additional clinical trials in the future, and continue to research, develop and conduct preclinical studies of our other potential product candidates. In addition, if we obtain regulatory approval for any product candidate for commercial sale, including NGN-401 and NGN-101, we anticipate incurring significant commercialization expenses related to product manufacturing, marketing, sales and distribution activities to launch any such product. Our expenses could increase beyond expectations if we are required by the FDA or other regulatory agencies to perform preclinical studies or clinical trials in addition to those that we currently anticipate. Because the design and outcome of our current, planned and anticipated clinical trials are highly uncertain, we cannot reasonably estimate the actual amount of funding that will be necessary to successfully complete the development and commercialization of any product candidate we develop. Our future capital requirements depend on many factors, including factors that are not within our control.

We incur additional costs associated with operating as a public company, and we do not anticipate achieving any significant revenue in the near term given the development stage of our product candidates. Accordingly, we will require substantial additional funding to continue our operations. Based on our current operating plan, we believe that our existing cash, cash equivalents and short-term investments should be sufficient to fund its operations into the second half of 2026. This estimate is based on assumptions that may prove to be materially wrong, and we could deplete our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including:

- the timing and progress of preclinical and clinical development activities;

- the number and scope of preclinical and clinical programs we pursue to develop our gene therapy candidate pipeline and EXACT platform;
- our ability to secure appropriate animal models for the conduct of investigational new drug ("IND")-enabling studies in a timely and financially feasible manner, especially large animal models, such as non-human primates ("NHPs") needed for toxicology studies;
- our ability to establish an acceptable safety profile with IND-enabling toxicology studies to enable clinical trials;
- successful patient enrollment in, and the initiation and completion of, larger and later-stage clinical trials;
- the number of subjects that participate in clinical trials and per subject trial costs;
- the number and extent of trials required for regulatory approval;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible subjects in clinical trials;
- the drop-out and discontinuation rate of subjects;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of subject participation in the trials and follow-up;
- the extent to which we encounter any serious adverse events in our clinical trials;
- the timing of receipt of regulatory approvals from applicable regulatory authorities, including those required to initiate clinical trials;
- the timing, receipt and terms of any marketing approvals and post-marketing approval commitments from applicable regulatory authorities;
- the extent to which we establish collaborations, strategic partnerships, or other strategic arrangements with third parties, if any, and the performance of any such third party;
- the scale up of our clinical and regulatory capabilities, including establishing our current good manufacturing practices ("cGMP") manufacturing capabilities to support expansion of our pipeline and future registration-enabling clinical trials, and obtaining cGMP material for clinical trials or potential commercial sales;
- hiring and retaining research, clinical, regulatory, manufacturing (including quality control and quality assurance) and administrative personnel;
- our arrangements with third-party contract development and manufacturing organizations ("CDMOs") and contract research organizations ("CROs");
- the build-out and validation of our cGMP manufacturing facility, including expansion to commercial scale;
- the impact of any business interruptions to our operations or to those of the third parties with whom we work; and
- obtaining, maintaining, defending and enforcing patent claims and other intellectual property rights.

We do not have any committed external sources of funds and adequate additional financing may not be available to us on acceptable terms, or at all. We may be required to seek additional funds sooner than planned through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources. Such financing may dilute our stockholders or the failure to obtain such financing may restrict our operating activities. Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our business. To the extent that Neurogene raises additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences and anti-dilution protections that adversely affect your rights as a stockholder. Debt financing may result in imposition of debt covenants, increased fixed payment obligations or other restrictions that may affect our business. If we raise additional funds through upfront payments or milestone payments pursuant to future collaborations with third parties, we may have to relinquish valuable rights to product development programs, or grant licenses on terms that are not favorable to us. Our ability to raise additional capital may be adversely impacted by global macroeconomic conditions and volatility in the credit and financial markets in the United States and worldwide, over which we may have no or little control. Our failure to raise capital as and when needed or on acceptable terms would have a negative impact on our financial condition and our ability to pursue our business strategy, and we may have to delay, reduce the scope of, suspend or eliminate clinical trials, product development programs or future commercialization efforts.

We have incurred significant losses since inception, expect to incur significant losses for the foreseeable future and may not be able to achieve or sustain profitability in the future. We have no products for sale, have not generated any product revenue and may never generate product revenue or become profitable.

Investment in biotechnology product development is a highly speculative undertaking and entails substantial upfront expenditures and significant risks that any program will fail to demonstrate adequate efficacy or potency or an acceptable safety profile, gain regulatory approval and become commercially viable. We have no products approved for commercial sale, has not generated any revenue from product sales to date, and continues to incur significant research and development and other expenses related to our ongoing operations. We do not expect to generate product revenue unless or until we successfully complete clinical development and obtain regulatory approval of, and then successfully commercialize, at least one product candidate. We may never succeed in these activities and, even if we do, we may never generate product revenue or revenues that are significant or large enough to achieve profitability. If we are unable to generate sufficient revenue through the sale of any approved products, we may be unable to continue operations without additional funding.

We have incurred significant net losses in each period since we commenced operations in 2018. Our net loss was $36.3 million for the year ended December 31, 2023. We expect to continue to incur significant losses for the foreseeable future. Our operating expenses and net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase substantially if and as we:

- advance our existing and future programs through preclinical and clinical development, including expansion into additional indications;
- seek to identify additional programs and additional product candidates;
- continue to develop our gene therapy product candidate pipeline and our EXACT platform;
- maintain, expand, enforce, defend and protect our intellectual property portfolio;
- seek regulatory and marketing approvals for product candidates;
- seek to identify, establish and maintain additional collaborations and license agreements, including those which may enhance the biodistribution and delivery of our product candidates;
- ultimately establish a sales, marketing and distribution infrastructure to commercialize any biological products for which we may obtain marketing approval, either by ourselves or in collaboration with others;
- generate revenue from commercial sales of products for which we receive marketing approval;
- hire additional personnel, including research and development, clinical and commercial;
- add operational, financial and management information systems and personnel to support further expansion and operation as a public company;
- acquire or in-license products, intellectual property and technologies which may enhance our current technology; and
- establish commercial-scale cGMP capabilities through our own or third-party manufacturing facilities.

In addition, our expenses will increase if, among other things, we are required by the FDA or other regulatory authorities to perform trials or studies in addition to, or different than, those that we currently anticipate, there are any delays in completing our clinical trials or the development of any product candidates, 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 obtain marketing approval for, and are successful in commercializing, one or more product candidates, we expect to incur substantial additional research and development and other expenditures to develop and market additional programs and/or to expand the approved indications of any marketed product. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue.

Our failure to become profitable would decrease our value and could impair our ability to raise capital, maintain our research and development efforts, expand our business and/or continue our operations. A decline in our value could also cause you to lose all or part of your investment.

Risks Related to Discovery, Development and Commercialization

We face competition from entities that have developed or may develop programs for the diseases we plan to address with NGN-401 and NGN-101 or other product candidates.

The development and commercialization of biological products is highly competitive. If approved, NGN-401 and NGN-101 or other product candidates will face significant competition and our failure to effectively compete may prevent us from achieving significant market penetration. We compete with a variety of multinational biopharmaceutical companies, specialized biotechnology companies and emerging biotechnology companies, as well as academic institutions, governmental agencies, and public and private research institutions, among others. Many of the companies with which we are currently competing or will compete against 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, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, NGN-401 and NGN-101 or other product candidates.

As described in the section above entitled "*Business—Competition*", our competitors have developed, are developing or may develop programs or clinical stage products competitive with NGN-401 or NGN-101 or other earlier stage product candidates. Competitive therapeutic treatments include those that have already been approved and accepted by the medical community and any new treatments for Rett syndrome or for CLN5 Batten disease. Our success will depend partially on our ability to develop and commercialize products that have a competitive safety, efficacy or potency, dosing and/or presentation profile. Our commercial opportunity and success will be reduced or eliminated if competing products are safer, more effective or potent, have a more attractive or less invasive dosing profile or presentation or are less expensive than any products we may develop, or if competitors develop competing products or if biosimilars enter the market more quickly than we are able to, if we are able to at all, and are able to gain market acceptance.

NGN-401, NGN-101 and our other programs are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability. If we or our current or future collaborators are unable to complete development of, or commercialize, our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We have no products on the market and NGN-401 and NGN-101 are in the early stages of clinical development, while our other programs are in early stages of preclinical development. As a result, we expect it will be many years before we commercialize these product candidates and ultimately may not be successful in commercializing any of our product candidates. Our ability to achieve and sustain profitability depends on obtaining regulatory approvals for, and successfully commercializing, our lead product candidate NGN-401 or other product candidates, including NGN-101, either alone or with third parties, and we cannot guarantee that we will ever obtain regulatory approval for any product candidates. We have limited experience as a company in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the FDA or comparable foreign regulatory authorities. We have not yet demonstrated our ability to 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. Before obtaining regulatory approval for the commercial distribution of product candidates, we or an existing or future collaborator must conduct extensive preclinical tests and clinical trials to demonstrate the safety, purity and efficacy or potency in humans of such product candidates.

We or our collaborators may experience delays in initiating or completing clinical trials, and also may experience unforeseen events during, or as a result of, any current or future clinical trials that could delay or prevent our ability to receive marketing approval or commercialize NGN-401 or NGN-101 or any other product candidates, including:

- regulators or institutional review boards (“IRBs”), the FDA or ethics committees 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 may fail to reach, agreement on acceptable terms with prospective trial sites and prospective CROs, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- the observation of an actual or suspected unexpected serious adverse reaction, serious adverse events, or adverse events of special interest could result in a partial or complete clinical hold for an unpredictable length of time, delay or halt future enrollment, require increased staggering between patient dosing, require dose reductions that could adversely affect the anticipated efficacy or potency product profile, or require a program discontinuation;
- clinical trial sites may fail to meet enrollment targets, may deviate from trial protocol, or may experience patients dropping out of a trial;
- clinical trials of any product candidates may fail to show safety or efficacy or potency, or produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional preclinical studies or clinical trials or we may decide to abandon product development programs;
- the number of subjects required for clinical trials of any of our product candidates may be larger than we anticipate, especially if the effect size observed in future clinical data from a Phase 1/2 clinical trial is small or is difficult to ascertain relative to natural history as a comparator, or if regulatory authorities require completion of a sham-controlled clinical trial;
- enrollment in clinical trials may be slower than we anticipate or subjects may drop out of clinical trials or fail to return for post-treatment follow-up 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, or may deviate from the clinical trial protocol or drop out of the trial, which may require that we add new clinical trial sites or investigators;
- we may elect to, or regulators, independent data safety monitoring boards (“DSMBs”), IRBs or ethics committees may require that we or our investigators suspend or terminate clinical research or trials, or delay further dosing of subjects in clinical trials, for various reasons, including noncompliance with regulatory requirements or a finding that the participants in our trials are being exposed to unacceptable health risks;
- the cost of clinical trials of any of our product candidates may be greater than we anticipate;
- the quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be inadequate to initiate or complete a given clinical trial;

- our inability to manufacture sufficient quantities of our product candidates for use in clinical trials;
- reports from clinical testing of other therapies may raise safety or efficacy or potency concerns about our product candidates;
- our failure to establish an appropriate safety profile for a product candidate based on clinical or preclinical data for such product candidate as well as data emerging from other therapies in the same class as our product candidates; and
- the FDA or other regulatory authorities may require us to submit additional data, such as long-term toxicology studies, or impose other requirements before permitting us to initiate a clinical trial.

Commencing clinical trials in the United States is subject to acceptance by the FDA of an IND or, if commenced in other jurisdictions, acceptance by the comparable foreign regulatory agency of a similar application, as well as finalizing the trial design. In the event that the FDA or applicable foreign regulatory agency requires us to complete additional preclinical studies, or we are required to satisfy other regulatory requests prior to commencing clinical trials, the start of our clinical trials may be delayed. Even after we receive and incorporate guidance from these regulatory authorities, the FDA or other regulatory authorities could disagree that we have satisfied their requirements to commence any clinical trial or change their position on the acceptability of our trial design or the clinical endpoints selected, which may require us to complete additional preclinical studies or clinical trials, delay the enrollment of our clinical trials or impose stricter approval conditions than we currently expect. There are equivalent processes and risks applicable to clinical trial applications in other jurisdictions, including the United Kingdom ("UK"), Australia and the European Union.

We may not have the financial resources to continue development of, or to modify existing collaborations or enter into new collaborations for, a product candidate if we experience any issues that delay or prevent regulatory approval of, or our ability to commercialize, NGN-401 or NGN-101 or any other product candidates. We or our current or future collaborators' inability to complete development of, or commercialize, NGN-401 or NGN-101 or any other product candidates or significant delays in doing so, could have a material and adverse effect on our business, financial condition, results of operations and prospects.

We currently utilize adeno-associated virus serotype 9 ("AAV9") capsid for delivery of therapeutic transgenes to deliver our product candidates, which may limit the safety, purity, and efficacy or potency of such product candidates.

Our current approach is to identify, develop and commercialize gene therapy product candidates using an AAV9 capsid for delivery of therapeutic transgenes to certain kinds of cells.

Although AAV9 has been tested in numerous clinical trials and is an approved serotype for one gene therapy product, we cannot be certain that our AAV9 product candidates will successfully advance through preclinical studies and clinical trials, or that they will not cause significant adverse events or toxicities. We also cannot be certain that we will be able to avoid triggering toxicities in our future preclinical studies or clinical trials or that our chosen routes of administration to deliver such therapies will not cause unforeseen side effects or other challenges. Although AAV9 has been shown to facilitate biodistribution and cell transduction to the central nervous system ("CNS"), the potentially limited levels of AAV9 transduction of cells in the CNS and certain retinal cells may limit the potential efficacy or potency of any of our product candidates, including NGN-401 and NGN-101.

We intend to identify and develop novel gene therapy product candidates, which makes it difficult to predict the time, cost and potential success of product candidate development.

A key part of our business strategy is to identify and develop additional product candidates. As such, our future success depends on the successful development of novel therapeutic approaches, including by utilizing our EXACT technology or other gene regulation technology. Our preclinical research and clinical trials may initially show promise in identifying potential product candidates, yet fail to yield product candidates for a number of reasons. For example, although EXACT is designed to deliver therapeutic levels of transgene while avoiding off-target effects, there can be no assurance that any EXACT gene regulation will result in product candidates that are shown in clinical trials to be safe, pure, and effective or potent.

To date, very few products that utilize gene transfer have been approved in the United States, Europe or other markets, and no products have been approved using our EXACT (Expression Attenuation via Construct Timing) technology. There have been a limited number of clinical trials of gene transfer technologies, with only very few product candidates ever approved by the FDA or comparable foreign regulatory authorities.

As a result, it is difficult for us to predict the time and cost of product candidate development, and we cannot predict whether the application of our approach to gene therapy will result in the identification, development, and regulatory approval of any product candidates, or that other gene therapy programs will not be considered better or more attractive. There can be no assurance that any development problems we experience in the future related to our current gene therapy approaches or product candidates or any of our research programs will not cause significant delays or unanticipated costs, or that such development problems can be solved. Research programs to identify new product candidates require substantial technical, financial, and human resources. If we are unable to identify suitable gene therapy product candidates for preclinical and clinical development, we may not be able to successfully implement our business strategy, and may have to delay, reduce the scope of, suspend or eliminate one or more of our product candidates, clinical trials or future commercialization efforts, which would negatively impact our financial condition.

The disorders we seek to treat have low prevalence and it may be difficult to identify and enroll patients with these disorders. If we experience delays or difficulties in the enrollment and/or maintenance of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

Successful and timely completion of clinical trials will require that we enroll and maintain a sufficient number of patients. Patient enrollment is affected by many factors, including the size and nature of the patient population and competition for patients with other trials. Genetic diseases generally, and especially the rare diseases for which some of our current product candidates are targeted, have low incidence and prevalence. For example, we estimate global incidence of all 13 subtypes of Batten disease is approximately one in 100,000 live births, and the CLN5 Batten disease incidence, which is included in this estimate, is estimated to be even lower. Accordingly, it may be difficult for us to identify and timely recruit a sufficient number of eligible patients to conduct our clinical trials. Further, any natural history studies that we or our collaborators may conduct may fail to provide us with patients for our clinical trials because patients enrolled in the natural history studies may not be good candidates for our clinical trials, or may choose to not enroll in our clinical trials.

Trials may be subject to delays as a result of patient enrollment taking longer than anticipated or patient withdrawal. 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, the European Medicines Agency (“EMA”) or other foreign regulatory authorities. We cannot predict how successful we will be at enrolling subjects in future clinical trials. Subject enrollment is affected by other factors including:

- the eligibility criteria for the trial in question;
- the timely diagnosis of disease to meet such eligibility criteria;
- the size of the patient population and process for identifying patients;
- the perceived risks and benefits of the product candidate in the trial, especially by clinician experts and patient advocacy organizations, including relating to AAV9-based gene therapy and intracerebral spinal fluid delivery system;
- the availability of competing commercially available therapies and other competing therapeutic candidates' clinical trials;
- the willingness of caregivers to enroll their children in our clinical trials;
- the efforts to facilitate timely enrollment in clinical trials;
- potential disruptions caused by pandemics or other public health crises, including difficulties in initiating clinical sites, enrolling and retaining participants, diversion of healthcare resources away from clinical trials, travel or quarantine policies that may be implemented, and other factors;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment; and
- the proximity and availability of clinical trial sites for prospective patients.

Even if we are able to enroll a sufficient number of patients in our clinical trials, we may have difficulty maintaining enrollment of such patients. Our inability to enroll or maintain a sufficient number of patients would result in significant delays in completing clinical trials or receipt of marketing approvals and increased development costs, or may require us to abandon one or more clinical trials altogether.

We are substantially dependent on the success of our most advanced product candidates, NGN-401 and NGN-101, and our ongoing and anticipated clinical trials of such candidates may not be successful.

Our future success is substantially dependent on our ability to timely obtain marketing approval for, and then successfully commercialize, our most advanced product candidates, NGN-401 and NGN-101. We are investing a majority of our efforts and financial resources into the research and development of these candidates. We are conducting a Phase 1/2 clinical trial of NGN-401 in patients with Rett syndrome and a Phase 1/2 clinical trial of NGN-101 in patients with CLN5 Batten disease. If topline results from our Phase 1/2 clinical trial of NGN-401 are successful, we anticipate initiating a pivotal clinical trial, pending future regulatory feedback on various aspects of development such as the pivotal trial design and manufacturing related requirements. If topline results from our Phase 1/2 clinical trial of NGN-101 are successful, we anticipate initiating a pivotal clinical trial or expanding the current Phase 1/2 clinical trial, pending future regulatory feedback on various aspects of development, such as the Phase 3 clinical trial design and manufacturing related requirements.

NGN-401 and NGN-101 will require additional clinical development, evaluation of clinical, preclinical and manufacturing activities, marketing approval in multiple jurisdictions, substantial investment and significant marketing efforts before we generate revenues from product sales, if any. We are not permitted to market or promote these product candidates, or any other product candidates, before we receive marketing approval from the FDA and/or comparable foreign regulatory authorities, and we may never receive such marketing approvals.

The success of NGN-401 and NGN-101 will depend on a variety of factors. We do not have complete control over many of these factors, including certain aspects of clinical development and the regulatory submission process, potential threats to our intellectual property rights and the manufacturing, marketing, distribution and sales efforts of any future collaborator. Accordingly, we cannot guarantee that we will ever be able to generate revenue through the sale of these candidates, even if approved. If we are not successful in commercializing NGN-401 or NGN-101, or are significantly delayed in doing so, our business will be materially harmed.

Our programs are focused on the development of therapeutics for patients with neurological diseases, which is a rapidly evolving area of science, and the approach we are taking to discover and develop product candidates is novel and may never lead to approved or marketable products.

The discovery and development of therapeutics for patients with neurological diseases is an emerging field, and the scientific discoveries that form the basis for our efforts to discover and develop product candidates are relatively new. The scientific evidence to support the feasibility of developing product candidates based on these discoveries is both preliminary and limited. Although we believe, based on our preclinical work, that our programs have the potential to be disease-modifying therapies, clinical results may not confirm this hypothesis or may only confirm it for certain alterations or certain indications. The patient populations for our product candidates are limited to those with specific neurological diseases. We cannot be certain that the patient populations for each specific disease will be large enough to allow us to successfully obtain approval and commercialize our product candidates and achieve profitability. Further, both our Phase 1/2 clinical trial of NGN-401 and Phase 1/2 clinical trial of NGN-101 will involve a small patient population. Because of the small sample sizes, the results of these trials may not be indicative of results of future clinical trials.

If we do not achieve our projected development goals in the time frames we announce and expect, the commercialization of NGN-401 or NGN-101 or any other product candidates may be delayed and, as a result, our stock price may decline.

From time to time, we estimate the timing of the anticipated accomplishment of various scientific, clinical, regulatory and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of scientific studies and clinical trials and the submission of regulatory filings. From time to time, we may publicly announce the expected timing of some of these milestones. All of these milestones are and will be based on numerous assumptions. The actual timing of these milestones can vary dramatically compared to our estimates, in some cases for reasons beyond our control. If we do not meet these milestones as publicly announced, or at all, the commercialization of NGN-401 or NGN-101 or any other product candidates may be delayed or never achieved and, as a result, our stock price may decline.

Preclinical and clinical development involves a lengthy and expensive process that is subject to delays and uncertain outcomes, and results of earlier studies and trials may not be predictive of future clinical trial results. If our preclinical studies and clinical trials are not sufficient to support regulatory approval of any of our product candidates, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development of such product candidate.

Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical studies, which are a lengthy, time consuming and expensive process with risk of high failure. The length of time of such testing may vary substantially according to the type, complexity and novelty of the program, and often can be several years or more per program. Delays associated with programs for which we are conducting preclinical testing and studies may cause us to incur additional operating expenses. However, after conducting preclinical studies, we must then conduct extensive clinical trials to demonstrate the safety, purity, and efficacy or potency of our product candidate in humans. Our clinical trials may not be conducted as planned or completed on schedule, if at all. For example, we depend on the availability of NHPs to conduct certain preclinical studies that we are required to complete prior to submitting an IND and initiating clinical development. There is currently a global shortage of NHPs available for biological product development. This could cause the cost of obtaining NHPs for our future preclinical studies to increase significantly and, if the shortage continues, could also result in delays to our development timelines.

Furthermore, failure can occur at any time during the preclinical study or clinical trial process, and the outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later clinical trials, especially as our initial clinical trials do not contain a control arm. In addition, we have designed our initial clinical trials with relatively small cohorts before expanding in size and dosing in subsequent cohorts. If safety issues arise in an early cohort, we may be delayed or prevented from dose escalating or subsequently expanding into larger trial cohorts.

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 product candidates. Earlier gene therapy clinical trials conducted by others also utilized AAV vectors. However, these studies should not be relied upon as evidence that our planned clinical trials will succeed. In addition, we expect to rely on patients to provide feedback on measures, which are subjective and inherently difficult to evaluate. These measures can be influenced by factors outside of our control, and can vary widely from day to day for a particular patient, and from patient to patient and from site to site within a clinical trial.

We cannot be sure that the FDA or comparable foreign regulatory authorities will agree with our clinical development plan. We are conducting a Phase 1/2 clinical trial of NGN-401 in patients with Rett syndrome and a Phase 1/2 clinical trial of NGN-101 in patients with CLN5 Batten disease. If the FDA or comparable regulatory authorities requires us to conduct additional trials or enroll additional patients, our development timelines may be delayed. We cannot be sure that submission of an IND application, clinical trial application (“CTA”) or similar application will result in the FDA or comparable foreign regulatory authorities, as applicable, allowing clinical trials to begin in a timely manner, if at all. Moreover, even if these trials begin, issues may arise that could cause regulatory authorities to require us to suspend or terminate such clinical trials. Events that may prevent successful or timely initiation or completion of clinical trials include: inability to generate sufficient preclinical, toxicology or other *in vivo* or *in vitro* data to support the initiation or continuation of clinical trials; delays in reaching a consensus with regulatory authorities on study design or implementation of the clinical trials; delays or failure in obtaining regulatory authorization to commence a trial; delays in reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites; delays in identifying, recruiting and training suitable clinical investigators; delays in obtaining required IRB approval at each clinical trial site; difficulties in patient enrollment in our clinical trials for a variety of reasons; delays in manufacturing, testing, releasing, validating or importing/exporting sufficient stable quantities of our product candidates for use in clinical trials or the inability to do any of the foregoing; failure by our CROs, other third parties or us to adhere to clinical trial protocols; failure to perform in accordance with the FDA’s or any other regulatory authority’s good clinical practices (“GCPs”) or applicable regulatory guidelines in other countries; changes to the clinical trial protocols; clinical sites deviating from trial protocol or dropping out of a trial; changes in regulatory requirements and guidance that require amending or submitting new clinical protocols; selection of clinical endpoints that require prolonged periods of observation or analyses of resulting data; transfer of manufacturing processes to larger-scale facilities operated by a CDMO and delays or failure by our CDMOs or us to make any necessary changes to such manufacturing process; and third parties being unwilling or unable to satisfy their contractual obligations to us.

We could also encounter delays if a clinical trial is placed on clinical hold, suspended or terminated by us, the IRBs of the institutions in which such trials are being conducted, or the FDA, the competent authorities and/or ethics committees of the UK, Australia, EU Member States or other regulatory authorities, if a clinical trial is recommended for suspension or termination by the DSMB or equivalent body for such trial, or on account of changes to federal, state, or local laws. If we are required to conduct additional clinical trials or other testing of NGN-401 or NGN-101 or any other product candidates beyond those that we contemplate, if we are unable to successfully complete clinical trials of NGN-401 or NGN-101 or any other product candidates, if the results of these trials are not positive or are only moderately positive or if there are safety concerns, our business and results of operations may be adversely affected and we may incur significant additional costs.

In addition, even if we are able to successfully complete clinical trials for NGN-401 or NGN-101, we cannot guarantee that the FDA or foreign regulatory authorities will interpret the results as we do, and more trials could be required before we submit our product candidates for approval. This is particularly true for clinical trials in very rare diseases, such as with our Phase 1/2 clinical trial of NGN-101 for the treatment of CLN5 Batten disease and Phase 1/2 clinical trial of NGN-401 for the treatment of Rett syndrome, where the very small patient population makes it difficult to conduct two traditional, adequate and well-controlled studies. In such cases, the FDA or comparable foreign regulatory authorities are often required or permitted to exercise flexibility in approving therapies for such diseases, but obtaining flexibility is uncertain and may never occur. Moreover, results acceptable to support approval in one jurisdiction may be deemed inadequate by another regulatory authority to support regulatory approval in the other jurisdiction. To the extent that the results of the trials are not satisfactory to the FDA or applicable regulatory authorities for support of a marketing application, we may be required to expend significant resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates.

Preliminary, "topline" or interim data from our clinical trials that we announce or publish from time to time may change as more patient data becomes available and are subject to audit and verification procedures.

From time to time, we may publicly disclose preliminary, interim or topline data from our preclinical studies and clinical trials, which are based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data. We also make assumptions, estimations, calculations and conclusions as part of our analyses of these data without the opportunity to fully and carefully evaluate complete data. Preliminary, interim or topline results also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data previously disclosed. These preliminary, interim or topline data are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available or as patients from our clinical trials continue other treatments. As a result, preliminary, interim and topline data should be viewed with caution until final data are available. Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular product candidate, the approvability or commercialization of a particular product candidate and our company in general. In addition, the information we choose to publicly disclose regarding a particular preclinical study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is material or otherwise appropriate information to include in our disclosure. If the preliminary, interim or topline data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, NGN-401 or NGN-101 or any other product candidate may be harmed, which could harm our business, operating results, prospects or financial condition. In addition, differences between preliminary, interim or topline data and final data could significantly harm our business prospects and may cause the trading price of our common stock to fluctuate significantly.

Our current or future clinical trials may reveal significant adverse events or undesirable side effects not seen in our preclinical studies and may result in a safety profile that could halt clinical development, inhibit regulatory approval or limit commercial potential or market acceptance of any of NGN-401 or NGN-101 or any other product candidates or result in potential product liability claims.

Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects, adverse events or unexpected characteristics. While our Phase 1/2 clinical trials have not shown any such characteristics to date, we have not yet completed those clinical trials. If significant adverse events or other side effects are observed in any of our current or future clinical trials, we may have difficulty recruiting patients to such trials, patients may drop out of our trials, patients may be harmed, or we may be required to abandon the trials or our development efforts of one or more product candidates altogether, including NGN-401 or NGN-101. We, the FDA, EMA, or other applicable regulatory authorities, or an IRB, may require suspension of any clinical trials of NGN-401 or NGN-101 or any other product candidates at any time for various reasons, including a finding that subjects or patients in such trials are being exposed to unacceptable health risks or adverse side effects. Some potential products developed in the biotechnology industry that initially showed therapeutic promise in early-stage trials have later been found to cause side effects that prevented their further development. Even if the side effects do not preclude a product candidate from obtaining or maintaining marketing approval, undesirable side effects may inhibit market acceptance of an approved product due to its tolerability versus other therapies. In addition, as gene replacement has a potentially life-long activity, with no ability to withdraw the product as with other treatment modalities, this profile could prolong the duration of undesirable side effects, which could also inhibit market acceptance. Treatment-emergent adverse events could also affect patient recruitment or the ability of enrolled subjects to complete our clinical trials or could result in potential product liability claims. Potential side effects associated with NGN-401 or NGN-101 or any other product candidates may not be appropriately recognized or managed by the treating medical staff, as toxicities resulting from NGN-401 or NGN-101 or any other product candidates may not be normally encountered in the general patient population and by medical personnel. Any of these occurrences could harm our business, financial condition, results of operations and prospects significantly.

In addition, even if we successfully advance NGN-401 or NGN-101 or any other product candidates through clinical trials, such trials will only include a limited number of patients and limited duration of follow up to such product candidates. As a result, we cannot be assured that adverse effects of NGN-401 or NGN-101 or any other product candidates will not be uncovered when a significantly larger number of patients are exposed to such product candidate after approval, or a significantly longer follow up post-dosing is obtained as part of regulators' recommendations for long-term follow up of clinical study subjects treated with gene therapy. Further, any clinical trials may not be sufficient to determine the effect and safety consequences of using our product candidates over a multi-year period.

We have expended substantial efforts and costs testing our EXACT technology in preclinical studies of NGN-401, including completing toxicology studies prior to the FDA providing clearance of the IND for NGN-401. However, we cannot guarantee that significant adverse effects will not be seen in clinical trials for NGN-401, which could result in clinical holds, delays, suspension or withdrawal of our IND. If any of the foregoing events occur or if NGN-401 or NGN-101 or any other product candidates prove to be unsafe, our entire pipeline could be affected, which would have a material adverse effect on our business, financial condition, results of operations and prospects.

We may expend our limited resources to pursue a particular product candidate, such as NGN-401 or NGN-101, and fail to capitalize on candidates that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we intend to focus our research and development efforts on certain selected product candidates. For example, we are initially allocating significant resources to our most advanced product candidates, NGN-401 and NGN-101. As a result, we may forgo or delay pursuit of opportunities with other potential candidates that may 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 for specific indications may not yield any commercially viable product candidates. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that 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 candidate.

Even if regulatory approval is obtained, any approved products resulting from NGN-401 or NGN-101 or any other product candidate may not achieve adequate market acceptance among clinicians, patients, healthcare third-party payors and others in the medical community necessary for commercial success and we may not generate any future revenue from the sale or licensing of such products.

Even if regulatory approval is obtained for NGN-401 or NGN-101 or any other product candidates, our product candidates may not gain market acceptance among physicians, patients, healthcare payors or the medical community. We may not generate or sustain revenue from sales of the product due to factors such as whether the product can be sold at a competitive cost and whether it will otherwise be accepted in the market. There is currently one FDA-approved product and multiple other product candidates in various stages of development for the treatment of Rett syndrome. Market participants with significant influence over acceptance of new treatments, such as clinicians and third-party payors, may not adopt a gene therapy replacement with a target product profile such as that of NGN-401 or NGN-101 or for their targeted indications, and we may not be able to convince the medical community and third-party payors to accept and use, or to provide favorable reimbursement for, any product candidates developed by us or our existing or future collaborators. Market acceptance of NGN-401 or NGN-101 or any other product candidates will depend on many factors, including factors that are not within our control.

Sales of biological products also depend on the willingness of clinicians to prescribe the treatment. We cannot predict whether clinicians, clinicians' organizations, hospitals, other healthcare providers, government agencies or private insurers will determine that any of our approved products are safe, therapeutically effective or potent, cost effective or less burdensome as compared with competing treatments. If NGN-401 or NGN-101 or any other product candidate is approved but does not achieve an adequate level of acceptance by such parties, we may not generate or derive sufficient revenue from that product and may not become or remain profitable.

We have never commercialized a product candidate and may lack the necessary expertise, personnel and resources to successfully commercialize a product candidate on our own or together with suitable collaborators.

We have never commercialized a product candidate and currently have no sales force, marketing or distribution capabilities. To achieve commercial success for a product candidate, we may opt to license such product candidate to others, in which case we may rely on the assistance and guidance of our collaborators on that license arrangement. For a product candidate for which we retain commercialization rights and marketing approval, we will have to develop our own sales, marketing and supply organization or outsource these activities to a third party. Factors that may affect our ability to commercialize a product candidate, if approved, on our own include recruiting and retaining adequate numbers of effective sales and marketing personnel, developing adequate educational and marketing programs to increase public acceptance of our approved product candidate, ensuring regulatory compliance of our company, employees and third parties under applicable healthcare laws and other unforeseen costs associated with creating an independent sales and marketing organization. Developing a sales and marketing organization will be expensive and time-consuming and could delay the launch of a product candidate upon approval. Moreover, we may not be able to build an effective sales and marketing organization. If we are unable to build our own distribution and marketing capabilities or to find suitable partners for the commercialization of an approved product candidate, we may not generate revenues from them or be able to reach or sustain profitability.

We have never completed any late-stage clinical trials and may not be able to file an IND application or other applications for regulatory approval to commence additional clinical trials on the timelines we expect. Even if we are able to complete such trials, the FDA or comparable foreign regulatory authorities may not permit us to proceed or could suspend or terminate any such trial after it has been initiated.

We are early in our development efforts and will need to successfully complete later-stage and pivotal clinical trials in order to obtain FDA or comparable foreign regulatory approval to market our product candidates. Carrying out clinical trials and the submission of a successful IND or CTA is a complicated process. We have not yet completed a Phase 1/2 clinical trial and have limited experience as a company in preparing, submitting and prosecuting regulatory filings. If topline results from our Phase 1/2 clinical trial of NGN-401 are successful, we intend to engage with the FDA and other comparable foreign regulators to determine the requirements to support initiation of a pivotal clinical trial. If topline results from our Phase 1/2 clinical trial of NGN-101 are successful, we intend to engage with the FDA and other comparable foreign regulators to determine if there is a streamlined pathway to approval for NGN-101 for the treatment of CLN5 Batten disease. However, regulatory authorities may recommend changes to the study designs for NGN-401 or NGN-101, including the number and size of registrational clinical trials required to be conducted in such programs. In addition, regulatory authorities could require manufacturing changes or have us implement additional analytical processes prior to initiation of a future clinical trial. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to regulatory submission and approval of our product candidates. Additionally, even if regulatory authorities agree with the design and implementation of the clinical trials set forth in a regulatory meeting, such regulatory authorities may change their requirements in the future. The FDA or comparable foreign regulatory authorities may require the analysis of data from trials assessing different doses of the product candidate alone or in combination with other therapies to justify the selected dose prior to the initiation of large trials in a specific indication. Any delays or failure to initiate clinical trials or obtain regulatory approvals for our trials may prevent us from completing our clinical trials or commercializing our products on a timely basis, if at all. We are subject to similar risks related to the review and authorization of our protocols and amendments by comparable foreign regulatory authorities.

For our preclinical pipeline, if the IND-enabling studies support a decision to advance into clinical development, we would plan to submit an IND or CTA with a foreign regulatory authority. We may not be able to file the IND or CTA in accordance with our desired timelines for future product candidates. For example, we may experience manufacturing delays or other delays with IND-enabling studies, including with suppliers, study sites, or third-party contractors and vendors on which we depend. Moreover, we cannot be sure that submission of an IND application will result in the FDA or comparable foreign regulatory authorities allowing further clinical trials to begin, or that, once begun, issues will not arise that lead us to suspend or terminate such clinical trials.

Risks Related to Manufacturing

Gene therapies are novel, complex and difficult to manufacture. We could experience manufacturing problems that result in delays in the development or commercialization of our product candidates or otherwise harm our business.

The manufacture of gene therapy products is technically complex and necessitates substantial expertise and capital investment. Production difficulties caused by unforeseen events may delay the availability of material for our clinical studies. While we are currently establishing our own manufacturing facility to provide clinical and commercial supply of our product candidates, we expect to rely on contract manufacturers for certain portions of our manufacturing needs for the foreseeable future, such as those related to research grade material for our early preclinical studies. We have also relied on a third-party contract manufacturer to manufacture clinical supply for our Phase 1/2 clinical trial of NGN-101.

The manufacturers of biological and pharmaceutical products must comply with strictly enforced cGMP requirements, state and federal regulations, as well as foreign requirements when applicable. Any failure of us or our CDMOs to adhere to or document compliance with such regulatory requirements could lead to a delay or interruption in the availability of our program materials for clinical trials or enforcement action from the FDA, EMA or other foreign regulatory authorities. If we or our manufacturers were to fail to comply with the FDA, EMA or other regulatory authority, it could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates. Our potential future dependence upon others for the manufacture of our product candidates may also adversely affect our future profit margins and our ability to commercialize any product candidates that receive regulatory approval on a timely and competitive basis.

Biological products are inherently difficult to manufacture. Although we believe that the manufacture of our product candidates may be simplified due to their shared raw materials and other similarities, we cannot be certain that this will be the case and we may be required to develop manufacturing methods that ultimately differ significantly between product candidates, which would require that we invest substantial time and capital to develop suitable manufacturing methods. Our program materials are manufactured using technically complex processes requiring specialized equipment and facilities, highly specific raw materials, cells, and reagents, and other production constraints. Our production process requires a number of highly specific raw materials, cells and reagents with limited suppliers. Even though we aim to have backup supplies of raw materials, cells and reagents whenever possible, we cannot be certain those supplies will be sufficient if our primary sources are unavailable. A shortage of a critical raw material, cell line, or reagent, or a technical issue during manufacturing, may lead to delays in clinical development or commercialization plans. We are particularly susceptible to any shortages, delays or inability to obtain suitable raw materials, given that all of our current and planned product candidates require this starting material. Any changes in the manufacturing of components of the raw materials we use could result in unanticipated or unfavorable effects in our manufacturing processes, resulting in delays.

Once the biological products are manufactured, the product must be analyzed utilizing assays and meet pre-determined specifications in order to be used in certain preclinical studies, in any clinical trial, and, if approval is obtained, for commercial distribution. This testing is performed in-house and at third-party contract manufacturers. Delays or other unexpected obstacles in performing the tests and obtaining the results in-house or at a third-party contractor could result in unanticipated impact to our ability to supply material as needed for pre-clinical, clinical, or commercial needs.

Neurogene and our contract manufacturers for AAV9 are subject to significant regulation with respect to manufacturing of our products. The third-party manufacturing facilities on which we rely, our in-house manufacturing facility, and any manufacturing facility that we may have in the future, may have limited capacity or fail to meet the applicable stringent regulatory requirements.

We currently have relationships with a limited number of suppliers for the raw materials, including plasmids and virus banks, required by the manufacturing processes of our product candidates. Virus intended for use in our early preclinical studies has been and can be externally supplied; however, if we experience slowdowns or problems with our in-house manufacturing facility and are unable to establish or scale our internal manufacturing capabilities, we will need to continue to contract with manufacturers to produce the preclinical, clinical and commercial supply and such supply will be more uncertain and subject to delays. In addition, each supplier may require licenses to manufacture certain components of the supply if such processes are not owned by the supplier or in the public domain and we may be unable to license such intellectual property rights on reasonable commercial terms or to transfer or sublicense the intellectual property rights we may have with respect to such activities.

All entities involved in the preparation of therapeutics for clinical trials or commercial sale, including our existing contract manufacturers for components of our product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in late-stage clinical trials must be manufactured in accordance with cGMP. These regulations govern manufacturing processes and procedures (including recordkeeping) and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of adventitious agents or other contaminants, or to inadvertent changes in the properties or stability of our product candidates that may not be detectable in final product testing. We or our contract manufacturers must supply all necessary documentation in support of a biologics license application (“BLA”) or marketing authorization application (“MAA”) on a timely basis. Our facilities and quality systems and the facilities and quality systems of some or all of our third-party contractors must pass a pre-approval inspection for compliance with the applicable regulations as a condition of regulatory approval of our current or future product candidates. In addition, regulatory authorities may, at any time, audit or inspect a manufacturing facility involved with the preparation of our current or future product candidates or the associated quality systems for compliance with the regulations applicable to the activities being conducted, and they could put a hold on one or more of our clinical trials if the facilities of our CDMOs do not pass such audit or inspections. If these facilities do not pass a pre-approval plant inspection, the FDA or other foreign regulatory agency approval of the products will not be granted.

Regulatory authorities also may, at any time following approval of a product for sale, inspect or audit our manufacturing facilities or those of our third-party contractors. If any such inspection or audit identifies a failure to comply with applicable regulations or if a violation of our product specifications or applicable regulations occurs independent of such an inspection or audit, we or the relevant regulatory authority may require remedial measures that may be costly and/or time-consuming for us or a third party to implement, and that may include the temporary or permanent suspension of a clinical trial or commercial sales or the temporary or permanent closure of a facility. Any such remedial measures imposed upon us or third parties with whom we contract could harm our business. If we or any of our third-party manufacturers fail to maintain regulatory compliance, the FDA or other foreign regulatory agencies can impose regulatory sanctions including, among other things, refusal to approve a pending application for a new drug product or biologic product, or revocation of a pre-existing approval. As a result, our business, financial condition and results of operations may be harmed.

Additionally, if supply from one approved manufacturer is interrupted, there could be a significant disruption in commercial supply. An alternative manufacturer would need to be qualified through a BLA and/or MAA supplement, which could result in further delay. The regulatory agencies may also require additional studies if a new manufacturer is relied upon for commercial production. Switching manufacturers may involve substantial costs and is likely to result in a delay in our desired clinical and commercial timelines.

These factors could cause the delay of clinical trials, regulatory submissions, required approvals or commercialization of our product candidates, cause us to incur higher costs and prevent us from commercializing our products successfully, if approved. Further, if our suppliers fail to meet contractual requirements, and we are unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, our clinical trials may be delayed or we could lose future potential revenue, if any.

We depend on third-party suppliers for materials used in the manufacture of our product candidates, and the loss of these third-party suppliers or their inability to supply us with adequate materials could harm our business.

We rely on third-party suppliers for certain materials and components required for the production of our product candidates. Our dependence on these third-party suppliers and the challenges we may face in obtaining adequate supplies of materials involve several risks, including limited control over pricing, availability and quality of supplies and delivery schedules. There is substantial demand and limited supply for certain of the raw materials used to manufacture gene therapy products. As a small company, our negotiation leverage is limited and we are likely to get lower priority than our larger competitors. We cannot be certain that our suppliers will continue to provide us with the quantities of raw materials that we require or satisfy our anticipated specifications and quality requirements. Any supply interruption in limited or sole sourced raw materials could materially harm our ability to manufacture our product candidates until a new source of supply, if any, could be identified and qualified. We may be unable to find a sufficient alternative supply channel in a reasonable time or on commercially reasonable terms. Any performance failure on the part of our suppliers could delay the development and potential commercialization of our product candidates, including limiting supplies necessary for clinical trials and regulatory approvals, which would have a material adverse effect on our business.

Delays in developing our manufacturing capabilities or failure to achieve operating efficiencies from such capabilities may require us to devote additional resources and management time to manufacturing operations and may delay our product development timelines.

We have a GMP manufacturing facility located in Houston, Texas that includes process, analytical and bioanalytical development labs with experienced teams. NGN-401 was manufactured at our Houston facility and clinical-grade product is available for dosing in the Phase 1/2 clinical trial of NGN-401 that is currently enrolling patients. However, we will need to conduct additional NGN-401 manufacturing campaigns to generate additional clinical supply, as well as supply for our preclinical studies for our discovery programs, and we may not be able to satisfy such supply through production at our own facility.

Other risks relating to the manufacture of biologics and drug products include: production interruptions, delays in quality/release testing, equipment malfunctions, facility contamination, labor problems, natural disasters, disruption in utility services, terrorist activities, war, cases of force majeure, acts of god (such as public health crises) or other events beyond our control and, in each case, could result in delays in our production or difficulties in maintaining compliance with applicable regulatory requirements.

Any contamination or interruption in our manufacturing process, shortages of raw materials or failure of our suppliers to deliver necessary components could result in delays in our clinical development or marketing schedules.

Given the nature of gene therapy manufacturing, there is a risk of contamination. Any contamination could adversely affect our ability to produce product candidates on schedule and could, therefore, harm our results of operations and cause reputational damage. Some of the raw materials required in our manufacturing process are derived from biologic sources. Such raw materials are difficult to procure and may be subject to contamination or recall. A material shortage, contamination, recall or restriction on the use of biologically derived substances in the manufacture of our product candidates could adversely impact or disrupt the commercial manufacturing or the production of clinical material, which could adversely affect our development timelines and our business, financial condition, results of operations and prospects.

We may not be able to successfully manufacture our product candidates in sufficient quality and quantity, which would delay or prevent us from developing our product candidates and commercializing resulting approved products, if any.

To date, we have manufactured NGN-401 in quantities and quality adequate for preclinical, toxicology and clinical studies. In order to conduct clinical trials for a product candidate and for commercialization of the resulting product if that product candidate is approved for sale, we will need to manufacture product candidates in additional cGMP campaigns or in larger batch sizes. We may not be able to successfully repeat or increase the manufacturing capacity for any of our product candidates in a timely or cost-effective manner or at all. Significant changes or scale-up of manufacturing may require additional validation studies, which are costly and which regulatory authorities must review and approve. In addition, quality issues may arise during those changes or scale-up activities. If we are unable to successfully manufacture any of our product candidates in sufficient quality and quantity, the development of that product candidate and regulatory approval or commercial launch for any resulting products may be delayed or there may be a shortage in supply, which could significantly harm our business.

Changes in methods of product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates proceed through preclinical studies to late-stage clinical trials towards potential approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize processes and product characteristics. Such changes carry the risk that they will not achieve our intended objectives. Any such changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the materials manufactured using altered processes. Such changes may also require additional testing, FDA notification or approval from the FDA or foreign regulatory agencies. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commence sales and generate revenue. In addition, we may be required to make significant changes to our upstream and downstream processes across our pipeline, which could delay the development of our future product candidates.

Risks Related to Our Reliance on Third Parties

We have a number of academic collaborations, and currently rely on our collaboration with the University of Edinburgh for certain aspects of our preclinical research and development programs, including working in collaboration to discover and preclinically develop our lead product candidate for Rett syndrome and our near-term future pipeline. Failure or delay of the University of Edinburgh or any other collaborator to fulfil all or part of its obligations under our agreement, a breakdown in collaboration between the parties or a complete or partial loss of the relationship would materially harm our business.

Our discovery engine is supplemented by academic collaborations to expand our platform, which we rely upon to advance discovery and development of product candidates. For example, our collaboration with the University of Edinburgh is critical to our business. In December 2020, we entered into a Master Collaboration Agreement (the "MCA") with the University of Edinburgh, which we rely on to conduct certain aspects of the preclinical development of our pipeline candidates, including NGN-401 and all of our early-stage pipeline product candidates. Further, in March 2022, we entered into an exclusive license agreement with the University of Edinburgh for, with respect to certain University of Edinburgh-owned technology, a worldwide, exclusive, sublicensable license to develop, have developed, use, manufacture, have manufactured, supply, have supplied, sell, have sold, offer for sale, commercialize, import, export, register, reproduce, dispose of or otherwise exploit any products, processes, components, services and/or technologies incorporating the technology for the prevention or treatment of disease or medical or genetic conditions in humans. We also currently rely on the University of Edinburgh for portions of preclinical research capabilities under the direction of Dr. Stuart Cobb, Professor in Translational Neuroscience at the University of Edinburgh and our Chief Scientific Officer. Pursuant to the MCA, we and the University of Edinburgh agreed to collaborate on certain research and development projects (the "Projects"), and we agreed to provide funding for such Projects. In exchange for such funding, the University of Edinburgh grants us an option to exclusively license any intellectual property arising from such Projects. Either party has the right in certain circumstances to terminate the collaboration pursuant to the terms of the MCA. If the MCA is not renewed or is terminated, our pipeline of product candidates would be significantly adversely affected, and our business would be materially harmed.

Following an amendment to the MCA in November 2023, the term of the research funding portion of the MCA, under which we have the ability to acquire exclusive rights to additional technology and gene therapy products, now expires in December 2026. If we need to extend the term of this provision beyond that date, we will need to negotiate an additional extension with the University of Edinburgh, and we may not be able to agree on such an extension on terms that are acceptable to us, or at all. We may have disagreements with the University of Edinburgh with respect to the interpretation of the MCA, use of resources or otherwise that could cause our relationship to deteriorate. As a result, the University of Edinburgh may reduce focus on, and resources allocated to, our programs, potentially delaying or terminating our ability to advance product candidates through preclinical studies. Additionally, if Dr. Cobb were to leave the University of Edinburgh or to otherwise no longer be meaningfully involved with us, our preclinical research and development capabilities may be substantially reduced.

Further, under the MCA, the University of Edinburgh is primarily responsible for prosecuting and maintaining our licensed intellectual property, and it may fail to properly prosecute, maintain or defend such intellectual property. In such event, if we are unable to otherwise maintain or defend such intellectual property, we could face the potential invalidation of the intellectual property or be subjected to litigation or arbitration, any of which would be time-consuming and expensive. To enforce the licensed intellectual property rights under the MCA, we will need to coordinate with the University of Edinburgh, which could slow down or hamper our ability to enforce our licensed intellectual property rights. If this happens, we could face increased competition that could materially and adversely affect our business. For a further description of the MCA, see "*Business—License Agreements*."

Additionally, in May 2019, we entered into an exclusive license agreement with the University of North Carolina ("UNC") for, with respect to the UNC invention known as "Optimized CLN5 Genes and Expression Cassettes and Their Use," a worldwide, exclusive, sublicensable license to make, use, sell, have made, have sold, offer for sale and import any method or process, composition, product, or component part thereof for the prevention or treatment of disease or medical or genetic conditions, including CLN5 Batten disease or other diseases stemming from dysfunction of the CLN5 gene.

We also currently have or may in the future engage in other academic collaborations to supplement our internal discovery and product development program. While these academic institutions have contractual obligations to us, they are independent entities and are not under our control or the control of our officers or directors. Our research and licensing agreements with academic collaborators generally provide academic collaborators with license maintenance fees, development and regulatory milestone payments, royalties on net sales of products and a portion of sublicense income that we receive. Upon the scheduled expiration of any academic collaboration, we may not be able to renew the related agreement, or any renewal could be on terms less favorable to us than those contained in the existing agreement. Furthermore, either we or the academic institution generally may terminate the sponsored research agreement for convenience following a specified notice period. If any of these academic institutions decides to not renew or to terminate the related agreement or decides to devote fewer resources to such activities, our discovery efforts would be diminished, while our royalty obligations, if any, would continue unmodified.

We currently rely, and intend in the future to rely, on third parties to conduct a significant portion of our preclinical studies and existing clinical trials and potential future clinical trials for product candidates, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials.

We have engaged CROs or other third parties to conduct preclinical and IND enabling studies and our clinical trials, including our Phase 1/2 clinical trial of NGN-401 and Phase 1/2 clinical trial of NGN-101.

We expect to continue to rely on third parties, including CROs, medical institutions and clinical investigators, to conduct those clinical trials. Any of these third parties may terminate their engagements with us, some in the event of an uncured material breach and some at any time for convenience. If any of our relationships with these third parties terminate, we may not be able to timely enter into arrangements with alternative third parties or do so on commercially reasonable terms, if at all. Switching or adding CROs involves substantial cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we intend to carefully manage our relationships with CROs, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business and financial condition.

In addition, any third parties conducting our clinical trials will not be our employees, and except for remedies available to us under our agreements with such third parties, we cannot control whether or not such third parties devote sufficient time and resources to our clinical programs. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. Consequently, our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase substantially and our ability to generate revenue could be delayed significantly.

Further, while our reliance on these third parties for research and development activities will reduce our control over these activities, we will not be relieved of our responsibilities for ensuring that each of our studies and trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with GCPs for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions. If we or any of our CROs or other third parties, including trial sites, fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, EMA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP conditions. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

In addition, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA. The FDA may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the trial. The FDA may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA and may ultimately lead to the denial of marketing approval of NGN-401 and NGN-101 or any other product candidates.

We currently store drug product for clinical trial sites in the United States, and currently rely on and expects in the future to rely on third parties to distribute product supplies for our clinical trials, as well as to store and distribute supply for clinical trial sites outside of the United States. Any performance failure on the part of Neurogene or our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our products, if approved, producing additional losses and depriving us of potential revenue.

Risks Related to Our Business and Operations

In order to successfully implement our plans and strategies, we will need to grow the size of our organization and we may experience difficulties in managing this growth.

Over time, we expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of preclinical and clinical biological product development, technical operations, clinical operations, regulatory affairs, manufacturing and, potentially, sales, marketing and distribution. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial personnel and systems, expand our facilities and recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team working together 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.

We are highly dependent on our key personnel and anticipate hiring new key personnel. If we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our managerial, scientific and medical personnel, including our Founder and Chief Executive Officer, President and Chief Financial Officer, and Chief Scientific Officer, as well as other key members of our leadership team. Our executive officers may terminate their employment with us at any time. We do not maintain “key person” insurance for any of our executives or other employees. 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. Furthermore, replacing executive officers and key personnel may be difficult and may take an extended period of time. Failure to attracting and retaining qualified personnel could materially and adversely affect our business, financial condition and results of operations. We could in the future have difficulty attracting and retaining experienced personnel and may be required to expend significant financial resources on our employee recruitment and retention efforts.

Our future growth may depend, in part, on our ability to operate in foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future growth may depend, in part, on our ability to develop and commercialize NGN-401 or NGN-101 or other product candidates in foreign markets for which we may rely on collaborations with third parties. We are not permitted to market or promote any product candidates before we receive regulatory approval from the applicable foreign regulatory authority, and may never receive such regulatory approval for any product candidates. To obtain separate regulatory approval in many other countries, we must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of NGN-401 or NGN-101 or other product candidates, and we cannot predict success in these jurisdictions. If we fail to comply with the regulatory requirements in international markets or to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of NGN-401 or NGN-101 or other product candidates will be harmed and our business will be adversely affected. Moreover, even if we obtain approval of NGN-401 or NGN-101 or other product candidates and ultimately commercialize such product candidates in foreign markets, we would be subject to the risks and uncertainties of operating in such foreign markets, including the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements and reduced protection of intellectual property rights in some foreign countries.

Our employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, CDMOs, suppliers and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, CDMOs, suppliers and vendors acting for or on our behalf may engage in misconduct or other improper activities. It is not always possible to identify and deter misconduct by these parties 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 comply with these laws or regulations.

Our internal computer systems have suffered a security breach and in the future our systems, or those of any of our CROs, manufacturers, other contractors, third party service providers or consultants or potential future collaborators, may fail or suffer additional security or data privacy breaches or other unauthorized or improper access to, use of, or destruction of our proprietary or confidential data, employee data or personal data, which could result in additional costs, loss of revenue, significant liabilities, harm to our brand and material disruption of our operations.

Despite the implementation of security measures in an effort to protect systems that store our information, given the size and complexity of such systems and the increasing amounts of information maintained on our internal information technology systems and those of our third-party CROs, other contractors (including sites performing our clinical trials), third-party service providers and supply chain companies, consultants and other partners, these systems are potentially vulnerable to breakdown or other damage or interruption from service interruptions, system malfunction, natural disasters, terrorism, war and telecommunication and electrical failures, as well as security breaches from inadvertent or intentional actions by our employees, contractors, consultants, business partners and/or other third parties, or from cyber-attacks by malicious third parties, which may compromise our system infrastructure or lead to the loss, destruction, alteration or dissemination of, or damage to, our data. From time to time, we are subject to business email compromise attack attempts. In August 2023, we discovered a business email compromise attack that resulted in the misappropriation of approximately $0.9 million. While we have implemented remedial measures in response to this incident, we cannot guarantee that such measures will prevent additional related, as well as unrelated incidents, or that we will be able to defend against or successfully remediate any such attacks that may occur in the future. If a material system failure, accident or security breach were to occur and cause interruptions in our operations or the operations of third-party collaborators, service providers, contractors and consultants, it could result in a material disruption of our development programs and significant reputational, financial, legal, regulatory, business or operational harm.

Further, since we sponsor clinical trials, any breach that compromises patient data and identities causing a breach of privacy could have significant adverse consequences on our business. For example, the loss of clinical trial data from completed or future clinical trials could affect trust in us, negatively impacting our ability to recruit for future clinical trials, 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 breach were to result in a loss, destruction, unavailability, alteration or dissemination of, or damage to, our data or applications, or inappropriate disclosure of confidential proprietary information, or for it to be believed or reported that any of these occurred, we could incur liability and reputational damage and the development and commercialization of NGN-101 or NGN-401 or other product candidates could be delayed.

As our employees work remotely and use network connections, computers, and devices outside of our premises or network, including working at home, while in transit and in public locations, there are risks to our information technology systems and data. Additionally, business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities' systems and technologies.

While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We may be unable in the future to detect vulnerabilities in our information technology systems because such threats and techniques change frequently, are often sophisticated in nature, and may not be detected until after a security incident has occurred. Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities. Applicable data privacy and security obligations may require us to notify relevant stakeholders, patients or other individuals, regulators or, in certain circumstances, the media of security incidents. Such disclosures are costly, and the disclosure or the failure to comply with such requirements could lead to adverse consequences, including damage to our reputation.

We rely on third-party service providers and technologies to operate critical business systems, including to process sensitive information in a variety of contexts. Our ability to monitor these third parties' information security practices is limited, and these third parties may not have adequate information security measures in place. If our third-party service providers experience a security incident or other interruption, we could experience adverse consequences as a result. While we may be entitled to damages if our third-party service providers fail to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our monetary, reputational and other damages, or we may be unable to recover such award. In addition, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties' infrastructure in our supply chain or our third-party partners' supply chains have not been and will not be compromised.

If we (or a third party upon whom we rely) experiences a security incident or is perceived to have experienced a security incident, we may experience adverse consequences, such as government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing personal information (including sensitive data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations (including availability of data); increased investigation and compliance costs; financial loss; and other similar harms. Security incidents and attendant consequences may cause our stakeholders (including investors and potential customers) to stop supporting our business, deter new customers from our products, deter patients from participating in clinical trials and negatively impact our ability to grow and operate our business.

Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our privacy and security practices or from disruptions in, or failure or security breach of, our systems or third-party systems where information important to our business operations or commercial development is stored, or that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims.

We are subject to stringent and changing laws, regulations and standards, and contractual obligations relating to privacy, data protection, and data security. The actual or perceived failure to comply with such obligations could lead to government enforcement actions (which could include civil or criminal penalties), fines and sanctions, private litigation, injunctive restrictions on data processing and/or adverse publicity and could negatively affect our operating results and business.

We, and third parties with whom we work, are or may become subject to numerous domestic and foreign laws, regulations, and standards relating to privacy, data protection, and data security, the scope of which are changing, subject to differing applications and interpretations, and may be inconsistent among countries, or conflict with other rules. We are or may become subject to the terms of contractual obligations related to privacy, data protection, and data security. Our obligations may also change or expand as our business grows. The actual or perceived failure by us or third parties related to us to comply with such laws, regulations and obligations could increase our compliance and operational costs, expose us to regulatory scrutiny, actions, fines and penalties, result in reputational harm, lead to a loss of customers, result in litigation and liability, subject us to injunctive restrictions on data processing and otherwise cause a material adverse effect on our business, financial condition, and results of operations. See the sections entitled "*Business—Government Regulation—Data Privacy and Security" and "—Other Regulatory Matters*" for a more detailed description of the laws that may affect our ability to operate.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are 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 may involve the use of hazardous and flammable materials, including chemicals and biological and 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 commercialization efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

As of December 31, 2023, Neurogene had net operating loss carryforwards for federal and state income tax purposes of $277.9 million and $35.1 million, respectively. The federal net operating losses will not be subject to expiration and can be carried forward indefinitely; however, they are limited to a deduction to 80% of annual taxable income. The state net operating losses begin to expire in 2038. To the extent that our taxable income exceeds any current year operating losses, we plan to use our carryforwards to offset income that would otherwise be taxable. Also, for state income tax purposes, the extent to which states will conform to the federal laws is uncertain and there may be periods during which the use of net operating loss carryforwards are suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. In addition, under Section 382 of the Code, changes in our ownership may limit the amount of our net operating loss carryforwards and tax credit carryforwards that could be utilized annually to offset our future taxable income, if any. This limitation would generally apply in the event of a cumulative change in ownership of more than 50% (as measured by value) among a stockholder or one or more groups of stockholders who own at least 5% of our stock within a three-year period. We have not performed an analysis to determine whether there has been an ownership change pursuant to Section 382. Any such limitation may significantly reduce our ability to utilize our net operating loss carryforwards and tax credit carryforwards before they expire. Any such limitation, whether as the result of a public offering, private placements, sales of our common stock by our existing stockholders or additional sales of our common stock by us, could have a material adverse effect on our results of operations in future years.

We may be subject to adverse legislative or regulatory tax changes that could negatively impact our 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) could adversely affect us or our stockholders. We assess the impact of various tax reform proposals and modifications to existing tax treaties in all jurisdictions where we have operations to determine the potential effect on our business and any assumptions we have made about our future taxable income. We cannot predict whether any specific proposals will be enacted, the terms of any such proposals or what effect, if any, such proposals would have on our business if they were to be enacted. For example, the United States recently enacted the Inflation Reduction Act of 2022, which implements, among other changes, a 1% excise tax on certain stock buybacks. In addition, beginning in 2022, the Tax Cuts and Jobs Act eliminates the currently available option to deduct research and development expenditures and requires taxpayers to amortize them generally over five years. The U.S. Congress is considering legislation that would restore the current deductibility of research and development expenditures, however, there is no assurance that the provision will be repealed or otherwise modified. Such changes, among others, may adversely affect our effective tax rate, results of operation and general business condition.

We may acquire businesses or products, or form strategic alliances, in the future, and may not realize the benefits of such acquisitions.

We may acquire additional businesses or products, form strategic alliances, or create joint ventures with third parties that we believe will complement or augment our existing business. If we acquire businesses with promising markets or technologies, we may not be able to realize the benefit of acquiring such businesses if we are unable to successfully integrate them with our existing operations and company culture. We may encounter numerous difficulties in developing, manufacturing and marketing any new product candidates or products resulting from a strategic alliance or acquisition that delay or prevent us from realizing their expected benefits or enhancing our business. There is no assurance that, following any such acquisition, we will achieve the synergies expected in order to justify the transaction, which could result in a material adverse effect on our business and prospects.

We maintain our cash at financial institutions, at times in balances that exceed federally-insured limits. The failure of financial institutions could adversely affect our ability to pay our operational expenses or make other payments.

Our cash held in non-interest-bearing and interest-bearing accounts at financial institutions can at times exceed the Federal Deposit Insurance Corporation ("FDIC") insurance limits. If such banking institutions were to fail, we could lose all or a portion of those amounts held in excess of such insurance limitations. For example, the FDIC took control of Silicon Valley Bank on March 10, 2023. The Federal Reserve subsequently announced that account holders would be made whole. However, the FDIC may not make all account holders whole in the event of future bank failures. In addition, even if account holders are ultimately made whole with respect to a future bank failure, account holders' access to their accounts and assets held in their accounts may be substantially delayed. Any material loss that we may experience in the future or inability for a material time period to access our cash and cash equivalents could have an adverse effect on our ability to pay our operational expenses or make other payments, which could adversely affect our business.

At the end of August 2023, we identified a material weakness in our internal control over financial reporting and may identify additional material weaknesses in the future that may cause us to fail to meet our reporting obligations or result in material misstatements of our financial statements. If our internal control over financial reporting or our disclosure controls and procedures are not effective, we may not be able to accurately report our financial results, prevent fraud or file our periodic reports in a timely manner, which may cause investors to lose confidence in our reported financial information and may lead to a decline in our share price.

Our internal controls related to the cash disbursements process were not adequately designed to identify unauthorized payment requests, resulting in the identification of a material weakness. Specifically, at the end of August 2023, we discovered that we were subject to a business email compromise attack by a third party. This deficiency in our controls resulted in the diversion of payments to fraudulent bank accounts.

We determined that certain internal controls required for safeguarding our cash assets were not properly designed due to insufficient specificity regarding our policies and procedures surrounding supplier banking information changes, not identifying segregation of duties, and insufficient training on exercising professional skepticism. We therefore implemented steps to remediate this control deficiency, including increasing communication of and training around our controls relating to changes made to information, emphasizing security awareness and the importance of professional skepticism and designing a process to review supplier information changes prior to release of payments. While our management determined based on the assessment of internal control over financial reporting that as of December 31, 2023, this material weakness had been remediated, there can be no assurance that the remediation plans we implemented relating to this business email compromise attack will be successful in preventing a repeat of that attack or that we will be able to avoid potential future material weaknesses. If we are unable to successfully remediate existing or any future material weakness in our internal control over financial reporting, or if we identify any additional material weaknesses, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law and applicable stock exchange listing requirements regarding timely filing of periodic reports, investors may lose confidence in our financial reporting, and our stock price may decline as a result. We also could become subject to investigations by Nasdaq, the SEC or other regulatory authorities.

Risks Related to Intellectual Property

Our ability to protect our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.

We rely and expect to continue to rely upon a combination of patents, trademarks, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidates and technologies and to prevent third parties from unfairly competing with us. Our success depends in large part on our ability to obtain and maintain patent protection for platform technologies, including our EXACT gene regulation platform, product candidates and their uses, as well as the ability to operate without infringing on or violating the proprietary rights of others. As of December 31, 2023, we license 17 patent applications, including U.S. patent applications, international patent applications under the Patent Cooperation Treaty or otherwise, and expect to continue to file patent applications in the United States and abroad related to discoveries and technologies that are important to our business. However, we may not be able to protect our intellectual property rights throughout the world and the legal systems in certain countries may not favor enforcement or protection of patents, trade secrets and other intellectual property. Filing, prosecuting and defending patents on product candidates worldwide would be prohibitively expensive and our intellectual property rights in some foreign jurisdictions may be less extensive than those in the United States. As such, we do not have patents in all countries or all major markets and may not be able to obtain patents in all jurisdictions even if we apply for them. Competitors may operate in countries where we do not have patent protection and could then freely use our technologies and discoveries in such countries to the extent such technologies and discoveries are publicly known or disclosed in countries where patent protection has not been requested.

Our intellectual property portfolio is at an early stage. As of December 31, 2023, we do not own or in-license any issued patents. Our pending and future patent applications may not result in patents being issued. Any issued patents may not afford sufficient protection of our product candidates or their intended uses against competitors, nor can there be any assurance that the patents issued will not be infringed, designed around, invalidated by third parties, or effectively prevent others from commercializing competitive technologies, products or product candidates. Even if these patents are granted, they may be difficult to enforce. Further, any issued patents that may be licensed or owned covering our product candidates could be narrowed or found invalid or unenforceable if challenged in court or before administrative bodies in the United States or abroad, including the United States Patent and Trademark Office (“USPTO”). Further, if we encounter delays in any clinical trials or delays in obtaining regulatory approval, the period of time during which we could market product candidates under patent protection would be reduced. Thus, the patents that we may own or license may not afford any meaningful competitive advantage.

In addition to seeking patents for some of our technology and product candidates, we may also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share facilities or third-party consultants and vendors that we engage to perform researches, clinical trials or manufacturing activities, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in the market. In order to protect our proprietary technology and processes, we rely in part on confidentiality agreements with collaborators, employees, consultants, outside scientific collaborators and sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. We may need to share our proprietary information, including trade secrets, with future business partners, collaborators, contractors and others located in countries at heightened risk of theft of trade secrets, including through direct intrusion by private parties or foreign actors and those affiliated with or controlled by state actors. In addition, while we undertake efforts to protect our trade secrets and other confidential information from disclosure, others may independently discover trade secrets and proprietary information, and in such cases, we may not be able to assert any trade secret rights against such party. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Lastly, if our trademarks and trade names are not registered or adequately protected, then we may not be able to build name recognition in markets of interest and our business may be adversely affected.

We may not be successful in obtaining or maintaining necessary rights to product candidates through acquisitions and in-licenses.

Because our development programs require and may in the future require the use of proprietary rights held by third parties, the growth of our business may depend in part on our ability to acquire, in-license, or use these third-party proprietary rights. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify as necessary for product candidates. The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital 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. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on investment or at all. If we are unable to successfully obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant product candidate, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

While we will normally seek to obtain the right to control prosecution, maintenance and enforcement of the patents relating to a product candidate, there may be times when the filing and prosecution activities for patents and patent applications relating to a product candidate are controlled by future licensors or collaboration partners. For example, we currently license several patent families from the University of Edinburgh covering the EXACT gene regulation platform, as well as the NGN-401 product candidate and its uses. We also license a patent family covering the NGN-101 product candidate and its uses from UNC. If any of such licensors or collaboration partners fail to prosecute, maintain and enforce such patents and patent applications in a manner consistent with the best interests of our business, including by payment of all applicable fees for patents covering a product candidate, we could lose rights to the intellectual property or exclusivity with respect to those rights, our ability to develop and commercialize such candidates may be adversely affected and we may not be able to prevent competitors from making, using and selling competing products. In addition, even where we have the right to control patent prosecution of patents and patent applications which may be licensed to and from third parties, we may still be adversely affected or prejudiced by actions or inactions of licensees, future licensors and their counsel that took place prior to the date upon which we assumed control over patent prosecution.

Our future licensors may rely on third-party consultants or collaborators or on funds from third parties such that future licensors are not the sole and exclusive owners of the patents we in-license. If other third parties have ownership rights to future in-licensed patents, they may be able to license such patents to our competitors, and the 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.

It is possible that we may be unable to obtain licenses at a reasonable cost or on reasonable terms, if at all. Even if we are able to obtain a license, it may be non-exclusive, thereby giving competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing the same, 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 product candidates, which could harm our business, financial condition, results of operations, and prospects significantly. We cannot provide any assurances that third-party patents do not exist which might be enforced against our current technology or manufacturing methods, our product candidates, or future methods or product candidates, resulting in either an injunction prohibiting manufacture or future sales, or, with respect to future sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties, which could be significant.

Disputes may arise between us and our future licensors regarding intellectual property subject to a license agreement, including: the scope of rights granted under the license agreement and other interpretation-related issues; whether and to what extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement; our right to sublicense patents and other rights to third parties; our right to transfer or assign the license; the inventorship and ownership of inventions and know-how resulting from the joint creations or use of intellectual property by future licensors and us and/or our partners; and the priority date of an invention of patented technology.

Certain of our current product candidates and research programs are licensed from or based upon licenses from a third party and are field limited to certain indications. If these license agreements are terminated or interpreted to narrow our rights, our ability to advance our current product candidates or develop new product candidates based on these technologies will be materially adversely affected.

We depend on, and will continue to depend on, our current licenses with UNC, the University of Edinburgh, Virovek, Inc. ("Virovek") and Sigma-Aldrich Co. LLC ("Sigma"), and on licenses and sublicenses from other third parties, as well as potentially on other strategic relationships with third parties, for the research, development, manufacturing and commercialization of our current product candidates. If any of our licenses or relationships or any in-licenses on which our licenses are based are terminated or breached, we may:

- lose our rights to develop and market our current product candidates;
- lose patent or trade secret protection for our current product candidates;
- experience significant delays in the development or commercialization of our current product candidates;
- not be able to obtain any other licenses on acceptable terms, if at all; or
- incur liability for damages.

Additionally, even if not terminated or breached, our intellectual property licenses or sublicenses may be subject to disagreements over contract interpretation, which could narrow the scope of our rights to the relevant intellectual property or technology or increase our financial or other obligations.

If we experience any of the foregoing, it could have a materially adverse effect on our business and could force us to cease operations.

If we fail to comply with our obligations in any agreements under which we may license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

We are party to license agreements with UNC, the University of Edinburgh, Virovek and Sigma and may from time to time in the future be party to other license and collaboration agreements with third parties to advance our research or allow commercialization of current or future product candidates. Such agreements may impose numerous obligations, such as development, diligence, payment, commercialization, funding, milestone, royalty, sublicensing, insurance, patent prosecution, enforcement and other obligations on us and may require us to meet development timelines, or to exercise commercially reasonable efforts to develop and commercialize licensed products, in order to maintain the licenses. See "*Business—License Agreements*" for more information regarding our license agreements with UNC, the University of Edinburgh, Virovek and Sigma. Despite our best efforts, our licensors might conclude that we have materially breached our license agreements and might therefore terminate the license agreements, thereby removing or limiting our ability to develop and commercialize products and technologies covered by these license agreements.

If these licenses are terminated for any reason, or if the underlying patents fail to provide the intended exclusivity, we could lose significant rights and our ability to commercialize our current or future product candidates may be harmed, and competitors or other third parties would have the freedom to seek regulatory approval of, and to market, products identical to ours and we may be required to cease our development and commercialization of certain of our current or future product candidates. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe, misappropriate or otherwise violate intellectual property rights of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to the development and commercialization of our current or future product candidates, and what activities satisfy those diligence obligations;

- the priority of invention of any patented technology; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our current or future licensors and by us and our other partners.

In addition, the agreements under which we may license intellectual property or technology from third parties are likely to be 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 may license prevent or impair our ability to maintain future licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected current or future product candidates, which could have a material adverse effect on our business, financial conditions, results of operations and prospects.

We may be subject to patent infringement claims or may need to file claims to protect our intellectual property, which could result in substantial costs, liability and diversion of resources, and prevent or delay us from commercializing potential products.

Because the intellectual property landscape in the biotechnology industry is rapidly evolving and interdisciplinary, it is difficult to conclusively assess our freedom to operate and guarantee that we can operate without infringing on or violating third party rights. If certain of our product candidates are ultimately granted regulatory approval, patent rights held by third parties, if found to be valid and enforceable, could be alleged to render one or more of such product candidates infringing. We cannot be certain that patents owned or licensed by us will not be challenged by others in the course of litigation. If a third party successfully brings a claim against us, we may be required to pay substantial damages, be forced to abandon any affected product candidate and/or seek a license from the patent holder. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our business.

Competitors may infringe or otherwise violate our patents, trademarks, copyrights or other intellectual property. To counter infringement or other violations, we may be required to file claims, which can be expensive and time-consuming. Any such claims could provoke these parties to assert counterclaims against us, including claims alleging that our intellectual property, methods or products infringes their patents or other intellectual property rights. In addition, in a patent infringement proceeding, a court or administrative body may decide that one or more of the patents we assert is invalid or unenforceable, in whole or in part, construe the patent's claims narrowly or refuse to prevent the other party from using the technology at issue on the grounds that our patents do not cover the technology. Similarly, if we assert trademark infringement claims, a court or administrative body may determine that the marks asserted are invalid or unenforceable or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In such a case, we could ultimately be forced to cease use of such marks. In any intellectual property litigation, even if we are successful, any award of monetary damages or other remedy received may not be commercially valuable.

Further, we may be required to protect our patents through procedures created to attack the validity of a patent at the USPTO. An adverse determination in any such submission or proceeding could reduce the scope or enforceability of, or invalidate, our patent rights, which could adversely affect our competitive position. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action.

If we are required to defend intellectual property actions brought by third parties, or if we sue to protect our own intellectual property rights or otherwise to protect our proprietary information and to prevent its disclosure, or if we are involved in other litigation, whether as a plaintiff or defendant, and whether or not successful, we may incur substantial legal expenses and the attention of our management and key personnel may be diverted from business operations. Further, some of our competitors may be able to sustain the costs of complex intellectual property litigation more effectively than we can because they have substantially greater resources.

In addition, if our product candidates are found to infringe the intellectual property rights of third parties, these third parties may assert infringement claims against our future licensees and other parties with whom we have business relationships and we may be required to indemnify those parties for any damages they suffer as a result of these claims, which may require us to initiate or defend protracted and costly litigation on behalf of licensees and other parties regardless of the merits of such claims. If any of these claims succeed, we may be forced to pay damages on behalf of those parties or may be required to obtain licenses for the products they use, and may not be able to obtain such licenses on terms acceptable to us, if at all.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or other legal proceedings relating to our intellectual property rights, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation or other proceedings.

We may be subject to claims that we have wrongfully hired an employee from a competitor or that employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

As is common in the biotechnology industry, in addition to employees, we engage consultants to assist in the development of our product candidates. Many of these consultants, and many of our employees, were or may have been previously employed at, or may have previously provided or may be currently providing consulting services to, other biotechnology or pharmaceutical companies including our competitors or potential competitors. We could in the future be subject to claims that we or our employees or consultants working on our behalf have inadvertently or otherwise used or disclosed alleged trade secrets or other confidential information of former employers or competitors. Although we try to ensure that our employees and consultants do not use the intellectual property, proprietary information, know-how or trade secrets of others in their work for us, we may become subject to claims that we caused an employee to breach the terms of his or her non-competition or non-solicitation agreement, or that we or these individuals have, inadvertently or otherwise, used or disclosed the alleged trade secrets or other proprietary information of a former employer or competitor.

We may litigate to defend ourselves against these claims, and even if we are successful, litigation could result in substantial costs and could be a distraction to management. If our defenses to these claims fail, in addition to requiring us to pay monetary damages, a court could prohibit us from using technologies or features that are essential to our product candidates, if such technologies or features are found to incorporate or be derived from the trade secrets or other proprietary information of the former employers. Moreover, any such litigation or the threat thereof may adversely affect our reputation, our ability to form strategic alliances or sublicense our rights to collaborators, engage with scientific advisors or hire employees or consultants, each of which would have an adverse effect on our business, operations and financial condition.

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 (the “Leahy-Smith Act”), could increase the uncertainties and costs surrounding the prosecution of our owned and any future in-licensed patent applications and the maintenance, enforcement or defense of our owned and any future in-licensed issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. 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 along with 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 16, 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 16, 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, our operations and prospects.

In addition, the patent positions of companies in the development and commercialization of biologics and pharmaceuticals are particularly uncertain. U.S. Supreme Court and U.S. Court of Appeals for the Federal Circuit rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations, including in the antibody arts. 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.

Geopolitical actions in the United States and in foreign countries could increase the uncertainties and costs surrounding the prosecution or maintenance of patent applications and the maintenance, enforcement or defense of issued patents. Accordingly, our competitive position may be impaired, and our business, financial condition, operations and prospects may be adversely affected.

In addition, a European Unified Patent Court ("UPC") came into force in June 2023. The UPC is a common patent court to hear patent infringement and revocation proceedings effective for member states of the European Union. This could enable third parties to seek revocation of a European patent in a single proceeding at the UPC rather than through multiple proceedings in each of the jurisdictions in which the European patent is validated. We currently have three pending European applications, and if we obtain such patents and applications in the future, any such revocation and loss of patent protection could have a material adverse impact on our business and our ability to commercialize or license our technology and products. Moreover, the controlling laws and regulations of the UPC will develop over time, and may adversely affect our ability to enforce or defend the validity of any European patents obtained. We may decide to opt out from the UPC for any future European patent applications that we may file and any patents we may obtain. If certain formalities and requirements are not met, however, such European patents and patent applications could be challenged for non-compliance and brought under the jurisdiction of the UPC. We cannot be certain that future European patents and patent applications will avoid falling under the jurisdiction of the UPC, if we decide to opt out of the UPC.

Obtaining and maintaining patent protection depends on compliance with various procedural, document submissions, 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 fees, renewal fees, annuities fees and various other governmental fees on patents and/or patent applications are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent and/or patent application. The USPTO and various foreign governmental patent agencies also require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. 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, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we fail to maintain the patents and patent applications covering our product candidates, our competitive position would be adversely affected.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect our ability to develop and market our products.

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect. For example, we may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products.

In addition, because some patent applications in the United States may be maintained in secrecy until the patents are issued, patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, and publications in the scientific literature often lag behind actual discoveries, we cannot be certain that others have not filed patent applications for technology covered by our pending applications or any future issued patents, or that we were the first to invent the technology. Our competitors may have filed, and may in the future file, patent applications covering our products or technology similar to ours. Any such patent application may have priority over our patent applications or patents, which could require us to obtain rights to issued patents covering such technologies.

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

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. Inventorship disputes may arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing our product candidates or as a result of questions regarding co-ownership of potential joint inventions. Litigation may be necessary to resolve these and other claims challenging inventorship and/or ownership. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. If we 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, valuable intellectual property. Such an outcome could have a material adverse effect on our business. 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.

Our current or future licensors may have relied on third-party consultants or collaborators or on funds from third parties, such as the U.S. government or academic institutions, such that our licensors are not the sole and exclusive owners of the patents we in-licensed. If other third parties have ownership rights or other rights to our in-licensed patents, 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, operations, and prospects.

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 product candidates might expire before or shortly after such product candidates are commercialized. As a result, our owned and future licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

Some intellectual property that we have in-licensed may have been discovered through government funded programs and thus may be subject to federal regulations such as "march-in" rights, certain reporting requirements and a preference for U.S.-based companies. Compliance with such regulations may limit our exclusive rights, and limit our ability to contract with non-U.S. manufacturers.

Certain of the intellectual property rights we have licensed are generated through the use of U.S. government funding and are therefore subject to certain federal regulations. As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future product candidates pursuant to the Bayh-Dole Act of 1980 (the "Bayh-Dole Act") and implementing regulations. These U.S. government rights in certain inventions developed under a government-funded program include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require our or our licensors' to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). The U.S. government also has the right to take title to these inventions if we fail, or the applicable licensor, fails to disclose the invention to the government and fails to file an application to register the intellectual property within specified time limits. These time limits have recently been changed by regulation, and may change in the future. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us or the applicable licensor to expend substantial resources. In addition, the U.S. government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. manufacturers may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property. To the extent any of our current or future intellectual property is generated through the use of U.S. government funding, the provisions of the Bayh-Dole Act may similarly apply.

Risks Related to Government Regulation

The regulatory approval processes of the FDA and other comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for our product candidates, we will not be able to commercialize, or will be delayed in commercializing, such product candidates, and our ability to generate revenue will be materially impaired.

The process of obtaining regulatory approvals, both in the United States and abroad, is unpredictable, expensive and typically takes many years following commencement of clinical trials, 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. We cannot commercialize product candidates in the United States without first obtaining regulatory approval from the FDA. Similarly, we cannot commercialize product candidates outside of the United States without obtaining regulatory approval from comparable foreign regulatory authorities. Before obtaining regulatory approvals for the commercial sale of our product candidates, including our most advanced product candidates, NGN-401 and NGN-101, we must demonstrate through lengthy, complex and expensive preclinical and clinical trials that such product candidates are safe, pure and effective or potent for each targeted indication. Securing regulatory approval also requires the submission of information about the biological product manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. Further, a product candidate may not be effective or potent, may be only moderately effective or potent or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude its obtaining marketing approval. The FDA and comparable foreign regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other data. A product candidate could be delayed in receiving, or fail to receive, regulatory approval for many reasons, including: the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials; we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe, pure, and effective or potent for its proposed indication; the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval; serious and unexpected product-related side effects may be experienced by participants in our clinical trials or by individuals using drugs or biological products similar to a product candidate; we may be unable to demonstrate that a candidate's clinical and other benefits outweigh its safety risks; the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials; the data collected from clinical trials of a product candidate may not be acceptable or sufficient to support

the submission of a BLA or other submission or to obtain regulatory approval in the United States or elsewhere, and we may be required to conduct additional clinical trials; the FDA or the applicable foreign regulatory authority may disagree regarding the formulation, labeling and/or the specifications of a product candidate; the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

Of the large number of products in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in us failing to obtain regulatory approval to market NGN-401 or NGN-101 or other product candidates, which would significantly harm our business, results of operations and prospects.

If we were to obtain approval, regulatory authorities may approve any such product candidate for fewer or more limited indications than we request, including failing to approve the most commercially promising indications, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for a product candidate, we will not be able to commercialize, or will be delayed in commercializing, such product candidate and our ability to generate revenue may be materially impaired.

Because gene therapy is novel and the regulatory landscape that governs any product candidates we may develop is rigorous, complex, uncertain and subject to change, we cannot predict the time and cost of obtaining regulatory approval, if received at all, for any product candidates we may develop.

The regulatory requirements that will govern any novel gene therapy product candidates we develop are not entirely clear and are subject to change. Within the broader genetic medicine field, very few therapeutic products have received marketing authorization from the FDA or the EMA. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing. Regulatory requirements governing gene therapy products and cell therapy products have changed frequently and will likely continue to change in the future. Moreover, there is substantial overlap in those responsible for review and regulation of existing gene therapy products and cell therapy products. For example, in the United States, the FDA has established the Office of Therapeutic Products within its Center for Biologics Evaluation and Research (“CBER”), as part of its reorganization of the Office of Tissues and Advanced Therapies, to consolidate the review of gene therapy and related products. In addition, the Cellular, Tissue and Gene Therapies Advisory Committee advises CBER on its review.

Our product candidates will need to meet safety, purity and efficacy or potency standards applicable to any new biologic under the regulatory framework administered by the FDA. In addition to FDA oversight and oversight by IRBs under guidelines promulgated by the National Institutes of Health (“NIH”) gene therapy clinical trials are also subject to review and oversight by an institutional biosafety committee (“IBC”), a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment. While the NIH guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH guidelines voluntarily follow them. Although the FDA decides whether individual gene therapy protocols may proceed, the review process and determinations of other reviewing bodies can impede or delay the initiation of a clinical trial, even if the FDA has reviewed the trial and approved its initiation.

The same applies in the European Union. The EMA’s Committee for Advanced Therapies (“CAT”) is responsible for assessing the quality, safety, and efficacy of advanced-therapy medicinal products. Advanced-therapy medicinal products include gene therapy medicines, somatic-cell therapy medicines and tissue-engineered medicines. The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a gene therapy medicinal candidate that is submitted to the EMA. In the European Union, the development and evaluation of a gene therapy product must be considered in the context of the relevant EU guidelines. The EMA may issue new guidelines concerning the development and marketing authorization for gene therapy products and require that we comply with these new guidelines. As a result, the procedures and standards applied to gene therapy products and cell therapy products may be applied to any gene therapy product candidate we may develop, but that remains uncertain at this point.

Adverse developments in preclinical studies or clinical trials conducted by others in the field of gene therapy and gene regulation products may cause the FDA, the EMA, and other regulatory authorities to revise the requirements for approval of any product candidates we may develop or limit the use of products utilizing gene regulation technologies, either of which could harm our business. In addition, the clinical trial requirements of the FDA, the EMA, and other regulatory authorities and the criteria these regulators use to determine the safety, purity and efficacy or potency of a product candidate vary substantially according to the type, complexity, novelty, and intended use and market of the potential products. The regulatory approval process for product candidates such as those being developed by us can be more expensive and take longer than for other, better known, or more extensively studied pharmaceutical or other product candidates. Further, as we are developing novel potential treatments for diseases in which, in some cases, there is little clinical experience with potential new endpoints and methodologies, heightened risk that the FDA, the EMA or other regulatory authorities may not consider the clinical trial endpoints to provide clinically meaningful results, and the resulting clinical data and results may be more difficult to analyze. In addition, we may not be able to identify or develop appropriate animal disease models to enable or support planned clinical development. Any natural history studies that we may conduct or rely upon in our clinical development may not be accepted by the FDA, EMA or other regulatory authorities. Regulatory agencies administering existing or future regulations or legislation may not allow production and marketing of products utilizing gene regulation technology in a timely manner or under technically or commercially feasible conditions. In addition, regulatory action or private litigation could result in expenses, delays, or other impediments to our research programs or the commercialization of resulting products. Further, approvals by one regulatory agency may not be indicative of what other regulatory agencies may require for approval.

The regulatory review committees and advisory groups described above and the new guidelines they promulgate may lengthen the regulatory review process, require us to perform additional preclinical studies or clinical trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of these treatment candidates, or lead to significant post-approval limitations or restrictions. As we advance our research programs and develop future product candidates, we will be required to consult with these regulatory and advisory groups and to comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of any product candidates we identify and develop. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delays as a result of an increased or lengthier regulatory approval process or further restrictions on the development of our product candidates can be costly and could negatively impact our ability to complete clinical trials and commercialize our current and future product candidates in a timely manner, if at all.

Disruptions at the FDA and other regulatory authorities could negatively affect the review of our regulatory submissions, which could negatively impact our business.

The ability of the FDA and other regulatory authorities to review and approve regulatory submissions can be affected by a variety of factors, including understaffing, disruptions caused by government shutdowns and public health crises. Such disruptions could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

We may not be able to meet requirements for the chemistry, manufacturing and control of our product candidates.

In order to receive approval of our products by the FDA and comparable foreign regulatory authorities, we must show that we and our contract manufacturing partners are able to characterize, control and manufacture our biological products safely and in accordance with regulatory requirements. This includes manufacturing the drug substance, developing an acceptable formulation, performing tests to adequately characterize the formulated product, documenting a repeatable manufacturing process, and demonstrating that our biological products meet stability requirements. Meeting these chemistry, manufacturing and control (“CMC”) requirements is a complex task that requires specialized expertise. If we are not able to meet the CMC requirements, we may not be successful in getting our products approved.

We intend to deliver our product candidates via a drug delivery device that will have its own regulatory, development, supply and other risks.

We intend to deliver our product candidates via a drug delivery device, such as a catheter or other delivery system. There may be unforeseen technical complications related to the development activities required to bring such a product to market, including primary container compatibility and/or dose volume requirements. Our product candidates may not be approved or may be substantially delayed in receiving approval if the devices do not gain and/or maintain their own regulatory approvals or clearances. Where approval of the drug product and device is sought under a single application, the increased complexity of the review process may delay approval. In addition, some drug delivery devices are provided by single-source unaffiliated third-party companies. We may be dependent on the sustained cooperation and effort of those third-party companies both to supply the devices and, in some cases, to conduct the studies required for approval or other regulatory clearance of the devices. Even if approval is obtained, we may also be dependent on those third-party companies continuing to maintain such approvals or clearances once they have been received. Failure of third-party companies to supply the devices, to successfully complete studies on the devices in a timely manner, or to obtain or maintain required approvals or clearances of the devices could result in increased development costs, delays in or failure to obtain regulatory approval and delays in product candidates reaching the market or in gaining approval or clearance for expanded labels for new indications.

We currently and may in the future conduct 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 plan to conduct clinical trials outside the United States, including in Australia, the UK, Europe or other foreign jurisdictions. For example, we currently intend to conduct our Phase 1/2 clinical trial for NGN-401 in the United States and outside the United States. Our Phase 1/2 clinical trial for NGN-101 is currently being conducted in the United States and in the UK. In cases where data from clinical trials conducted outside the United States are intended to serve as the sole basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the United States population and United States medical practice; (ii) the trials were performed by clinical investigators of recognized competence and (iii) the data may be considered valid without the need for an on-site inspection by the FDA or, if the FDA considers such an inspection to be necessary, the FDA is able to validate the data through an on-site inspection or other appropriate means. Additionally, the FDA's clinical trial requirements, including sufficient size of patient populations and statistical powering, must be met. Many foreign regulatory authorities have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any similar foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. If the FDA or any similar foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in our product candidates not receiving approval or clearance for commercialization in the applicable jurisdiction. Even if the FDA accepts such data, it could require us to modify our planned clinical trials to receive clearance to initiate such trials in the United States or to continue such trials once initiated.

Other risks inherent in conducting international clinical trials include: foreign regulatory requirements, differences in healthcare services, and differences in cultural customs that could restrict or limit our ability to conduct our clinical trials; administrative burdens of conducting clinical trials under multiple sets of foreign regulations; foreign exchange fluctuations; diminished protection of intellectual property in some countries; and political and economic risks relevant to foreign countries.

Our product candidates for which we intend to seek approval as biologics may face competition sooner than anticipated.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009 ("BPCIA"), which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a highly similar or "biosimilar" product may not be submitted to the FDA until four years following the date that the reference product was first approved by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first approved. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product.

Our investigational biological products, if approved, could be considered reference products entitled to 12-year exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider a product candidate to be reference products for competing products, potentially creating the opportunity for competition sooner than anticipated. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. Moreover, the extent to which a biosimilar, once approved, will be substituted for any reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

Even if we receive regulatory approval of NGN-401 or NGN-101 or other product candidates, we will be subject to extensive ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

Any regulatory approvals that we may receive for NGN-401 or NGN-101 or other product candidates will require the submission of reports to regulatory authorities and surveillance to monitor the safety, purity and efficacy or potency of such product candidates, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a risk evaluation and mitigation strategy in order to approve a product candidate, which could entail requirements for a medication guide, physician training and communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or comparable foreign regulatory authorities approve a product candidate, the products and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, purity, efficacy or potency, recordkeeping, labeling, storage, approval, advertising, promotion, sale, distribution, import and export will be subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable foreign regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as on-going compliance with current cGMPs and GCPs for any clinical trials that we conduct following approval. In addition, manufacturers of drug products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with cGMPs.

If we or a regulatory authority discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facilities where the product is manufactured, a regulatory authority may impose restrictions on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing, requiring the addition of labeling statements, such as a “black box” warning or a contraindication, requiring creation of a medication guide outlining the risk of such side effects for distribution to patients, withdrawal or suspension of existing approvals or licenses, refusal to approve pending applications or supplements, restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials, restrictions on the manufacturing process, warning or untitled letters, civil and criminal penalties, injunctions, product seizures, detentions or import bans, voluntary or mandatory publicity requirements and imposition of restrictions on operations, including costly new manufacturing requirements. The occurrence of any event or penalty described above may inhibit our ability to commercialize NGN-401 or NGN-101 or other product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

We may face difficulties from healthcare legislative reform measures.

Existing regulatory policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of NGN-401 or NGN-101 or other product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability. See the section entitled “*Business—Government Regulation—Healthcare Reform*” for a more detailed description of healthcare reforms measures that may prevent us from being able to generate revenue, attain profitability, or commercialize product candidates.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose us to penalties.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers may expose us to broadly-applicable fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute our product candidates, if approved. See the section entitled "*Business—Government Regulation—Other Healthcare Laws and Compliance Requirements*" for a more detailed description of the laws that may affect our ability to operate.

Ensuring that our internal operations and future business arrangements with third parties comply wit h applicable healthcare laws and regulations will involve substantial costs. If our operations are found to be in violation of any of these laws or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations. Further, defending against any such actions can be costly and time-consuming and may require significant personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

Even if we are able to commercialize NGN-401 or NGN-101 or other product candidates, due to unfavorable pricing regulations and/or third-party coverage and reimbursement policies, we may not be able to offer such products at competitive prices which would seriously harm our business.

We intend to seek approval to market NGN-401 and NGN-101 and other product candidates in both the United States and in selected foreign jurisdictions. If we obtain approval in one or more foreign jurisdictions for such product candidates, we will be subject to rules and regulations in those jurisdictions. Our ability to successfully commercialize any product candidates that we may develop will depend in part on the extent to which reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. These entities may create preferential access policies for a competitor's product, including a branded or generic/biosimilar product, over our products in an attempt to reduce their costs, which may reduce our commercial opportunity. Additionally, if any of our product candidates are approved and we are found to have improperly promoted off-label uses of those programs, we may become subject to significant liability, which would materially adversely affect our business and financial condition. See the sections entitled "*Business—Government Regulation—Coverage and Reimbursement" and "—Regulation in the European Union* " for a more detailed description of the government regulations and third-party payor practices that may affect our ability to commercialize product candidates.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to or from recipients in the public or private sector. We may engage third parties to sell products outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Governments outside the United States may impose strict price controls, which may adversely affect our revenue, if any.

In some countries, particularly member states of the European Union, the pricing of prescription drugs is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after receipt of marketing approval for a therapeutic. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. 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 distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. To obtain coverage and reimbursement or pricing approvals in some countries, we or current or future collaborators of ours may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of a product to other available therapies in order to obtain or maintain reimbursement or pricing approval. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If reimbursement of any product approved for marketing is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business, financial condition, results of operations or prospects could be materially and adversely affected. Brexit could lead to legal uncertainty and potentially divergent national laws and regulations, including those related to the pricing of prescription pharmaceuticals, as the UK determines which EU laws to replicate or replace. If the UK were to significantly alter its regulations affecting the pricing of prescription pharmaceuticals, we could face significant new costs.

While we have received Fast Track designation for NGN-401 for the treatment of Rett syndrome and for NGN-101 for the treatment of CLN5 Batten disease and we may seek certain designations for our other product candidates, including Breakthrough Therapy and Priority Review designations in the United States, we may not receive such designations, and even if we do, such designations may not lead to a faster development or regulatory review or approval process.

We have received Fast Track designation in the United States for NGN-401 for the treatment of Rett syndrome and for NGN-101 for the treatment of CLN5 Batten disease, and we may seek additional designations for one or more of our other product candidates that could expedite review and approval by the FDA. A Breakthrough Therapy product is defined as a product that is intended, 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. For products that have been designated as Breakthrough Therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens.

The FDA may also 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 interactions with the FDA and the FDA may initiate review of sections of a Fast Track product's application before the application is complete. This rolling review may be available if the FDA determines, after preliminary evaluation of clinical data submitted by the sponsor, that a Fast Track product may be effective.

We may also seek a priority review designation for one or more of our product candidates. If the FDA determines that a product candidate offers a treatment for a serious condition, and if approved, would provide a significant improvement in safety or effectiveness where no adequate therapy exists, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review an application is six months, rather than the standard review period of ten months.

These designations are within the discretion of the FDA. Accordingly, even if we believe that one of our product candidates meets the criteria for these designations, the FDA may disagree and instead determine not to make such designation. Further, even if we receive a designation, the receipt of such designation for a product candidate may not result in a faster development or regulatory review or approval process compared to products considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA, including the Fast Track designation we received for NGN-401. In addition, even if one or more of our product candidates qualifies for these designations, the FDA may later decide that the product candidates no longer meet the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

The RMAT designation by the FDA for any of our product candidates 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.

We may seek an RMAT designation for our product candidates if the clinical data support such a designation for one or more product candidates. The RMAT designation program is intended to fulfill the requirement of the 21st Century Cures Act that the FDA facilitate an efficient development program for, and expedite review of, any product that meets the following criteria: (1) it qualifies as a RMAT, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and (3) preliminary clinical evidence indicates that the product has the potential to address unmet medical needs for such a disease or condition. Like breakthrough therapy designation, RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate, and eligibility for rolling review and priority review. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or may be able to rely upon data obtained from a meaningful number of sites, including through expansion to additional sites. RMAT designation does not change the standards for product approval, and there is no assurance that such designation will result in expedited review or approval or that the approved indication will not be narrower than the indication covered by the RMAT designation. Additionally, RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges.

We have received orphan drug designation for NGN-401 for the treatment of Rett syndrome and for NGN-101 for the treatment of CLN5 Batten disease, and we may seek orphan drug designation for certain future product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug designation, including market exclusivity, which may cause our revenue, if any, to be reduced.

We have received orphan drug designation from the FDA for NGN-401 for the treatment of Rett syndrome and have also received orphan drug designation from the FDA and European Medicines Agency for NGN-101 for the treatment of CLN5 Batten disease. Although we may seek orphan product designation for some or all of our other product candidates, we may never receive such designations. Under the Orphan Drug Act, the FDA may designate a drug or biological product as an orphan drug if it is intended to treat a rare disease or condition, defined as a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. Orphan drug designation must be requested before submitting a BLA. In the European Union, the EMA's Committee for Orphan Medicinal Products grants orphan drug designation to promote the development of products that are intended for the diagnosis, prevention, or treatment of a life-threatening or chronically debilitating condition affecting not more than five in 10,000 persons in the European Union. Additionally, designation is granted for products intended for the diagnosis, prevention, or treatment of a life-threatening, seriously debilitating or serious and chronic condition when, without incentives, it is unlikely that sales of the drug in the European Union would be sufficient to justify the necessary investment in developing the drug or biological product or where there is no satisfactory method of diagnosis, prevention, or treatment, or, if such a method exists, the medicine must be of significant benefit to those affected by the condition.

In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages, and application fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA.

In addition, if a product receives the first FDA approval for the indication for which it has orphan designation, the product is entitled to orphan drug exclusivity, which means the FDA may not approve any other application to market the same drug for the same indication for a period of seven years, except in limited circumstances, such as a showing of clinical superiority over the product with orphan exclusivity or where the manufacturer is unable to assure sufficient product quantity for the orphan patient population. Exclusive marketing rights in the United States may also be unavailable if we or our collaborators seek approval for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective. In the European Union, orphan drug designation entitles a party to financial incentives such as reduction of fees or fee waivers and ten years of market exclusivity following drug or biological product approval. This period may be reduced to six years if the orphan drug designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity.

Even with an orphan drug designation for our current and potential future product candidates, we may not be the first to obtain marketing approval for any particular orphan indication due to the uncertainties associated with developing pharmaceutical products. Further, even if we obtain orphan drug exclusivity for an existing or future product candidate, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties still can be approved for the same condition even with an orphan drug designation. Even after an orphan drug is approved, the FDA can subsequently approve the same drug with the same active moiety for the same condition if the FDA concludes that the later drug is clinically superior in that it is safer, more effective, or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug or biologic nor gives the drug or biologic any advantage in the regulatory review or approval process.

We have received Rare Pediatric Disease designation by the FDA for NGN-401 for the treatment of Rett syndrome and for NGN-101 for the treatment of CLN5 Batten disease. However, Rare Pediatric Disease designation for any of our product candidates does not guarantee that the BLA for the product will qualify for a priority review voucher upon approval, and it does not lead to a faster development or regulatory review process, or increase the likelihood that our product candidates will receive marketing approval.

Under the Rare Pediatric Disease Priority Review Voucher program, upon the approval of a qualifying BLA for the treatment of a rare pediatric disease, the sponsor of such an application would be eligible for a rare pediatric disease priority review voucher that can be used to obtain priority review for a subsequent BLA or NDA. If a product candidate is designated before September 30, 2024, it is eligible to receive a voucher if it is approved before September 30, 2026. While we have obtained Rare Pediatric Disease designations for NGN-401 for the treatment of Rett syndrome and for NGN-101 for the treatment of CLN5 Batten disease, it is unlikely that these product candidates will be approved by September 30, 2026. If approval is not obtained by then, we would not be in a position to obtain a priority review voucher, unless Congress further reauthorizes the program beyond the current sunset date in September 2024. Additionally, designation of a biological product for a rare pediatric disease does not guarantee that a BLA will meet the eligibility criteria for a rare pediatric disease priority review voucher at the time the application is approved. Finally, a Rare Pediatric Disease designation does not lead to faster development or regulatory review of the product or increase the likelihood that it will receive marketing approval.

General Risk Factors

Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the markets in which we compete achieve the forecasted growth, our business may not grow at similar rates, or at all.

Our market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates which may not prove to be accurate. Our estimates and forecasts relating to size and expected growth of our target market may prove to be inaccurate. Even if the markets in which we compete meet our size estimates and growth forecasts, our business may not grow at similar rates, or at all. Our growth is subject to many factors, including our success in implementing our business strategy, which is subject to many risks and uncertainties.

Our revenue will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval, the accepted price for the product, the ability to obtain coverage and reimbursement and whether we own the commercial rights for that territory. If the number of our addressable patients is not as significant as we estimate, the indication approved by regulatory authorities is narrower than we expect or the treatment population is narrowed by competition, physician choice or treatment guidelines, we may not generate significant revenue from sales of such products, even if approved.

We may become exposed to costly and damaging liability claims, either when testing a product candidate in the clinical or at the commercial stage, and our product liability insurance may not cover all damages from such claims.

We are exposed to potential product liability and professional indemnity risks that are inherent in the research, development, manufacturing, marketing, and use of pharmaceutical products. While we currently have no products that have been approved for commercial sale, the current and future use of a product candidate in clinical trials, and the sale of any approved products in the future, may expose us to liability claims. These claims may be made by patients that use the product, healthcare providers, pharmaceutical companies, or others selling such product. Any claims against us, regardless of their merit, could be difficult and costly to defend and could materially and adversely affect the market for our products or any prospects for commercialization of our products. Although we believe we currently maintain adequate product liability insurance for NGN-401 and NGN-101 and other product candidates, it is possible that our liabilities could exceed our insurance coverage or that in the future we may not be able to maintain insurance coverage at a reasonable cost or obtain insurance coverage that will be adequate to satisfy any liability that may arise. If a successful 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.

Litigation costs and the outcome of litigation could have a material adverse effect on our business.

From time to time we may be subject to litigation claims through the ordinary course of our business operations regarding, but not limited to, employment matters, security of patient and employee personal information, contractual relations with collaborators and intellectual property rights. Litigation to defend ourselves against claims by third parties, or to enforce any rights that we may have against third parties, may continue to be necessary, which could result in substantial costs and diversion of our resources, causing a material adverse effect on our business, financial condition, results of operations or cash flows.

Our business could be adversely affected by economic downturns, inflation, increases in interest rates, natural disasters, public health crises such as the COVID-19 pandemic, political crises, geopolitical events, such as conflicts between Russia and Ukraine and between Israel and the surrounding regions, or other macroeconomic conditions, which could have a material and adverse effect on our results of operations and financial condition.

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including, among other things, diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, supply chain shortages, increases in inflation rates, higher interest rates, and uncertainty about economic stability. For example, the COVID-19 pandemic resulted in widespread unemployment, economic slowdown and extreme volatility in the capital markets. The Federal Reserve has raised interest rates multiple times in response to concerns about inflation and it may not reduce interest rates in the near term or may raise them again. Higher interest rates, coupled with reduced government spending and volatility in financial markets, may increase economic uncertainty and affect consumer spending. Similarly, the ongoing military conflict between Russia and Ukraine, as well as the conflict between Israel and the surrounding regions, and rising tensions with China have created extreme volatility in the global capital markets and may have further global economic consequences, including disruptions of the global supply chain. Any such volatility and disruptions may adversely affect our business or the third parties on whom we rely. If the equity and credit markets deteriorate, including as a result of economic or political uncertainty, political unrest or war, it may make any necessary debt or equity financing more costly, more dilutive, or more difficult to obtain in a timely manner or on favorable terms, if at all. Increased inflation rates can adversely affect us by increasing our costs, including labor and employee benefit costs.

We may in the future experience disruptions as a result of such macroeconomic conditions, including delays or difficulties in initiating or expanding clinical trials and manufacturing sufficient quantities of materials. Any one or a combination of these events could have a material and adverse effect on our results of operations and financial condition.

Risks Related to Owning Our Stock

The market price of our common stock may continue to be volatile.

The market price of our common stock following the merger has been and may continue to be subject to significant fluctuations. Some of the factors that may cause the market price of our common stock to fluctuate include:

- timing and results of clinical trials and preclinical studies of our product candidates, or those of our competitors or our existing or future collaborators;
- failure to meet or exceed financial and development projections that we may provide to the public;
- failure to meet or exceed the financial and development projections of the investment community;
- failure to achieve the perceived benefits of the merger as rapidly or to the extent anticipated by financial or industry analysts;
- announcements of significant acquisitions, strategic collaborations, joint ventures or capital commitments by us or our competitors;
- actions taken by regulatory agencies with respect to our product candidates, clinical studies, manufacturing process or sales and marketing terms;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- additions or departures of key personnel;
- significant lawsuits, including patent or stockholder litigation;

- if securities or industry analysts do not publish research or reports about our business, or if they issue adverse or misleading opinions regarding our business and stock;
- changes in the market valuations of similar companies;
- general market or macroeconomic conditions or market conditions in the pharmaceutical and biotechnology sectors;
- sales of securities by us or our securityholders in the future;
- if we fail to raise an adequate amount of capital to fund our operations or continued development of our product candidates;
- trading volume of our common stock;
- announcements by competitors of new commercial products, clinical progress or lack thereof, significant contracts, commercial relationships or capital commitments;
- adverse publicity relating to precision medicine product candidates, including with respect to other products in such markets;
- the introduction of technological innovations or new therapies that compete with our products; and
- period-to-period fluctuations in our financial results.

Moreover, the stock markets in general have experienced substantial volatility that has often been unrelated to the operating performance of individual companies. These broad market fluctuations may also adversely affect the trading price of our common stock. In addition, a recession, depression or other sustained adverse market event could materially and adversely affect our business and the value of our common stock. In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against such companies. Furthermore, market volatility may lead to increased shareholder activism if we experience a market valuation that activists believe is not reflective of our intrinsic value. Activist campaigns that contest or conflict with our strategic direction or seek changes in the composition of our board of directors could have an adverse effect on our operating results, financial condition and cash flows.

If our legacy lease obligations are not subleased, assigned, terminated or otherwise addressed or the legacy assets subject to the CVR Agreement are not sold, respectively, in a timely manner, we may have to incur time and resources to take such actions.

On December 18, 2023, we completed our business combination with Neurogene OpCo in accordance with the terms of the Agreement and Plan of Merger, dated as of July 17, 2023, by and among the Company, Project North Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company, and Neurogene OpCo, pursuant to which, among other matters, Merger Sub merged with and into Neurogene OpCo, with Neurogene OpCo surviving as a wholly owned subsidiary of the Company (the "Reverse Merger").

In connection with the Reverse Merger, we declared a dividend, to each person who, as of immediately prior to the effective time of the Reverse Merger, was a stockholder of the Company or had the right to receive our common stock pursuant to an existing pre-funded warrant, of the right to receive one non-transferable contingent value right (each, a "CVR") for each then outstanding share of our common stock (before giving effect to a 1-for-4 reverse stock split (the "Reverse Stock Split") that was implemented immediately prior to the effective time), each representing the non-transferable contractual right to receive certain contingent payments from the Company upon the occurrence of certain events within agreed time periods. Holders of options to purchase our common stock outstanding immediately prior to the effective time of the merger will also received four CVRs for each share of our common stock that may be issued upon exercise of such option, such that they will receive the same number of CVRs as they would have received if the option had been exercised before the Reverse Stock Split, subject to certain conditions set forth in the CVR Agreement. Further, pursuant to the terms of the CVR Agreement, the holders of our common stock prior to the effective time of the Reverse Merger, including holders of existing pre-funded warrants and holders of options to purchase our common stock outstanding immediately prior to the effective time of the merger and exercised after the effective time of the merger, rather than all of our current holders of our common stock, are the primary recipients of any net proceeds of the disposition of the legacy assets related the business of Neoleukin Therapeutics, Inc. prior to the effective time of the Reverse Merger, the mitigation of legacy lease obligations related the business of Neoleukin Therapeutics, Inc. prior to the effective time of the Reverse Merger or receipt of any sales tax refund from the State of Washington based on tax returns filed by the Company prior to the effective time of the Reverse Merger. Accordingly, we may be required to allocate a portion of our funds, time

and resources to such activities and not our core programs and the foregoing could be a distraction to our management and employees. As a result, our operations and financial condition may be adversely affected.

We have incurred, and will continue to incur additional costs and increased demands upon management as a result of complying with the laws and regulations affecting public companies.

We have incurred and will continue to incur significant legal, accounting and other expenses as a public company that may not be reflected in our historical financial statements, which reflect the operation of Neurogene as a private company. Some of these additional expenses include costs associated with public company reporting obligations under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Our management team consists of the executive officers of Neurogene prior to the merger. These executive officers and other personnel will need to devote substantial time to complying with public company reporting requirements and compliance with applicable laws and regulations to ensure that we comply with all of these requirements. Any changes we make to comply with these obligations may not be sufficient to allow us to satisfy our obligations as a public company on a timely basis, or at all. These reporting requirements, rules and regulations, coupled with the increase in potential litigation exposure associated with being a public company, could also make it more difficult for us to attract and retain qualified persons to serve on the board of directors or on board committees or to serve as executive officers, or to obtain certain types of insurance, including directors' and officers' insurance, on acceptable terms.

Once we are no longer a smaller reporting company or otherwise no longer qualify for applicable exemptions, we will be subject to additional laws and regulations affecting public companies that will increase our costs and the demands on management and could harm our operating results and cash flows.

We are subject to the reporting requirements of the Exchange Act, which requires, among other things, that we file with the SEC annual, quarterly and current reports with respect to our business and financial condition as well as other disclosure and corporate governance requirements. We expect to still qualify as a "smaller reporting company," as such term is defined in Rule 12b-2 under the Exchange Act, in at least the near term, which allows us to take advantage of many exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. Once we are no longer a smaller reporting company or otherwise no longer qualify for this exemption, we will be required to comply with these additional legal and regulatory requirements applicable to public companies and will incur significant additional legal, accounting and other expenses to do so. If we are not able to comply with the requirements in a timely manner or at all, our financial condition or the market price of our common stock may be harmed. For example, if we or our independent auditor identifies deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, we could face additional costs to remedy those deficiencies, the market price of our stock could decline or we could be subject to sanctions or investigations by the SEC or other regulatory authorities, any of which would require additional financial and management resources.

If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired.

We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of Nasdaq. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. We must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting in each Annual Report on Form 10-K, as required by Section 404 of the Sarbanes-Oxley Act. Prior to the merger in December 2023, the operating and finance teams of Neurogene were part of a private company, and therefore were not previously required to test internal controls within a specified period. As a result, we have incurred and may continue to incur substantial professional fees and internal costs to expand our accounting and finance functions as well as to expend significant management efforts. We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

For example, our internal controls related to the cash disbursements process were not adequately designed to identify unauthorized payment requests, resulting in the identification of a material weakness. Specifically, at the end of August 2023, we discovered that we were subject to a business email compromise attack by a third party. This deficiency in our controls resulted in the diversion of payments to a fraudulent bank account. While management has determined in its assessment of our internal control over financial reporting as of December 31, 2023, that we have remediated this material weakness, there can be no assurance that the remediation will prevent similar attacks in the future or that we will not identify other material weaknesses in the future. If we are unable to successfully remediate a material weakness in our internal control over financial reporting, or if we identify any other material weaknesses, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports in addition to applicable stock exchange listing requirements, investors may lose confidence in our financial reporting, and our stock price may decline as a result. We also could become subject to investigations by Nasdaq, the SEC or other regulatory authorities.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act, or if we are unable to maintain proper and effective internal controls, we may not be able to produce timely and accurate financial statements. If that were to happen, the market price of our common stock could decline and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities.

Our certificate of incorporation and bylaws, as well as provisions under Delaware law, could make an acquisition of the company more difficult and may prevent attempts by our stockholders to replace or remove management.

Provisions in our certificate of incorporation and bylaws may discourage, delay or prevent a merger, acquisition or other change in control of the company that stockholders may consider favorable, including transactions in which our common stockholders might otherwise receive a premium price 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 will be responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove 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 all members of the board are not elected at one time;
- 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 the board;
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on at stockholder meetings;
- 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 a special meeting of stockholders;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a “poison pill” that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 66 2/3% of the votes that all stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the DGCL, which prohibits stockholders owning in excess of 15% of our outstanding voting stock from merging or combining with us. Although we believe these provisions collectively will provide for an opportunity to receive higher bids by requiring potential acquirors to negotiate with our board of directors, they would apply even if the offer may be considered beneficial by some stockholders.

Our governing documents provide that, unless we consent in writing to the selection of an alternative forum, certain designated courts will be the sole and exclusive forum for certain legal actions between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our governing documents provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for state law claims for (i) any derivative action or proceeding brought on the company's behalf, (ii) any action asserting a claim of or based on a breach of a fiduciary duty owed by any of our current or former directors, officers, or other employees to the company or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the DGCL, the certificate of incorporation or the bylaws, (iv) any action to interpret, apply, enforce or determine the validity of the certificate of incorporation or bylaws, or (v) any action asserting a claim that is governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein, which for purposes of this risk factor refers to herein as the "Delaware Forum Provision." Our governing documents further provide that, unless we consent in writing to an alternative forum, the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, which for purposes of this risk factor refers to herein as the "Federal Forum Provision." Neither the Delaware Forum Provision nor the Federal Forum Provision will apply to any causes of action arising under the Exchange Act. In addition, any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and consented to the foregoing Delaware Forum Provision and Federal Forum Provision; *provided*, however, that stockholders cannot and will not be deemed to have waived our compliance with the U.S. federal securities laws and the rules and regulations thereunder.

The Delaware Forum Provision and the Federal Forum Provision may impose additional litigation costs on our stockholders in pursuing any such claims, particularly if such stockholders do not reside in or near the State of Delaware. Additionally, these forum selection clauses may limit our stockholders' ability to bring a claim in a judicial forum that they 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 even though an action, if successful, might benefit our stockholders.

Future sales of shares by existing stockholders could cause our stock price to decline.

If our existing stockholders 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. Based on shares outstanding as of December 31, 2023, there approximately 16,887,026 shares of our common stock outstanding or issuable on exercise of prefunded warrants to purchase common stock. Of these shares, approximately 3,637,374 shares outstanding or issuable upon exercise of prefunded warrants or vested options to purchase common stock will be available for sale in the public market beginning June 15, 2024, which is 180 days after the closing of the merger on December 18, 2023 (the "Closing"), as a result of the expiration of lock-up agreements between us and certain of our securityholders. All other outstanding shares of common stock and any shares issuable on exercise of prefunded warrants or vested options to purchase our common stock, other than shares held by our affiliates or otherwise subject to restrictions on vesting and exercise, are freely tradable, without restriction, in the public market. If these shares are sold, the trading price of our common stock could decline.

Our executive officers, directors and principal stockholders have the ability to control or significantly influence all matters submitted to our stockholders for approval.

Our executive officers, directors and principal stockholders beneficially own a significant percentage of our outstanding common 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 stockholders, if they choose to act together, would control or significantly influence the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. This concentration of voting power could delay or prevent an acquisition of Neurogene on terms that other stockholders may desire.

We may be exposed to increased litigation, including stockholder litigation, which could have an adverse effect on our business and operations.

We may be exposed to increased litigation from stockholders, suppliers and other third parties, which may have an adverse impact on our business and results of operations or may cause disruptions to our operations. In the past, stockholders have initiated class action lawsuits against biotechnology companies following periods of volatility in the market prices of these companies' stock, and we may also be subject to threats of litigation based on our recent merger activity. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources, which could have a material adverse effect on our business, financial condition and results of operations.

If equity research analysts do not publish research or reports, or publish unfavorable research or reports, about us, our business or our market, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that equity research analysts publish about us and our business. Equity research analysts may elect to not provide research coverage of our common stock, and such lack of research coverage may adversely affect the market price of our common stock. If we do have equity research analyst coverage, we will not have any control over the analysts or the content and opinions included in their reports. The price of our common stock could decline if one or more equity research analysts downgrade our stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of Neurogene or fails to publish reports on us regularly, demand for our common stock could decrease, which in turn could cause our stock price or trading volume to decline.

We may be subject to adverse legislative or regulatory tax changes that could negatively impact our 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) could adversely affect us or our stockholders. We continue to assess the impact of various tax reform proposals and modifications to existing tax treaties in all jurisdictions where we have operations or employees to determine the potential effect on our business and any assumptions we make about our future taxable income. We cannot predict whether any specific proposals will be enacted, the terms of any such proposals or what effect, if any, such proposals would have on our business if they were to be enacted. For example, the United States recently enacted the Inflation Reduction Act of 2022, which implements, among other changes, a 1% excise tax on certain stock buybacks. In addition, beginning in 2022, the Tax Cuts and Jobs Act eliminated the option to deduct research and development expenditures and requires taxpayers to amortize them generally over five years. The U.S. Congress is considering legislation that would restore the current deductibility of research and development expenditures; however, there is no assurance that the current provision will be repealed or otherwise modified. Such changes, among others, may adversely affect our effective tax rate, results of operation and general business condition.

Item 1B. Unresolved Staff Comments

None.

Item 1C: Cybersecurity

We recognize the critical importance of developing, implementing, and maintaining robust cybersecurity measures to maintain the security, confidentiality, integrity, and availability of our business systems and confidential information, including personal information and intellectual property. To this end, we have implemented processes designed to assess, identify, and manage risks from potential unauthorized occurrences on or through our information technology systems that may result in adverse effects on the confidentiality, integrity, and availability of these systems and the data residing therein. These processes are managed and monitored by a hybrid information technology team consisting of Managed Services and Managed Security Services partners, which is led by our head of information technology, and include mechanisms, controls, technologies, systems, and other processes designed to prevent or mitigate data loss, theft, misuse, or other security incidents or vulnerabilities affecting the data. For example, we conduct annual penetration and vulnerability testing, periodic data recovery testing, internal security audits, and ongoing risk assessments, including due diligence on our key vendors. We also conduct, and track completion of, regular and event-driven employee trainings on cyber, phishing, spam, and information security, among other topics. In addition, we consult with outside advisors and experts on a regular basis to assist with assessing, identifying, and managing cybersecurity risks, including to anticipate future threats and trends, and their impact on our risk environment.

We consider cybersecurity, along with other significant risks that we face, within our overall enterprise risk management framework. In August 2023, we discovered that we had been subjected to a business email compromise attack by a third party, resulting in a loss of $0.9 million due to a diversion of payments to two fraudulent bank accounts ($0.7 million of which has been recovered). We recently deployed, and intend to continue to extend our cybersecurity capabilities, with advanced cybersecurity technology, processes and resources, that are designed to help enable us to actively identify, protect, detect, respond to, and recover from risks and threats, but nonetheless we face certain ongoing cybersecurity risk threats that, if realized, are reasonably likely to materially affect us. Additional information on cybersecurity risks we face is discussed in Part I, Item 1A, "*Risk Factors*," under the heading "*Risks Related to Our Business and Operations* ."

Our Executive Director of IT, who reports into the finance organization, has over 25 years of experience managing information technology and cybersecurity matters. He works collaboratively with outside consultants, including our Managed Services and Managed Security Services partners, to protect our information systems from cybersecurity threats and to promptly respond to any cybersecurity incidents. He provides regular updates to the President and Chief Financial Officer regarding our efforts to monitor the prevention, detection, mitigation and remediation of cybersecurity threats.

The Board of Directors, as a whole and at the committee level, has oversight for the most significant risks facing us and for our processes to identify, prioritize, assess, manage, and mitigate those risks. The Audit Committee, which is comprised solely of independent directors, has been designated by our Board of Directors to oversee cybersecurity risks. The Audit Committee will receive regular updates on cybersecurity and information technology matters and related risk exposures from our President and Chief Financial Officer. The Board of Directors also receives updates from management and the Audit Committee on cybersecurity risks on at least an annual basis.

Item 2. Properties

We currently lease two properties for our principal offices: an approximately 42,000 square foot manufacturing facility in Houston, Texas, and an approximately 6,000 square foot office space in New York, New York. The Houston manufacturing facility is used for our in-house manufacturing, warehouse and cold storage functions, and the lease expires on August 31, 2029. The New York office space is our corporate headquarters, and the lease expires on June 30, 2026. In addition, we have established a hybrid work-from-home policy for many of our employees. We believe these spaces to be sufficient to meet our needs for the foreseeable future and that any additional space we may require will be available on commercially reasonable terms.

In addition to our principal offices, we also lease a combined 39,572 square feet of office and laboratory space in Seattle, Washington that was previously used by Neoleukin prior to the merger for laboratory, discovery, research and development and general and administrative purposes. We have entered into a sublease with an unrelated third party for 6,272 square feet of that space, which will terminate concurrently with the end of our lease for such space on September 30, 2026. We are actively looking for a subtenant for the remaining 33,300 square feet of combined laboratory and office space, which is subject to a lease that will terminate on June 30, 2029. Any net proceeds we receive from any sublease of these properties will be payable to the holders of CVRs issued in connection with the merger, after adjustment for certain costs.

Item 3. Legal Proceedings

From time to time, we may be subject to legal proceedings. We are not currently a party to or aware of any proceedings that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

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 for Common Stock.

Our common stock is listed on The Nasdaq Global Market under the symbol “NGNE.”

Holders of Record

As of March 15, 2024, there were approximately 43 stockholders of record of our common stock. Since many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividend Policy

We currently intend to retain future earnings, if any, for use in operation of our business and to fund future growth. We have never declared or paid any cash dividends on our capital stock and do not anticipate paying any cash dividends in the foreseeable future. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Performance Graph

As a “smaller reporting company,” as defined by Rule 12b-2 of the Exchange Act, and pursuant to Instruction 6 to Item 201(e) of Regulation S-K we are not required to provide the stock performance graph.

Item 6. [Reserved]

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 in conjunction with our audited consolidated financial statements and related notes appearing elsewhere in 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, include forward-looking statements that involve risks, uncertainties, and assumptions. As a result of many factors, including those factors set forth in the section entitled “Risk Factors,” our actual results could differ materially from the results described in or implied by these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section of this report entitled “Risk Factors.” You should carefully read the “Cautionary Note About Forward-Looking Statements” and “Risk Factors” sections of this Annual Report on Form 10-K to gain an understanding of the important factors that could cause actual results to differ materially from the results described below.

In this section, references to “we,” “our,” “us,” and “the Company” refer to pre- and post-merger Neurogene Inc., unless otherwise indicated.

Overview

Despite recent scientific advances in genetics, most neurological diseases, particularly those with devastating consequences to patients, are left untreated. Conventional gene therapy is an attractive potential treatment approach for only a limited number of monogenic diseases due to the challenges caused by the complex biology of neurological diseases and by inherent variable transgene uptake and expression. We are a clinical-stage biotechnology company committed to overcoming these limitations and turning today's complex devastating neurological diseases into treatable conditions. By harnessing our proprietary transgene regulation technology, EXACT (Expression Attenuation via Construct Tuning), we are building a robust and differentiated product portfolio of genetic medicines for rare neurological diseases with high unmet need not otherwise addressable by conventional gene therapy. Our EXACT approach leverages key scientific breakthroughs, including gene transfer technology, microRNA-based genetic circuits, and adeno-associated virus delivery, and is designed to deliver therapeutic levels of transgene to key areas of the brain that underlie neurological disease pathology.

Our first clinical-stage program to utilize the EXACT platform is NGN-401, which is under development for the treatment of Rett syndrome, a disease with a patient population that has a significant unmet need, and that ultimately progresses to substantial neurological and physical impairment and premature death. In January 2023, we received clearance from the FDA for our IND application for a Phase 1/2 clinical trial of NGN-401 for the treatment of pediatric female patients. The Phase 1/2 clinical trial is an open-label, multi-center clinical trial that will assess the safety, tolerability, and efficacy of two doses of NGN-401 delivered using a one-time intracerebral ventricular procedure, which we believe is the most suitable route of administration to achieve optimal biodistribution in key regions of the brain. Consistent with our clinical development strategy, in February 2024, we amended the protocol to expand Cohort 1 to add three additional patients for a total of eight patients and remove staggered dosing, as well as adding a second higher dose cohort of eight patients. This approach provides us the flexibility to evaluate two doses concurrently, both of which we expect to be efficacious based on preclinical data, with higher doses demonstrating greater biodistribution preclinically. We also believe that including two concurrent dose cohorts in this clinical trial will result in a more robust dataset that we will be able to use to inform a future registrational trial design. NGN-401 was manufactured at our manufacturing facility and clinical-grade product is being used for dosing in the Phase 1/2 clinical trial that is currently enrolling participants. We expect preliminary clinical data from the first cohort of patients in this study in the fourth quarter of 2024 and an updated dataset from an expanded number of patients in the second half of 2025.

We believe that our EXACT platform has broad applicability in complex neurological diseases not otherwise easily addressable by conventional gene therapy. In addition to our Rett syndrome program, we have multiple programs in the discovery stage. We anticipate advancing one program into clinical development in 2025.

In addition to NGN-401, we are also pursuing a conventional gene therapy program in an ongoing Phase 1/2 clinical trial of NGN-101 for the treatment of CLN5 Batten disease. This patient population has a significant unmet need, and experiences extensive neurological and physical impairment leading to blindness, loss of motor function and early mortality. Our Phase 1/2 clinical trial of NGN-101 is the first trial to assess the treatment of both neurodegenerative and ocular disease manifestations of Batten disease. A third-party manufacturer produced product for the NGN-101 program to initiate the Phase 1/2 clinical trial. Dosing for this program commenced in the second quarter of 2022. We have completed enrollment in the first two dosing cohorts and are currently enrolling a higher dosing cohort and expect interim clinical data in the second half of 2024. To enable a go/no-go decision to advance the program into a registration study, we are planning to request a clinical/regulatory strategy meeting with the FDA in the second half of 2024. The focus of this meeting will be to align with the FDA on the expected clinical requirements to support a streamlined registration pathway, which will be necessary to move this program forward into a pivotal clinical trial.

We also established a fully operational cGMP facility in Houston, Texas used to manufacture current and future product for research, toxicology and clinical studies. We believe that our in-house manufacturing capabilities better enable control of product quality and development timelines, strategic pipeline and financial flexibility, and clinical-to-commercial continuity.

Completion of the Reverse Merger and Pre-Closing Financing

On December 18, 2023, we completed our business combination with Neurogene OpCo in accordance with the terms of the Agreement and Plan of Merger, dated as of July 17, 2023 (the "Merger Agreement"), by and among the Company, Project North Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company ("Merger Sub"), and Neurogene OpCo, pursuant to which, among other matters, Merger Sub merged with and into Neurogene OpCo, with Neurogene OpCo surviving as a wholly owned subsidiary of the Company (the "Reverse Merger"). In connection with the completion of the Reverse Merger, the Company changed its name from "Neoleukin Therapeutics, Inc." to "Neurogene Inc.," and the business conducted by the Company became primarily the business conducted by Neurogene OpCo. Immediately prior to Closing, the Company effected a 1-for-4 reverse stock split (the "Reverse Stock Split"). Unless noted otherwise, all references in this Annual Report on Form 10-K to share and per share amounts reflect the Reverse Stock Split.

Concurrently with the execution and delivery of the Merger Agreement, and in order to provide Neurogene OpCo with additional capital for its development programs, Neurogene OpCo entered into a subscription agreement (the "Subscription Agreement") with certain investors named therein (the "Investors"), pursuant to which, subject to the terms and conditions of the Subscription Agreement, immediately prior to the effective time of the Reverse Merger, Neurogene OpCo issued and sold, and the Investors purchased, 2,792,206 shares of Neurogene OpCo common stock and 1,811,739 pre-funded warrants, exercisable for 1,811,739 shares of Neurogene OpCo common stock, at a purchase price of approximately $20.63 per share or $20.63 per warrant, for an aggregate purchase price of approximately $95.0 million (the "Pre-Closing Financing").

On December 18, 2023, immediately prior to Closing and prior to the Reverse Stock Split, the Company also entered into a contingent value rights agreement (the "CVR Agreement") with a rights agent, pursuant to which holders of common stock or pre-funded warrants of the Company prior to Closing received one non-transferable contingent value right (each, a "CVR") for each outstanding share of Company common stock held by such stockholder or warrant holder immediately prior to Closing and before giving effect to the Reverse Stock Split. Holders of options to purchase our common stock outstanding immediately prior to the effective time of the reverse merger who elect to exercise those options following the reverse merger will also receive four CVRs for each share of our common stock issued upon exercise of such option (in order to preserve the ratio of CVRs to shares of common stock prior to the Reverse Merger), subject to certain conditions set forth in the CVR Agreement. Each CVR represents the contractual right to receive (i) certain net savings, if any, realized by the Company by June 30, 2029 in connection with certain legacy lease obligations related to the business of the Company prior to the Reverse Merger (the "Lease CVR"), including those related to a sublease entered into in October 2023, (ii) 100% of net proceeds, if any, derived from any consideration paid as a result of the sale of our pre-merger legacy assets pursuant any agreements entered into before Closing, and 80% of net proceeds, if any, derived from any consideration paid as a result of the sale of our pre-merger legacy assets pursuant any agreements entered into within one year after Closing (the "Intellectual Property CVR"), and (iii) certain net proceeds, if any, derived from an anticipated sales tax refund from Washington State relating to tax returns filed by the Company prior to Closing (the "Sales Tax CVR").

See Item 8 of Part II "*Financial Statements—Note 1 – Reverse Merger and Pre-Closing Financing*" for additional information.

Background

We were founded in 2018, and have devoted substantially all of our resources to conducting research and development activities (including with respect to the NGN-401 and NGN-101 programs) and undertaking preclinical studies, establishing our manufacturing facility, conducting clinical trials and the manufacturing of product used in our clinical trials and preclinical studies, business planning, developing and maintaining our intellectual property portfolio, hiring personnel, raising capital, and providing general and administrative support for these activities.

Since our inception, we have funded our operations primarily with outside capital (e.g., proceeds from the sale of preferred stock and common stock) and have raised aggregate net proceeds of $332.4 million from these private placements. However, we have incurred significant recurring losses, including a net loss of $36.3 million and $55.2 million for the years ended December 31, 2023 and 2022, respectively. In addition, as of December 31, 2023, we had an accumulated deficit of $187.2 million and cash, cash equivalents and short term investments totaling $197.2 million. In order to continue our operations, we must achieve profitable operations and/or obtain additional equity or debt financing. Until we achieve profitability, management plans to fund our operations and capital expenditures with cash on hand and the sale and issuance of securities. There can be no assurance that we will be successful in raising additional capital or that such capital, if available, will be on terms that are acceptable to us. If we are unable to raise sufficient additional capital, we may be compelled to consider actions such as reducing the scope of our operations and planned capital expenditures or sell certain assets, including intellectual property assets.

Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on a variety of factors, including the timing, scope and results of our research and development activities. Management expects that our expenses and capital requirements will increase substantially in connection with our ongoing activities as we:

- advance the NGN-401 and NGN-101 programs through clinical development, including in any additional indications;
- advance discovery programs from preclinical development into and through clinical development;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- establish sales, marketing and distribution infrastructure to commercialize any approved product candidates;
- establish a commercialization infrastructure and scale up internal and external manufacturing and distribution capabilities to commercialize any product candidates for which we may obtain regulatory approval
- expand clinical, scientific, management and administrative teams;
- maintain, expand, protect and enforce our intellectual property portfolio, including patents, trade secrets and know-how;
- implement operational, financial and management systems; and
- incur additional legal, accounting and other expenses related to operating as a public company.

We do not have any products approved for commercial sale and have not generated any commercial revenue from product sales. Our ability to generate product revenue sufficient to achieve and maintain profitability will depend upon the successful development and eventual commercialization of one or more of our product candidates, which we expect, if it ever occurs, will take many years. We expect to spend a significant amount in development and marketing costs prior to such time. We will therefore require substantial additional capital to develop our product candidates and support our continuing operations. We may never succeed in achieving regulatory and marketing approval for our product candidates. We may obtain unexpected results from our preclinical and clinical trials. We may elect to discontinue, delay, or modify preclinical and clinical trials of our product candidates. A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. Accordingly, until such time that we can generate a sufficient amount of revenue from product sales or other sources, if ever, management expects to finance our operations through private or public equity or debt financings, loans or other capital sources, which could include income from collaborations, partnerships or other marketing, distribution, licensing or other strategic arrangements with third parties, or from grants. However, we may be unable to raise additional capital from these sources on favorable terms, or at all. Our failure to obtain sufficient capital on acceptable terms when needed could have a material adverse effect on our business, results of operations or financial condition, including requiring us to delay, reduce or curtail our research, product development or future commercialization efforts. We may also be required to license rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Our management cannot provide assurance that we will ever generate positive cash flow from operating activities. See “*Liquidity and Capital Resources*.”

In December 2020, we entered into a research collaboration with the University of Edinburgh to support our pipeline development and expansion, and to accelerate scientific innovation to continue to improve upon conventional gene therapy. In November 2023, the collaboration agreement was amended and extended through December 2026. The University of Edinburgh has a vibrant community of over 500 neuroscience researchers and is widely recognized as a preeminent center for neuroscience research, especially in areas of neurodegeneration and in neurodevelopmental disorders, such as Rett syndrome. For example, researchers currently in neuroscience centers at the University of Edinburgh conducted the seminal preclinical work for Rett syndrome, including discovery of the MECP2 protein, its function as a transcriptional repressor, developing the first and most widely adopted animal model of Rett syndrome, demonstrating for the first time, the reversibility of phenotypes in any neurodevelopmental disorder as well as the first ever preclinical gene therapy efforts in Rett syndrome. Under the terms of the agreement, we have the option to in-license product candidates from Dr. Stuart Cobb's laboratory, where he has a dual appointment as a Professor in Translational Neuroscience at the Patrick Wild Centre and the Centre for Discovery Brain Sciences and serves as our Chief Scientific Officer. Dr. Cobb may be entitled to receive in the future a percentage of certain license-related payments from Neurogene to the University of Edinburgh in accordance with the University of Edinburgh's standard policies for professor inventors.

Impact of Global Economic Events

Uncertainty in the global economy presents significant risks to our business. We are subject to continuing risks and uncertainties in connection with the current macroeconomic environment, including high inflation, changes in interest rates, changes in foreign currency exchange rates, recent bank failures, geopolitical factors, including the ongoing conflicts between Russia and Ukraine and Israel and the surrounding areas and the responses thereto, and supply chain disruptions. While management is closely monitoring the impact of the current macroeconomic conditions on all aspects of our business, including the impacts on our participants in our Phase 1/2 clinical trials, employees, suppliers, vendors and business partners, the ultimate extent of the impact on our business remains highly uncertain and will depend on future developments and factors that continue to evolve. Most of these developments and factors are outside our control and could exist for an extended period of time. Management will continue to evaluate the nature and extent of the potential impacts to our business, results of operations, liquidity and capital resources. For additional information, see the section entitled "*Risk Factors*."

Components of Results of Operations

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs incurred in connection with the discovery and development of our product candidates. We expense research and development costs as incurred, including:

- expenses incurred to conduct the necessary discovery-stage laboratory work, preclinical studies and clinical trials required to obtain regulatory approval;
- acquired licenses and intellectual property that are accounted for as asset acquisitions and have no alternative future use;
- personnel expenses, including salaries, benefits and stock-based compensation expense for our employees engaged in research and development functions;
- costs of funding research performed by third parties, including pursuant to agreements with CROs that conduct our clinical trials, as well as investigative sites, consultants and CROs that conduct our preclinical and nonclinical studies;
- expenses incurred under agreements with our third-party CDMOs, as well as internal manufacturing scale-up expenses, including the cost of acquiring and manufacturing preclinical study and clinical trial materials;
- fees paid to consultants who assist with research and development activities;
- expenses related to regulatory activities, including filing fees paid to regulatory agencies; and
- allocated expenses for facility costs, including rent, utilities, depreciation and maintenance.

Before a product receives regulatory approval, we record upfront and milestone payments to third parties under licensing arrangements as expense, provided that there is no alternative future use of the rights in other research and developments projects.

Non-refundable prepayments for research and development costs that are paid in advance of performance are capitalized as a prepaid expense and amortized over the service period as the services are provided. Costs for certain development activities, such as outside research programs funded by us, are recognized based on an evaluation of the progress to completion of specific tasks with respect to their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the financial statements as prepaid or accrued research and development expense as applicable.

We track outsourced development costs and other external research and development costs to specific product candidates on a program-by-program basis, including fees paid to CROs, CDMOs and research laboratories in connection with our preclinical development, process development, and clinical development activities. We also incur personnel and other operating expenses for research and development programs, which are presented in aggregate.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect our research and development expenses to increase significantly over the next several years as we increase personnel costs, including stock-based compensation, conduct clinical trials, including later-stage clinical trials for current and future product candidates, and prepare regulatory filings for our product candidates.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel expenses, including salaries, benefits and stock-based compensation expense, for employees and consultants in executive, finance and accounting, legal, operations support, information technology and human resource functions. General and administrative expenses also include corporate facility costs not otherwise included in research and development expense, including rent, utilities, depreciation and maintenance, as well as legal fees related to intellectual property and corporate matters and fees for accounting and consulting services.

We expect that our general and administrative expense will increase in the future to support our continued research and development activities, potential commercialization efforts and increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, legal support and accountants, among other expenses. Additionally, we anticipate increased costs associated with being a public company, including expenses related to services associated with maintaining compliance with the requirements of Nasdaq and the SEC, insurance and investor relations costs. If any of our current or future product candidates obtains U.S. regulatory approval, we expect that we would incur significantly increased expenses associated with building a sales and marketing team, as well as an expanded regulatory and compliance function.

Interest Income

Interest income consists primarily of interest earned on our cash, cash equivalents and short term investments. We expect our interest income to fluctuate depending on interest rates and the amount of cash that is invested.

Income Taxes

Since inception, we have not recorded any income tax benefits for net operating losses (“NOLs”) we have incurred for our research and development tax credits, as we believe, based upon the weight of available evidence, that it is more likely than not that all of our NOLs and tax credits will not be realized. Accordingly, we have established a valuation allowance against such deferred tax assets for all periods since inception.

We assess our income tax positions and records tax benefits based upon management’s evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, we record the amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority having full knowledge of all relevant information. For those income tax positions for which it is not more likely than not that a tax benefit will be sustained, no tax benefit is recognized in the financial statements.

As of December 31, 2023, we had federal and state NOL carryforwards in the amount of $277.9 million and $35.1 million, respectively, which may be available to offset future taxable income. The state NOL carryforwards will begin to expire in 2038, unless previously utilized. Most federal NOL carryforwards were generated subsequent to January 1, 2018, and therefore are able to be carried forward indefinitely. As of December 31, 2023, we also had federal research tax credit and federal orphan drug tax credit carryforwards of $7.5 million and $2.2 million, respectively, which may be used to offset future tax liabilities. These tax and orphan drug credit carryforwards begin to expire in 2039 and 2042, respectively, unless previously utilized.

Results of Operations

Comparison of the Years Ended December 31, 2023 and 2022

The following table summarizes our results of operations for the periods indicated:

(in thousands)	Year Ended December 31,		
	2023	2022	Change
Operating expenses:			
Research and development	$ 44,394	$ 47,505	$ (3,111)
General and administrative	11,189	9,012	2,177
Total operating expenses	55,583	56,517	(934)
Loss from operations	(55,583)	(56,517)	934
Other income (expense):			
Interest income	2,951	1,337	1,614
Interest expense	(12)	(2)	(10)
Bargain purchase gain	16,355	—	16,355
Other expense	(28)	(7)	(21)
Net loss	$ (36,317)	$ (55,189)	$ 18,872

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated:

(in thousands)	Year Ended December 31,		
	2023	2022	Change
Program specific expenses:			
Rett syndrome	$ 5,957	$ 4,609	$ 1,348
Batten disease	5,507	5,576	(69)
Early Discovery	2,945	1,327	1,618
Discontinued Programs	351	3,861	(3,510)
Unallocated internal expenses:			
Personnel-related	15,328	16,152	(824)
Share-based compensation	897	732	165
Manufacturing	10,502	12,231	(1,729)
Other	2,907	3,017	(110)
Total research and development expenses	$ 44,394	$ 47,505	$ (3,111)

Research and development expenses were $44.4 million for the year ended December 31, 2023, as compared to $47.5 million for the year ended December 31, 2022, a decrease of $3.1 million.

Expenses related to the Rett syndrome program increased primarily due to a $4.2 million increase in clinical trial costs related to the Phase 1/2 clinical trial of NGN-401, offset by a $2.6 million decrease in preclinical costs. The decrease in expenses related to the Batten disease program was driven primarily by a decrease of $0.1 million in clinical development expenses. The increase in Early Discovery expenses was driven primarily by a $1.5 million increase in preclinical costs. Discontinued Programs expense decreased primarily due to a $1.3 million decrease in preclinical costs, a $1.1 million decrease in chemistry, manufacturing and controls costs, a $0.5 million decrease in clinical trial costs, and $0.5 million decrease in milestone payments. Expenses for Discontinued Programs were substantially complete by year end 2023 and are not expected to contribute meaningfully in 2024.

The $2.5 million decrease in unallocated internal expenses was primarily driven by a $1.7 million decrease in manufacturing expenses due to lower raw material expenses and a $0.8 million decrease in personnel-related expenses primarily driven by $0.7 million in employee retention tax credits received in 2023.

General and Administrative Expenses

General and administrative expenses were $11.2 million for the year ended December 31, 2023, as compared to $9.0 million for the year ended December 31, 2022, an increase of $2.2 million. The increase was attributable to: (i) a business email compromise attack by a third party, which resulted in the diversion of payments totaling approximately $0.9 million to fraudulent bank accounts that was partially offset by the recovery of approximately $0.5 million of the diverted funds; (ii) increases in personnel costs totaling $0.7 million, (iii) increases in professional and consulting fees of approximately $0.6 million resulting from the merger, and (iv) increases in insurance and information technology costs of approximately $0.4 million. Subsequent to December 31, 2023, we have recovered approximately an additional $0.2 million of the funds diverted in our email compromise attack.

Interest Income

Interest income increased by $1.7 million for the year ended December 31, 2023, as compared to the year ended December 31, 2022. The increase was due to a significant rise in interest rates from 2022 to 2023, which was partially offset by a decrease in the average amount of our cash, cash equivalents and investments during the same time period.

Bargain Purchase Gain

We recorded a bargain purchase gain of approximately $16.4 million in connection with the Closing. The fair value of Neoleukin's net assets acquired at the Closing exceeded the total consideration transferred after the fair value allocation by approximately $17.6 million. $1.3 million of the difference was recorded as a contingent consideration liability for payments that are probable and estimable under the CVR Agreement, and the remaining $16.4 million was recognized as a bargain purchase gain.

Liquidity and Capital Resources

Sources of Liquidity

Since inception, we have not generated any revenue from product sales and have incurred significant operating losses and negative cash flows from our operations. We expect to continue to incur significant expenses and operating losses for the foreseeable future as we advance the clinical development of our product candidates. We expect that our research and development and general and administrative costs will continue to increase significantly, including in connection with conducting clinical trials and manufacturing for our product candidates to support commercialization and providing general and administrative support for our operations, including the costs associated with operating as a public company. As a result, we will need additional capital to fund our operations, which we may obtain from additional equity or debt financings, collaborations, licensing arrangements or other sources. We believe that our existing capital resources will be sufficient to fund our operations through at least 12 months following the filing date of this Form 10-K. See the section entitled "*Risk Factors*" for additional risks associated with our substantial capital requirements.

As of December 31, 2023, we had cash, cash equivalents and short term investments totaling $197.2 million. Since inception, we have funded our operations primarily through private placements of convertible preferred stock and common stock for net proceeds of $332.4 million.

Future Capital Requirements

In order to complete the development of our product candidates and to build the sales, marketing and distribution infrastructure that management believes will be necessary to commercialize product candidates, if approved, we will require substantial additional capital. Accordingly, until such time that we can generate a sufficient amount of revenue from product sales or other sources, if ever, management expects to seek to raise any necessary additional capital through private or public equity or debt financings, loans or other capital sources, which could include income from collaborations, partnerships or other marketing, distribution, licensing or other strategic arrangements with third parties, or from grants. To the extent that we raise additional capital through equity financings or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, including restricting our operations and limiting our ability to incur liens, issue additional debt, pay dividends, repurchase our own common stock, make certain investments or engage in merger, consolidation, licensing, or asset sale transactions. If we raise capital through collaborations, partnerships, and other similar arrangements with third parties, we may be required to grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. We may be unable to raise additional capital from these sources on favorable terms, or at all. Our ability to raise additional capital may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from recent bank failures, other macroeconomic conditions and otherwise. The failure to obtain sufficient capital on acceptable terms when needed could have a material adverse effect on our business, results of operations or financial condition, including by requiring us to delay, reduce or curtail our research, product development or future commercialization efforts. We may also be required to license rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. Management cannot provide assurance that we will ever generate positive cash flow from operating activities.

In order to continue our operations, we must achieve profitable operations and/or obtain additional equity or debt financing. Until we achieve profitability, management plans to fund our operations and capital expenditures with cash on hand and the sale and issuance of securities. We may not be successful in raising additional capital and such capital, if available, may not be on terms that are acceptable to us.

Since the Closing, we have incurred, and expect to continue to incur, additional costs associated with operating as a public company. In addition, we anticipate that we will need substantial additional funding in connection with our continuing operations. Management bases its projections of operating capital requirements on our current operating plan, which includes several assumptions that may prove to be incorrect, and we may use all of our available capital resources sooner than management expects.

Because of the numerous risks and uncertainties associated with research, development and commercialization of product candidates, we are unable to estimate the exact amount and timing of our capital requirements. Our future funding requirements will depend on many factors, including:

- the scope, timing, progress, results, and costs of researching and developing genetic medicines, and conducting larger and later-stage clinical trials;
- the scope, timing, progress, results, and costs of researching and developing other product candidates that we may pursue;
- the costs, timing, and outcome of regulatory review of our product candidates;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing, and distribution, for any of our product candidates for which we receive marketing approval;
- the costs of manufacturing commercial-grade products and sufficient inventory to support commercial launch;
- the revenue, if any, received from commercial sale of our products, should any of our product candidates receive marketing approval;
- the cost and timing of attracting, hiring, and retaining skilled personnel to support our operations and continued growth;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;

- Our ability to establish, maintain, and derive value from collaborations, partnerships or other marketing, distribution, licensing, or other strategic arrangements with third parties on favorable terms, if at all;
- the extent to which we acquire or in-license other product candidates and technologies, if any; and
- the costs associated with operating as a public company.

A change in the outcome of any of these or other factors with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of such product candidate. Furthermore, our operating plans may change in the future, and we may need additional capital to meet the capital requirements associated with such operating plans. Please see Item 1A of this Annual Report on Form 10-K titled "*Risk Factors*" for additional risks associated with our substantial capital requirements.

Cash Flows

The following table summarizes our cash flows for the periods indicated (in thousands):

	Year Ended December 31,	
	2023	**2022**
Net cash used in operating activities	$ (51,422)	$ (52,824)
Net cash provided by (used) in investing activities	25,637	(2,230)
Net cash provided by financing activities	92,482	66,531
Net increase in cash and cash equivalents	$ 66,697	$ 11,477

Cash Flows from Operating Activities

For the year ended December 31, 2023, we used $51.4 million of cash in operating activities. Cash used in operating activities reflected our net loss of $36.3 million, a $4.1 million net increase in our operating assets and liabilities, and noncash charges of $11.1 million. The non-cash charges consisted of a bargain purchase gain in connection with the merger of $16.4 million, which was partially offset by $3.3 million in depreciation, $1.4 million in stock-based compensation and $0.7 million in non-cash operating lease expense. The primary use of cash was to fund our operations related to the development of our product candidates.

For the year ended December 31, 2022, we used $52.8 million of cash in operating activities. Cash used in operating activities reflected our net loss of $55.2 million and a $2.7 million net increase in our operating assets and liabilities, and was partially offset by noncash charges of $5.1 million, which consisted of $3.2 million in depreciation, $1.3 million in stock-based compensation and $0.6 million in non-cash operating lease expense. The primary use of cash was to fund our operations related to the development of our product candidates.

Cash Flows from Investing Activities

For the year ended December 31, 2023, net cash flows provided by investing activities consisted of cash acquired from the merger of $22.2 million and maturities on short-term investments of $5.0 million, which were partially offset by merger transaction costs paid of $1.3 million and purchases of property and equipment of $0.3 million.

For the year ended December 31, 2022, net cash flows used in investing activities consisted of purchases of property and equipment of $2.2 million.

Cash Flows from Financing Activities

For the year ended December 31, 2023, net cash flows provided by financing activities consisted of net proceeds from the issuance of common stock and pre-funded warrants in the Pre-Closing Financing of $92.3 million and proceeds from the issuance of common stock upon the exercise of options of $0.2 million.

For the year ended December 31, 2022, net cash flows provided by financing activities consisted of proceeds from the issuance of Series B convertible preferred stock of $66.5 million and proceeds from the issuance of Series A common stock upon the exercise of options of $0.1 million.

Contractual Obligations and Commitments

Lease Obligations

New York Headquarters Lease

We sub-lease approximately 6,000 square feet of office space for our corporate headquarters in New York, New York, with a term expiring in June 2026.

Houston Lease

We lease 42,342 square feet for a manufacturing facility in Houston, Texas. The lease expires in August 2029 . We have the option to renew the lease term for two additional five-year terms. The renewal periods were not included in the lease term for purposes of determining the lease liability or right-of-use asset.

Blaine Lease in Seattle

As a result of the merger, we assumed an operating lease for approximately 33,300 square feet of office space in Seattle, Washington for offices, a laboratory for research and development, and related uses. The lease expires on February 1, 2029, with the option to extend the lease for two five-year terms. The renewal periods were not included in the lease term for purposes of determining the lease liability.

Eastlake Lease in Seattle

As a result of the merger, we assumed an operating lease for approximately 6,272 square feet of office space in Seattle, Washington, for additional office and laboratory space for research and development and related uses (the “Eastlake Lease”). We also assumed the existing agreement to sublease the Eastlake Lease to an unrelated third party (“Eastlake Sublease”). Pursuant to the terms of the Eastlake Sublease, we are entitled to receive a total of approximately $1.6 million in lease payments. The term of the sublease is through September 30, 2026.

Lease CVR

In accordance with the terms of the Lease CVR within the CVR Agreement, we accrued approximately $1.3 million as a contingent consideration liability on our consolidated balance sheet. The commitments relate to Neoleukin’s sublease agreement, effective October 31, 2023, for one of its properties with an unrelated third party for the remainder of the lease term. For more information on the Lease CVR, see Note 1, *Organization and Description of Business* in the Notes to Financial Statements included in Part II Item 8 of this Annual Report on Form 10-K.

The following table summarizes our contractual obligations and commitments as of December 31, 2023, which we generally expect to satisfy with cash on hand (in thousands):

Maturity of operating lease liabilities		
2024	$	3,862
2025		3,964
2026		3,672
2027		3,235
2028		3,294
2029		616
Total lease payments	$	18,643

Approximately $13.8 million of the future lease payments pertain to the Blaine and Eastlake leases assumed at the Closing.

Maturity of finance lease liabilities		
2024	$	51
2025		50
2026		15
2027		6
2028		1
Total lease payments	$	123

Maturity of Lease CVR		
2024		281
2025		598
2026		408
Total lease CVR payments	$	1,287

Research and Development and Manufacturing Agreements

We enter into agreements with certain vendors for the provision of goods and services, which includes manufacturing services with contract development and manufacturing organizations and development and clinical trial services with CROs. These agreements may include certain provisions for purchase obligations and termination obligations that could require payments for the cancellation of committed purchase obligations or for early termination of the agreements. The amount of the cancellation or termination payments vary and are based on the timing of the cancellation or termination and the specific terms of the agreement. These obligations and commitments are not presented separately.

License and Collaboration Agreements

License Agreement with The University of North Carolina

In May 2019, we entered into an Exclusive License Agreement with UNC to obtain an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses under certain patents to make, use, or sell products covered by such patents for prevention or treatment of disease or medical or genetic conditions, including CLN5 Batten disease or other diseases from dysfunction of the CLN5 gene. We are obligated to pay UNC up to $1.7 million in sales-related milestones for licensed products based on annual sales of the licensed product in excess of defined thresholds and low single-digit percentage royalties on net sales of licensed product for as long as there is a valid patent claim under the patent rights. We are also required to reimburse any patent expenses, as well as pay a nonrefundable annual maintenance fee which, when royalties become due and payable, will be creditable against such royalties.

License Agreement with The University of Edinburgh

In December 2020, we entered into the MCA with University of Edinburgh. Under the MCA, Neurogene and the University of Edinburgh agreed to collaborate on the Projects, and we agreed to provide funding for such Projects for a 40-month initial term, which term may be extended by mutual agreement. In exchange for such funding, the University of Edinburgh granted us the option to exclusively license any intellectual property arising from such Projects. If we exercise an exclusive option for a particular Project, we will enter into a separate exclusive license agreement on our own terms with the University of Edinburgh. Under the MCA, we are obligated to pay semi-annual installment payments relating to funding of costs for personnel and lab consumables for the 40-month period. Either party may terminate the MCA for convenience upon 90 days' notice. If we terminate the MCA, we would be responsible for all non-cancellable costs and commitments related to any particular Project and any and all funding costs for any person working on such Project.

In March 2022, we exercised our option through the collaboration under the MCA, and entered into a License Agreement (the "March 2022 Edinburgh License Agreement") with University of Edinburgh, pursuant to which we licensed certain patents and know-how related to the EXACT technology and optimized MECP2 cassettes on an exclusive basis. Under the March 2022 Edinburgh License Agreement, we obtained an exclusive, worldwide license to the licensed patents to develop, manufacture, supply, sell, and commercialize any products that utilize the licensed patents (the "Licensed Products") in exchange for low single-digit percentage royalties on future commercial net sales of the Licensed Products. Royalties are payable on a Licensed Product-by-Licensed Product and country-by-country basis until the later of the expiration of the last licensed patent covering such Licensed Product in the country where the Licensed Product is sold, or, if no licensed patent exists or has expired in such country, then ten years from first commercial sale of such Licensed Product in such country (the "Royalty Term"). The term of the March 2022 Edinburgh License Agreement continues until the end of the Royalty Term and the expiration of all of the payment obligation thereunder. We may terminate the March 2022 Edinburgh License Agreement for convenience upon 90 days' notice. In connection with the license, we are also obligated to pay the University of Edinburgh up to $5.25 million in regulatory-related milestones and up to $25 million in sales-related milestones based on annual net sales of Licensed Products in excess of defined thresholds.

In November 2023, we and University of Edinburgh amended the MCA, pursuant to which amendment we agreed to continue collaborating on certain Projects and to provide funding for such Projects for an additional 33 months. We are obligated to pay semi-annual installment payments relating to funding of costs for personnel and lab consumables for the entire period.

License Agreement with Virovek

In September 2020, we entered into a Non-Exclusive License Agreement with Virovek, Inc., pursuant to which we have a license to use certain patents and know-how on a non-exclusive basis related to our baculovirus process in exchange for low single-digit percentage royalties on future commercial net sales of each product using the baculovirus process, development milestone payments of up to $0.2 million in the aggregate, and a nonrefundable annual license fee. This agreement continues until the later of (a) the expiration of the last to expire patent right that covers the manufacture, use, offer for sale, sale, importation, export or supply of any licensed product, (b) ten years after the first commercial sale of any licensed product, or (c) the expiration of all regulatory or market exclusivities. We may terminate this agreement for convenience upon 60 days' notice.

License Agreement with Sigma-Aldrich Co

In January 2023, we entered into a Non-Exclusive License Agreement with Sigma-Aldrich Co. LLC, pursuant to which we have a license to certain patents and know-how on a non-exclusive basis related to certain cell lines used in our baculovirus process in exchange for a small annual fee on a product-by-product basis, payable once the first product candidate enters the clinic. In addition, on a product-by-product basis, we are obligated to pay up to $2.5 million in the aggregate for development-related milestones. This agreement remains in force for as long as we continue to possess and use the licensed technology. We may terminate this agreement for convenience upon 60 days' notice.

Off-Balance Sheet Arrangements

We currently do not have, and did not have during the periods presented, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with U.S. GAAP. The preparation of the financial statements and related disclosures requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, costs and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events and various other factors that management believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Management evaluates estimates and assumptions on a periodic basis. Our actual results may differ from these estimates.

While our significant accounting policies are described in more detail in Note 3 to the financial statements for the years ended December 31, 2023 and 2022, appearing elsewhere in this Form 10-K, management believes that the following accounting policies are critical to understanding our historical and future performance, as the policies relate to the more significant areas involving management's judgments and estimates used in the preparation of the financial statements.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred in connection with the development of our product candidates. We expense research and development costs as incurred.

These costs include, but are not limited to, employee-related expenses, including salaries, benefits and travel of research and development personnel, facilities, supplies, rent, insurance, stock-based compensation, depreciation and external expenses incurred under agreements with contract research organizations and investigative sites that conduct preclinical and clinical studies and manufacture the drug product for our preclinical and clinical activities and other costs associated with preclinical activities.

Before a product receives regulatory approval, we record upfront and milestone payments to third parties under licensing arrangements as expense, provided that there is no alternative future use of the rights in other research and developments projects.

We accrue expenses for preclinical studies and clinical trial activities performed by our vendors based upon estimates of the proportion of work completed. We determine the estimates by reviewing contracts, vendor agreements and purchase orders, and through discussions with our internal clinical personnel and external service providers as to the progress or stage of completion of trials or services and the agreed-upon fee to be paid for such services. However, actual costs and timing of clinical trials are highly uncertain, subject to risks and may change depending upon a number of factors, including our clinical development plan. There can be judgment involved in measuring the research and development expenses to be recognized in a particular period. In some cases, expense is recorded using an underlying assumption of the progress to completion of specific activities. For example, costs may be recognized based on the passage of time for activities that span reporting periods. If the provision of services is not linear then this assumption could impact the amount of expense recognized. The level of judgment varies based on the nature of the services being performed and the underlying support obtained. For some activities, such as for certain clinical trials, expense is recorded based on information obtained from vendors as an intermediary to those performing the underlying services, such as contract research organizations. These estimates are inherently more judgmental since the quality and availability of the underlying data may vary. We do not need to make significant estimates where costs incurred are supported by invoices or reports of costs incurred are obtained from a vendor that is directly performing the underlying services, such as a consultant or contract manufacturing organization.

We make estimates of our accrued expenses as of each balance sheet date in our financial statements based on facts and circumstances known at that time. If the actual timing of the performance of services or the level of effort varies from the estimate, we will adjust the accrual accordingly. Nonrefundable advance payments for goods and services, including fees for clinical trial expenses, process development or manufacturing and distribution of clinical supplies that will be used in future research and development activities, are deferred and recognized as expense in the period that the related goods are consumed or services are performed.

In-process research and development (“IPR&D”) that is acquired through licensing arrangements and accounted for as asset acquisitions are expensed immediately and within research and development expenses if the IPR&D has no alternative future use.

Stock-Based Compensation

We account for stock options granted to employees and non-employees at fair value, which is measured using Black-Scholes Option pricing model. The fair value measurement date for employee awards is generally the date of grant. We recognize stock-based compensation expense over the requisite service period of the individual grant, generally equal to the vesting period and use the straight-line method to recognize stock-based compensation.

Our policy is to account for forfeitures of stock-based awards when they occur in accordance with *ASC 718, Compensation—Stock Compensation.* We reverse compensation cost previously recognized, in the period the award is forfeited, for an award that is forfeited before completion of the requisite service period.

We utilize the Black-Scholes option-pricing model, which incorporates assumptions and estimates, to value these options. Estimates and assumptions impacting the fair value measurement include the fair value per share of the underlying stock issuable upon exercise of the options, life of the options, risk-free interest rate, expected dividend yield and expected volatility from peer public companies of the price of the underlying stock.

Estimating the Fair Value of Common Stock

Prior to the merger, we were required to estimate the fair value of the common stock underlying our stock-based awards when performing the fair value calculations using the Black-Scholes option pricing model. Because our common stock was not publicly traded, the fair value of the common stock underlying our stock options was determined on each grant date by our board of directors, with input from management, considering our most recently available third-party valuation of common shares. Following the merger, the fair value of our common stock is based on the closing stock price on the date of grant as reported on Nasdaq.

Prior to the merger, the third-party valuations of our common stock were performed using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants, *Audit and Accounting Practice Aid Series: Valuation of Privately Held Company Equity Securities Issued as Compensation*. In addition, our board of directors considered various objective and subjective factors to estimate the estimated fair value of our common stock, including:

- contemporaneous valuations of our common stock performed by independent third-party specialists;
- prices of our convertible preferred stock sold to outside investors in arm's length transactions, and the rights, preferences and privileges of our convertible preferred stock as compared to those of our common stock, including the liquidation preferences of our convertible preferred stock;
- estimated value of each security both outstanding and anticipated;
- anticipated capital structure, which will directly impact the value of the currently outstanding securities;
- actual results of operations and financial position;
- the status of our research and development efforts;
- the composition of, and changes to, our management team and board of directors;
- the lack of marketability and liquidity of our common stock as a private company;
- our stage of development and business strategy and the material risks related to our business and industry;
- general external market conditions affecting the life sciences and biotechnology industry sectors;
- U.S. and global economic conditions;
- the likelihood of achieving a liquidity event for the holders of our common stock, such as an initial public offering or a sale of our company, given prevailing market conditions; and
- the market value and volatility of comparable companies.

In determining the estimated fair value of our common stock, our board of directors considered the subjective factors discussed above in conjunction with the most recent valuations of our common stock that were prepared by a third-party. Our board of directors, with the assistance of third parties, determined valuations of Neurogene's common stock of $20.24 and $18.39 per share as of March 4, 2022 and January 13, 2023, respectively, and such valuations by the board of directors were used for the purposes of determining the stock-based compensation expense.

Recent Accounting Pronouncements

See Note 3, *Recently Issued Accounting Standard**s***, in the Notes to Financial Statements included in Part II Item 8 of this Annual Report on Form 10-K.

Smaller Reporting Company Status

We are a "smaller reporting company" as defined under the Exchange Act. We may continue to be a smaller reporting company if either (i) the market value of our stock held by non-affiliates is less than $250.0 million or (ii) our annual revenue is less than $100.0 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700.0 million. As a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

As a “smaller reporting company,” as defined by Rule 12b-2 of the Exchange Act, and pursuant to Item 305 of Regulation S-K we are not required to provide quantitative and qualitative disclosures about market risk.

Item 8. Financial Statements and Supplementary Data

NEUROGENE INC.
Index to Financial Statements

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Neurogene Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Neurogene Inc. and subsidiaries (the "Company") as of December 31, 2023, the related consolidated statements of statements of operations, changes in convertible preferred stock and stockholders' equity (deficit), and cash flows for the year ended December 31, 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023, and the results of its operations and its cash flows for the year ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

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 audit. 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 audit 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 audit, 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 audit 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 audit 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 audit provides a reasonable basis for our opinion.

Critical Audit Matters

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

Reverse Merger Acquisition — Accounting Conclusions — Refer to Note 1, 3, 4 and 10 to the financial statements.

Critical Audit Matter Description

The reverse merger between Neoleukin Therapeutics, Inc. ("Neoleukin"), one of Neoleukin's wholly owned subsidiaries, and Neurogene Inc. ("Neurogene") was accounted for as a reverse asset acquisition pursuant to ASC 805, *Business Combinations,* as Neoleukin did not meet the definition of a business under ASC 805 but it did represent a group of assets. The initial accounting conclusions related to the reverse merger involved determining: (1) the accounting acquirer and accounting acquiree; (2) whether the transaction should be accounted for as a business combination or an asset acquisition; and (3) whether contingent consideration liabilities associated with the Contingent Value Rights (CVRs) should be accounted for as a derivative at fair value or recognized when payments are probable and estimable as defined by ASC 450, *Contingencies*.

Given the significant judgment required by management in concluding that Neurogene is the accounting acquirer in the reverse merger transaction, the transaction be accounted for as a reverse asset acquisition, and the accounting for the contingent consideration liabilities associated with the CVRs, the audit procedures performed to evaluate the reasonableness of management's conclusions related to these accounting conclusions required a high degree of auditor judgment, including the need to involve professionals in our firm with the appropriate expertise in accounting for business combinations and derivatives.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to evaluating the reasonableness of management's accounting conclusions related to the determination of the accounting acquirer and accounting for the transaction as a reverse asset acquisition and accounting for contingent consideration liabilities associated with the CVRs included the following, among others:

· We obtained and read the Agreement and Plan of Merger (the "Merger Agreement").

· With the assistance of professionals in our firm with expertise in accounting for business combinations, we evaluated the Company's accounting conclusions for the reverse merger, including determining whether Neurogene should be the accounting acquirer and whether the transaction should be accounted for as a reverse asset acquisition based on the terms of the Merger Agreement.

· With the assistance of professionals in our firm with expertise in accounting for business combinations and derivatives, we evaluated the Company's accounting conclusions for contingent consideration liabilities associated with the CVRs.

Accrued research and development expenses— Refer to Note 3 and Note 9 to the financial statements

Critical Audit Matter Description

The Company incurs certain research and development expenses from third-party contract research organizations. The Company accrues expenses for preclinical studies and clinical trial activities performed by its vendors based upon estimates of the proportion of work completed. The Company determines estimates of the work completed under the contracts based on review of the contracts, vendor agreements and purchase orders, and through discussions with internal clinical personnel and external service providers to determine stage of completion of trials or services and the agreed-upon fee to be paid for such services.

Given the judgement required by management to estimate the extent of services performed and the associated expenses incurred as it relates to research and development costs incurred, performing audit procedures to evaluate accrued research and development expenses required a high degree of auditor judgement and an increased extent of effort.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to accrued research and development expenses included the following, among others:

· We evaluated publicly available information (such as press releases and investor presentations) and board of directors' materials regarding the status of research and development activities.

· We selected a sample of vendors and tested the related accrual of research and development expenses by:

- Confirming the completeness of the terms and conditions of research and development service agreements directly with the vendor.
- Obtaining and reading the related contracts to understand key provisions and agree them to the Company's analysis.
- Obtaining and inspecting third-party documents such as status reports and other correspondence received from the vendors related to the services provided and comparing them to the Company's schedule of estimated expenses incurred to date.
- Inspecting meeting minutes between the Company's finance team and clinical and manufacturing operations and corroborating the progress of research and development activities through inquiry with the Company's clinical operations personnel.
- Examining invoices received from vendors and cash disbursements, where applicable, made subsequent to the balance sheet date and inquiring of clinical operations to corroborate the applicable service period in order to evaluate completeness of the accruals.

/s/ Deloitte & Touche LLP

Seattle, WA
March 18, 2024

We have served as the Company's auditor since 2023.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Neurogene Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheet of Neurogene Inc. (the Company) as of December 31, 2022, the related statements of operations, changes in convertible preferred stock and stockholders' deficit and cash flows for the year ended December 31, 2022, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022, and the results of its operations and its cash flows for the year 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 audit. 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 audit 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 audit 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 audit 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 audit 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 audit provides a reasonable basis for our opinion.

Critical Audit Matters

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

Accrued research and development expenses

Description of the Matter

As more fully described in Note 3 to the financial statements, the Company records accrued liabilities for estimated costs of research and development ("R&D") activities based upon the estimated cost of services provided but not yet invoiced. As of December 31, 2022, accrued clinical costs and other R&D costs were $1.8 million. The accrued costs included estimated clinical trial and other R&D costs incurred but not invoiced under certain significant R&D service agreements with organizations that conduct R&D activities on behalf of the Company ("Accrued R&D Costs"). The Company accrues for these costs based on several factors, such as information obtained from vendors and estimates of the work completed under the service agreements. Auditing the Company's accounting for Accrued R&D Costs was complex because the Company's analysis is dependent upon data obtained from external third-party service providers who often act as intermediaries to those performing the underlying services. The determination of the accrual when the Company has either not been invoiced or has not received information regarding actual costs incurred requires evaluation of the stage of completion of the services.

How We Addressed the Matter in Our Audit

To test the Accrued R&D Costs, our audit procedures included, among others, i) confirming the completeness of the terms and conditions of certain significant R&D service agreements directly with the vendor; ii) testing the completeness and accuracy of the Company's accrual models through verification of significant inputs, such as costs incurred and invoices paid, to the terms and conditions of the underlying agreements and information from the Company's internal personnel and vendors; iii) meeting with personnel outside of the accounting department to discuss the basis for assumptions used in estimating cost of services provided but not yet invoiced; and iv) performing a hindsight analysis of invoices received subsequent to the balance sheet date.

Valuation of common stock

Description of the Matter

As discussed in Note 3 and Note 14 to the financial statements, the Company accounts for stock options granted to employees and non-employees at fair value using Black-Scholes Option pricing model. The valuation of common stock, among other inputs, was used to determine the fair value measurement for stock-based awards granted. The Company's common stock was not publicly traded on the dates which the stock-based awards were granted and required management to estimate its value with the assistance of an unrelated third-party valuation firm using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants, Audit and Accounting Practice Aid Series: Valuation of Privately Held Company Equity Securities Issued as Compensation. Auditing the Company's valuation of common stock was complex and required auditor's judgment due to significant assumptions which included, among others, discount for lack of marketability and probability weighting the likelihood of achieving a liquidity event for the holders of the Company's common stock. The Company recognized $1.3 million in stock-based compensation expense for the year ending December 31, 2022.

How We Addressed the Matter in Our Audit

To test the valuation of common stock, our audit procedures included, among others, assessing the competence of the third-party valuation firm and the valuation methodologies by considering the Company's equity structure, the proximity of sales of convertible preferred stock to investors in arm's length transactions, and possible exit scenarios used in estimating the fair value of the common stock. We also evaluated whether the calculations supporting the estimate were applied in accordance with acceptable approaches and mathematically accurate, evaluated the reasonableness of the discount for lack of marketability used in the valuation and performed sensitivity analyses of the significant assumptions to evaluate the change in the fair value resulting from changes in the assumptions. Internal valuation specialists assisted us in performing these procedures. In addition, we assessed the appropriateness of comparable companies used to determine multiples used in market approach estimates applied to Company financial data.

/s/ Ernst & Young LLP
We served as the Company's auditor from 2019 to 2023.

Stamford, Connecticut

August 18, 2023, except for the effects of the exchange ratio disclosed in Note 1, sub-section titled Reverse Merger and Pre-Closing Financing, as to which the date is March 18, 2024.

Neurogene Inc.
Consolidated Balance Sheets
(In Thousands, Except Share Information)

	December 31, 2023	December 31, 2022
Assets		
Current Assets:		
Cash and cash equivalents	$ 148,210	$ 82,021
Short-term investments	48,947	—
Prepaid expenses and other current assets	3,191	2,698
Total current assets	200,348	84,719
Property and equipment, net	17,174	20,115
Operating lease right-of-use assets	3,681	4,344
Finance lease right-of-use assets	98	87
Restricted cash	508	—
Other non-current assets	764	—
Total assets	$ 222,573	$ 109,265
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	$ 2,596	$ 625
Accrued expenses and other current liabilities	17,495	5,324
Operating lease liabilities, current	2,559	678
Finance lease liabilities, current	42	24
Lease contingent value rights liability, current	281	—
Total current liabilities	22,973	6,651
Operating lease liabilities, non-current	12,302	3,921
Finance lease liabilities, non-current	65	66
Lease contingent value rights liability, non-current	1,006	—
Other liabilities	203	—
Total liabilities	36,549	10,638
Commitments and contingencies (Note 10)		
Convertible preferred stock:		
Series A-1 Convertible Preferred stock, $ 0.0001 par value; 0 and 18,604,653 shares authorized, issued and outstanding as of December 31, 2023 and 2022, respectively (liquidation value of $ 40,000 at December 31, 2022)	—	34,414
Series A-2 Convertible Preferred stock, $ 0.0001 par value; 0 and 13,291,208 shares authorized, issued and outstanding as of December 31, 2023 and 2022, respectively (liquidation value of $ 28,675 at December 31, 2022)	—	28,675
Series B Convertible Preferred stock, $ 0.0001 par value; 0 and 88,114,739 shares authorized, 0 and 74,405,719 shares issued and outstanding as of December 31, 2023 and 2022, respectively (liquidation value of $ 181,550 at December 31, 2022)	—	181,277
Total convertible preferred stock	—	244,366
Stockholders' equity (deficit)		
Preferred stock, $ 0.000001 par value; 50,000,000 and 0 shares authorized as of December 31, 2023 and 2022, respectively; 0 shares issued and outstanding as of December 31, 2023 and 2022, respectively	—	—
Class A Common stock, $ 0.0001 par value; 0 and 126,000,000 shares authorized as of December 31, 2023 and 2022, respectively; 0 and 428,334 shares issued and outstanding as of December 31, 2023 and 2022, respectively	—	—
Class B Common stock, $ 0.0001 par value; 0 and 120,010,600 shares authorized as of December 31, 2023 and 2022, respectively; 0 shares issued and outstanding as of December 31, 2023 and 2022, respectively	—	—
Common stock, $ 0.000001 par value; 450,000,000 and 0 shares authorized as of December 31, 2023 and 2022, respectively; 12,823,665 and 0 shares issued and outstanding as of December 31, 2023 and 2022, respectively	—	—
Additional paid-in capital	373,178	5,098
Accumulated deficit	(187,154)	(150,837)
Total stockholders' equity (deficit)	186,024	(145,739)
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 222,573	$ 109,265

The accompanying notes are an integral part of these consolidated financial statements.

Neurogene Inc.
Consolidated Statements of Operations
(In Thousands, Except Share Information)

	Year Ended December 31,	
	2023	**2022**
Operating expenses:		
Research and development	$ 44,394	$ 47,505
General and administrative	11,189	9,012
Total operating expenses	55,583	56,517
Loss from operations	(55,583)	(56,517)
Other income (expense):		
Interest income	2,951	1,337
Interest expense	(12)	(2)
Bargain purchase gain	16,355	—
Other expense	(28)	(7)
Net loss	$ (36,317)	$ (55,189)

	Pre-Merger		Post-Merger	Pre-Merger	
Per share information [1]:	(a)	(b)	(c)	(a)	(b)
Net income (loss) per share, basic	$ (117.28)	$ —	$ 27.76	$ (139.88)	$ —
Weighted-average shares outstanding used in computing net income (loss) per share, basic	426,097	—	491,867	394,533	—
Net income (loss) per share, diluted	$ (117.28)	$ —	$ 2.93	$ (139.88)	$ —
Weighted-average shares outstanding used in computing net income (loss) per share, diluted	426,097	—	4,656,947	394,533	—

[1] On December 18, 2023, the Company completed its reverse merger, which among other things, resulted in Neurogene OpCo merging with and into a wholly owned subsidiary of Neoleukin Therapeutics, Inc. As the earnings per share information for the pre-merger period is not comparable to the earnings per share information for the post-merger period, the earnings per share information is being presented separately for these periods. See Note 3, *Net Income (Loss) Per share* , for additional information.

(a) Presents information for the pre-merger period for Class A common stock. The pre-merger period is January 1, 2023 through December 17, 2023 for the year ended December 31, 2023 and the full fiscal year ended December 31, 2022.

(b) Presents information for the pre-merger period for Class B common stock. The pre-merger period is January 1, 2023 through December 17, 2023 for the year ended December 31, 2023 and the full fiscal year ended December 31, 2022.

(c) Presents information for the post-merger period for common stock. The post-merger period is December 18, 2023 through December 31, 2023.

The accompanying notes are an integral part of these consolidated financial statements.

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Neurogene Inc.
Consolidated Statements of Changes in Convertible Preferred Stock and Stockholders' Equity (Deficit)
(In Thousands, Except Share Information)

	Convertible Preferred Stock						Stockholders' equity (deficit)										
	Series A-1 Convertible Preferred Stock		Series A-2 Convertible Preferred Stock		Series B Convertible Preferred Stock		Preferred Stock		Class A Common Stock		Class B Common Stock		Common Stock				
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount	Additional Paid- In Capital	Accumulated Deficit	Total Stockholders' Deficit
Balance- December 31, 2021	18,604,653	$ 34,414	13,291,208	$ 28,675	47,131,133	$ 114,818	—	$ —	419,783	$ —	—	$ —	—	$ —	$ 3,773	$ (95,648)	$ (91,875)
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,252	—	1,252
Series B convertible preferred stock, net of $ 91 offering costs	—	—	—	—	27,274,586	66,459	—	—	—	—	—	—	—	—	—	—	—
Class A common stock issued upon exercise of stock options	—	—	—	—	—	—	—	—	8,551	—	—	—	—	—	73	—	73
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(55,189)	(55,189)
Balance- December 31, 2022	18,604,653	$ 34,414	13,291,208	$ 28,675	74,405,719	$ 181,277	—	$ —	428,334	$ —	—	$ —	—	$ —	$ 5,098	$ (150,837)	$ (145,739)
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	—	—	—	—		1,418	—	1,418
Class A common stock issued upon exercise of stock options	—	—	—	—	—	—	—	—	20,348	—	—	—	—	—	168	—	168
Additional convertible preferred stock issued in conjunction with anti-dilution adjustment	1,890,302	—	1,350,436	—	10,264,533	—	—	—	—	—	—	—	—	—	—	—	—
Conversion of convertible preferred stock into common stock and pre-funded warrants in connection with the reverse merger	(20,494,955)	(34,414)	(14,641,644)	(28,675)	(84,670,252)	(181,277)	—	—	—	—	—	—	7,231,747	—	244,366	—	244,366
Issuance of																	

Class A common stock and pre-funded warrants in the pre-closing financing, net of $ 6,946 offering costs	—	—	—	—	—	—	—	—	2,792,206	—	—	—	—	—	88,056	—	88,056
Conversion of Class A common stock into common stock and related change in par value	—	—	—	—	—	—	—	—	(3,240,888)	—	—	—	3,240,888	—	—	—	—
Transactions costs associated with the reverse merger	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(4,140)	—	(4,140)
Issuance of common stock and pre-funded warrants to former stockholders of Neoleukin Therapeutics, Inc. in connection with the reverse merger	—	—	—	—	—	—	—	—	—	—	—	—	2,351,030	—	38,212	—	38,212
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(36,317)	(36,317)
Balance-December 31, 2023	—	$ —	—	$ —	—	$ —	—	$ —	—	$ —	—	$ —	12,823,665	$ —	$ 373,178	$ (187,154)	$ 186,024

The accompanying notes are an integral part of these consolidated financial statements.

Neurogene Inc.
Consolidated Statements of Cash Flows
(In Thousands)

	Year Ended December 31,	
	2023	**2022**
Cash flows used in operating activities:		
Net loss	$ (36,317)	$ (55,189)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	1,418	1,252
Bargain purchase gain in connection with reverse merger	(16,355)	—
Depreciation and amortization of property and equipment	3,262	3,196
Non-cash operating lease expense	663	608
Amortization of finance lease right-of-use assets	35	4
Amortization and accretion of premiums/discounts on held-to-maturity investments	(105)	—
Changes in assets and liabilities:		
Prepaid expenses and other current assets	326	716
Other assets	(764)	—
Accounts payable	667	(3,607)
Accrued expenses and other current liabilities	(3,574)	806
Operating lease liabilities	(678)	(610)
Net cash used in operating activities	(51,422)	(52,824)
Cash flows used in investing activities:		
Purchases of property and equipment	(321)	(2,230)
Cash and restricted cash acquired from reverse merger transaction	22,243	—
Reverse merger transaction costs paid	(1,285)	—
Proceeds from maturities of held-to-maturity investments	5,000	—
Net cash used in investing activities	25,637	(2,230)
Cash flows provided by financing activities:		
Proceeds from pre-closing financing, net of offering costs paid	92,343	—
Proceeds from issuance of Series B convertible preferred stock, net of offering costs paid	—	66,459
Proceeds from the issuance of common stock upon exercise of options	168	73
Principal payments on finance leases	(29)	(1)
Net cash provided by financing activities	92,482	66,531
Net increase in cash, cash equivalents and restricted cash	66,697	11,477
Cash, cash equivalents and restricted cash at beginning of year	82,021	70,544
Cash, cash equivalents and restricted cash at end of year	$ 148,718	$ 82,021
Supplemental disclosure of non-cash investing and financing activities:		
Additions to finance lease right of use assets from new finance lease liabilities	$ 46	$ 91
Operating lease liabilities assumed in connection with the reverse merger	$ 10,940	$ —
Contingent consideration liability assumed in the reverse merger	$ 1,287	$ —
Other liabilities assumed in the reverse merger	$ 10,110	$ —
Assets acquired in the reverse merger including $ 53.9 million in short-term investments and $ 0.8 million in other monetary assets	$ 54,661	$ —
Issuance of common stock and pre-funded warrants to former stockholders of Neoleukin Therapeutics, Inc. in connection with the reverse merger	$ 38,212	$ —
Offering costs in connection with pre-closing financing included in accounts payable and accrued expenses	$ 4,287	$ —
Transaction costs related to reverse merger included in accounts payable and accrued expenses	$ 2,855	$ —
Conversion of preferred stock into common stock in connection with reverse merger	$ 244,366	$ —
Supplemental cash flow information:		
Cash paid for interest	$ 12	$ 2

The accompanying notes are an integral part of these consolidated financial statements.

NEUROGENE INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Description of Business

Neurogene Inc. (formerly known as Neoleukin Therapeutics, Inc.) (the "Company" or "Neurogene") is a clinical stage biotechnology company that is a result of the reverse merger discussed below. Pre-merger Neurogene Inc. was incorporated as a limited liability company in Delaware on January 26, 2018 and converted into a corporation on July 3, 2018, and has a principal place of business in New York, NY. The Company was formed to harness the power of gene therapy, combined with its EXACT gene regulation technology, to turn today's complex devastating neurological diseases into treatable conditions. The Company's first clinical-stage program to utilize the EXACT technology is NGN-401, which is under development for the treatment of Rett syndrome. In addition to NGN-401, Neurogene is also pursuing a conventional gene therapy program in an ongoing Phase 1/2 clinical trial of NGN-101 for the treatment of CLN5 Batten disease. Since beginning operations, the Company has devoted substantially all its efforts to research and development, recruiting management and technical staff, administration, and raising capital.

Reverse Merger and Pre-Closing Financing

On July 18, 2023, Neoleukin Therapeutics, Inc. entered into an Agreement and Plan of Merger (the "Merger Agreement") with one of its wholly owned subsidiaries ("Merger Sub") and Neurogene Inc. ("Neurogene OpCo"). Pursuant to the terms of the Merger Agreement, upon closing on December 18, 2023 (the "Closing"), Merger Sub merged with and into Neurogene OpCo, with Neurogene OpCo continuing as a wholly owned subsidiary of the Company and the surviving corporation of the merger (referred to herein as the "reverse merger").

At the time of Closing (or immediately prior to, where indicated), the following also occurred:

- The Company changed its name from "Neoleukin Therapeutics, Inc." to "Neurogene Inc." and is referred to herein as the "Company." Unless the context otherwise requires, references to "Neoleukin Therapeutics, Inc." or "Neoleukin" refer to the Company prior to Closing.
- Immediately prior to Closing, Neoleukin effected a 1-for-4 reverse stock split (the "Reverse Stock Split"). Unless noted otherwise, all references herein to share and per share amounts reflect the Reverse Stock Split.
- All of the then outstanding shares of Neurogene OpCo Class A common stock were converted into 3,240,888 shares of the Company's common stock, based on an exchange ratio of approximately 0.0756 (the "Exchange Ratio").
- All of the then outstanding shares of Neurogene OpCo preferred stock were converted into 7,231,747 shares of the Company's common stock, based on the Exchange Ratio. Refer to Note 12, *Preferred Stock*, for further detail on the conversion of Neurogene OpCo preferred stock.
- Each then outstanding Neurogene OpCo stock option was exchanged for an equivalent stock option of the Company, adjusted to reflect the Exchange Ratio as necessary.
- Each then outstanding Neurogene OpCo pre-funded warrant to purchase shares of Neurogene OpCo common stock was converted into a pre-funded warrant to purchase shares of the Company's common stock, adjusted to reflect the Exchange Ratio as necessary. Refer to the discussion below for further detail on Neurogene OpCo pre-funded warrants.

Concurrently with the execution and delivery of the Merger Agreement, and in order to provide Neurogene OpCo with additional capital for its development programs, Neurogene OpCo entered into a subscription agreement (the "Subscription Agreement") with certain investors. Pursuant to the terms of the Subscription Agreement, immediately prior to the Closing, Neurogene OpCo issued and sold to the investors: (i) 2,792,206 shares of Neurogene OpCo common stock and (ii) 1,811,739 pre-funded warrants, exercisable for 1,811,739 shares of Neurogene OpCo common stock, at a purchase price of approximately $ 20.63 per share or $ 20.63 per warrant, for an aggregate purchase price of approximately $ 95.0 million (the "Pre-Closing Financing").

On December 18, 2023, immediately prior to Closing, Neoleukin entered into a contingent value rights agreement (the "CVR Agreement") with a rights agent and the lease representative, pursuant to which holders of Neoleukin common stock or pre-funded warrants prior to Closing received one non-transferable contingent value right (each, a "CVR") for each outstanding share of Neoleukin common stock held by such stockholder or warrant holder immediately prior to Closing. Holders of options to purchase Neoleukin common stock outstanding immediately prior to the effective time of the reverse merger who elect to exercise those options following the reverse merger will also receive one CVR for each share of Neoleukin common stock issued upon exercise of such option, subject to certain conditions set forth in the CVR Agreement. Each CVR represents the contractual right to receive (i) certain net savings, if any, realized by the Company by June 30, 2029 in connection with Neoleukin's legacy lease obligations (the "Lease CVR"), including those related to Neoleukin's sublease, entered into in October 2023, (ii) 100 % of net proceeds, if any, derived from any consideration paid as a result of the sale of Neoleukin's pre-merger legacy assets pursuant any agreements entered into before Closing, and 80 % of net proceeds, if any, derived from any consideration paid as a result of the sale of Neoleukin's pre-merger legacy assets pursuant any agreements entered into within one year after Closing (the "Intellectual Property CVR"), and (iii) certain net proceeds, if any, derived from Neoleukin's anticipated sales tax refund from Washington State relating to tax returns filed by Neoleukin prior to Closing (the "Sales Tax CVR"). As of December 31, 2023, the Company has recorded approximately $ 0.3 million and $ 1.0 million to lease contingent value rights liability, current and lease contingent value rights liability, non-current, respectively, related to amounts that are probable and estimable under the Lease CVR as of December 31, 2023. As no other amounts related to the CVR Agreement were probable as of December 31, 2023, no contingencies for the Intellectual Property CVR or Sales Tax CVR have been recorded. Refer to Note 10, *Commitments and Contingencies*, for further discussion on the CVR components.

Based on the following factors, the Company determined under the Accounting Standards Codification ("ASC") 805, *Business Combinations*, that the merger should be accounted for as a reverse asset acquisition:

- Neurogene OpCo stockholders owned approximately 84 % of the voting rights in the Company, and thus had sufficient voting rights to exert influence over the Company.
- Neurogene OpCo designated a majority of the Company's board of directors and maintained a majority of the composition of management.
- At the time of Closing, Neoleukin did not meet the definition of a business but it did represent a group of assets.

For further discussion on the reverse merger and the related accounting, refer to Note 4, *Reverse Merger*.

2. Risks and Uncertainties

The Company is subject to risks common to companies in the biotechnology industry, including, but not limited to, successful development of technology, obtaining additional funding, protection of proprietary technology, compliance with government regulations, risks of failure of pre-clinical studies, clinical studies and clinical trials, the need to obtain marketing approval for its drug candidates and its consumer products, fluctuations in operating results, economic pressure impacting therapeutic pricing, dependence on key personnel, risks associated with changes in technologies, development by competitors of technological innovations and the ability to transition from pilot scale manufacturing to large scale production.

Liquidity and Financial Condition

Since its inception, the Company has funded its operations primarily with proceeds from the sales of equity securities and has incurred significant recurring losses, including net losses of $ 36.3 million and $ 55.2 million for the years ended December 31, 2023 and 2022, respectively. In addition, the Company used cash in operations of $ 51.4 million and $ 52.8 million for the years ended December 31, 2023 and 2022, respectively, and had an accumulated deficit of $ 187.2 million as of December 31, 2023. Management expects to incur substantial and increasing losses in future periods as the Company advances its products through its clinical and regulatory process and will rely on outside capital to fund its operations for the foreseeable future. The Company has not generated positive cash flows from operations, and there are no assurances that the Company will be successful in obtaining an adequate level of financing for the development and commercialization of its product candidates.

As of December 31, 2023, the Company had cash and cash equivalents of approximately $ 148.2 million. On December 18, 2023, the Company closed on the merger with Neoleukin Therapeutics, Inc. (see Note 4, *Reverse Merger*) and a Pre-Closing Financing (see Note 1, *Organization and Description of Business*). The Company expects its available cash and cash equivalents on hand as of the issuance date of these financial statements will be sufficient to fund its obligations as they become due for at least one year beyond the issuance date of these financial statements. As a result of the reverse merger with Neoleukin Therapeutics, the Company assumed an ATM or "at-the-market" Equity Offering Sales Agreement (the "Sales Agreement") with BofA Securities, Inc., as agent ("BofA"), pursuant to which the Company may offer and sell, from time to time through BofA, shares of the Company's common stock, having an aggregate offering price of up to $ 40.0 million. In March 2024, the Company terminated the ATM.

In the event the Company is unable to secure additional outside capital, management will be required to seek other alternatives which may include, among others, a delay or termination of clinical trials or the development of its product candidates, temporary or permanent curtailment of the Company's operations, a sale of assets, or other alternatives with strategic or financial partners.

The accompanying financial statements do not include any adjustments that might result from the outcome of these uncertainties. Accordingly, the financial statements have been prepared on a basis that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

3. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements are presented in United States ("U.S.") dollars and have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Use of Estimates

The preparation of the financial statements in accordance with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. In preparing these financial statements, management used significant estimates in the following areas, among others: recoverability of the Company's net deferred tax assets and related valuation allowance, useful lives and recoverability of property and equipment, determining the Incremental Borrowing Rate ("IBR") for calculating lease liabilities and related right-of-use ("ROU") assets and finance lease assets, clinical trial accruals, accrual estimates for all CVRs, the value attributed to employee stock options and other stock-based awards and valuation of common stock. On an ongoing basis, the Company reviews its estimates to ensure that they appropriately reflect changes in the business or as new information becomes available. Actual results may differ from these estimates.

Segment Information

Operating segments are defined as components of an entity for which separate financial information is available and that is regularly reviewed by the Chief Operating Decision Maker ("CODM") in deciding how to allocate resources and in assessing performance. The Company's CODM is its Chief Executive Officer. The Company operates as a single operating segment and has one reportable segment. The Company's operations and its assets are held in the United States.

Cash and Cash Equivalents

The Company considers all highly-liquid investments purchased with original maturities of 90 days or less at time of purchase to be cash equivalents. Cash and cash equivalents include cash held in banks and are stated at fair value.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash in the balance sheets that sum to the total of the same such amounts shown in the statements of cash flows (in thousands):

	December 31,	
	2023	2022
Cash and cash equivalents	$ 148,210	$ 82,021
Restricted cash	508	—
Total cash, cash equivalents and restricted cash	$ 148,718	$ 82,021

Cash equivalents consist of money market funds in which the carrying value equals the fair value (see Note 6, *Fair Value of Financial Instruments*). Restricted cash includes $ 0.5 million in cash deposits the Company maintains with its bank as collateral for the irrevocable letters of credits related to its lease obligations.

Concentrations of Credit Risk

Financial instruments that subject the Company to significant concentrations of credit risk consist primarily of cash and cash equivalents. The Company's cash and cash equivalent accounts, at times, may exceed federally insured limits. As of December 31, 2023, the Company had $ 147.7 million in excess of the federally insured limits. The Company places its cash in financial institutions that management believes to be of high credit quality.

Investments

Investment securities at December 31, 2023 consist of U.S. treasury notes. The Company classifies these securities as held-to-maturity. Held-to-maturity securities are those securities in which the Company has the ability and intent to hold the security until maturity. Held-to-maturity securities are recorded at amortized cost, adjusted for the amortization or accretion of premiums or discounts. Premiums and discounts are amortized or accreted over the life of the related held-to-maturity security as an adjustment to yield using the effective interest method. The Company reassesses the classification of held-to-maturity at each reporting period.

The allowance for credit losses on held-to-maturity securities is a contra-asset valuation account determined in accordance with ASC 326, which is deducted from the securities' amortized cost basis at the balance sheet date as a result of management's assessment of the net amount expected to be collected. Securities that are determined to be uncollectible are written off against the allowance. The Company did no t recognize an allowance for credit losses as of December 31, 2023. Interest income is recognized when earned. Additional information regarding held-to-maturity investments is included in Note 5, *Investments*.

Fair Value of Financial Instruments

Management believes that the carrying amounts of the Company's financial instruments, including cash, prepaid and other current assets, accounts payable and accrued expenses, approximate fair value due to the short-term nature of these instruments. Certain assets and liabilities are carried at fair value. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

- ***Level 1*** – Unadjusted quoted prices in active markets that are accessible to the reporting entity at the measurement date for identical assets and liabilities.
- ***Level 2*** – Inputs other than quoted prices in active markets for identical assets and liabilities that are observable either directly or indirectly for substantially the full term of the asset or liability. Level 2 inputs include the following:
  - quoted prices for similar assets and liabilities in active markets.
  - quoted prices for identical or similar assets or liabilities in markets that are not active.
  - observable inputs other than quoted prices that are used in the valuation of the asset or liabilities (e.g., interest rate and yield curve quotes at commonly quoted intervals).

- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

- ***Level 3*** – Unobservable inputs for the assets or liability (i.e., supported by little or no market activity). Level 3 inputs include management's own assumptions about the assumptions that market participants would use in pricing the asset or liability (including assumptions about risk).

Property and Equipment

Property and equipment costs are stated at cost, net of accumulated depreciation and amortization. The cost of property and equipment costs are depreciated on the straight-line method over the following estimated useful lives:

Type	Estimated useful life
Lab equipment	5 years
Manufacturing equipment	10 years
Leasehold improvements	Lesser of the remaining economic life of the asset or the lease-term
Furniture and fixtures	5 years
Software	3 years

Leasehold improvements are amortized over the shorter of the estimated useful life of the assets or the remaining lease term. Major additions and betterments are capitalized; maintenance and repairs, which do not improve or extend the life of the respective assets, are charged to operating expenses as incurred. Depreciation has been calculated using the straight-line method over their estimated useful lives once the asset is placed in service. Costs of software obtained for internal use are capitalized in accordance with ASC 350 and are recognized on a straight-line basis over the useful life. Software costs that do not meet the capitalization criteria, including costs incurred in the maintenance and minor upgrade and enhancement of software without additional functionality, are expensed as incurred. No depreciation has been calculated on work in progress assets.

Capitalized Software Development Costs

Implementation costs incurred in a cloud computing arrangement that is a service contract are capitalized and recorded in prepaid expenses and other current assets and other non-current assets on the consolidated balance sheets. Capitalized implementation costs include external professional service costs related to technical development. Post-implementation training and maintenance costs are expensed as incurred. Capitalized eligible implementation costs related to cloud computing service contracts are included in prepaid expenses and other current assets and other non-current assets were $ 0.3 million and $ 0.4 million as of December 31, 2023, and 2022, respectively. Capitalized cloud computing implementation costs are amortized on a straight-line basis over the expected term of the arrangement. Expense recognized related to the implementation costs capitalized was $ 0.2 million and $ 0.2 million for the years ended December 31, 2023 and 2022, respectively. Cloud computing arrangements are tested for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets. N o impairment of cloud computing arrangements occurred in 2023 or 2022.

Impairment of Long-Lived Assets

Management assesses the carrying value of property and equipment and software whenever events or changes in circumstances indicate that the carrying value may not be recoverable. If there is indication of impairment, management prepares an estimate of future undiscounted cash flows expected to result from the use of the asset and its eventual disposition. If these cash flows are less than the carrying amount of the asset, an impairment loss is recognized to write down the asset to its estimated fair value. For the years ended December 31, 2023 and 2022, the Company did not recognize any impairments for its long-lived assets.

Leases

Operating and finance leases are accounted for in accordance with ASU 2016-02, Leases as amended. They are presented in the Company's consolidated balance sheet as right-of-use assets from leases, current lease liabilities, and long-term lease liabilities. At the inception of a contractual arrangement, the Company determines whether the contract contains a lease by assessing whether there is an identified asset and whether the contract conveys the right to control the use of the identified asset in exchange for consideration over a period of time. If both criteria are met, the Company records the associated lease liability and corresponding ROU asset upon commencement of the lease using the implicit rate or a discount rate based on a credit-adjusted secured borrowing rate commensurate with the term of the lease. As the Company's leases do not provide an implicit rate, the Company utilizes the appropriate IBR, determined as the rate of interest that the Company would have to pay to borrow on a collateralized basis over a similar term and in a similar economic environment.

Both operating and finance lease assets represent a right to use an underlying asset for the lease term, and operating and finance lease liabilities represent an obligation to make lease payments arising from the lease. Lease liabilities with a term greater than one year and their corresponding ROU assets are recognized on the balance sheet at the commencement date of the lease based on the present value of lease payments over the expected lease term.

Certain of the Company's lease agreements at the adoption date contain renewal options. The Company does not recognize right-of-use assets or lease liabilities for renewal periods upon lease inception date unless it is determined that the Company is reasonably certain of renewing the lease at inception or when a triggering event occurs. The Company also made an accounting policy election to utilize the short-term lease exemption, whereby leases with a term of 12 months or less will not follow the recognition and measurement requirements of the standard.

The Company's leases do not contain any residual value guarantees. Since the Company elected to account for each lease component and its associated non-lease components as a single combined lease component, all contract consideration is allocated to the combined lease component. Some of the Company's lease agreements contain rent escalation clauses. For operating leases, the Company recognizes the minimum rental expense on a straight-line basis based on the fixed components of a lease arrangement. The Company will amortize this expense over the term of the lease beginning with the lease commencement date. Certain lease agreements contain variable payments, which are expensed as incurred and not included in the lease right-of-use assets and liabilities. These amounts include payments for maintenance and utilities. Variable lease components represent amounts that are not fixed in nature and are not tied to an index or rate and are recognized as incurred.

Additional information and disclosures are included in Note 10, *Commitments and Contingencies*.

Contingent Value Rights

As discussed within the *Reverse Merger and Pre-Closing Financing* section in Note 1, *Organization and Description of Business*, the Company entered into a CVR Agreement on December 18, 2023 prior to Closing. Included in the CVR Agreement are three different types of CVRs: (i) the Lease CVR, (ii) the Intellectual Property CVR, and (iii) the Sales Tax CVR (together, the "CVRs"). The Company evaluated each of the CVRs to determine if they qualified as derivatives under ASC 815, *Derivatives and Hedging*, and concluded that since certain scope exceptions were met, the CVRs did not qualify as derivatives. Instead, the Company records a contingent consideration liability associated with the CVRs when payments are probable and estimable under ASC 450. In assessing whether payments are probable and estimable, the Company considers the existence of or ability to enter agreements with third parties or government agencies and timing of potential payments. As of December 31, 2023, the Company recorded $ 0.3 million and $ 1.0 million to lease contingent value rights liability, current and lease contingent value rights liability, non-current, respectively, related to amounts that are probable and estimable under the Lease CVR. As no other amounts related to the CVR Agreement were probable as of December 31, 2023, no contingencies for the Intellectual Property CVR or Sales Tax CVR have been recorded. Refer to Note 1, *Organization and Description of Business*, and Note 10, *Commitments and Contingencies*, for further discussion on the CVR components.

Exit and Disposal Costs

In connection with the reverse merger and through fiscal 2024, the Company has incurred and expects to incur costs to wind-down Neoleukin's Phase 1 NL-201 study. This study has ceased further development, and the Company has no plans to continue developing Neoleukin's *de novo* protein technology. As a result, the study's activities do not provide the Company any future economic benefit. In accordance with *ASC 420 Exit or Disposal Costs*, the Company accrued the remaining costs to be incurred in the contract of approximately $0.9 million, which was included in the liabilities assumed in the reverse merger. As of December 31, 2023, no payments were made and the liability of $0.8 million was classified as accrued expenses and other current liabilities in the consolidated balance sheet.

Research and Development

Research and development costs are expensed as incurred. These costs include, but are not limited to, employee-related expenses, including salaries, benefits and travel of the Company's research and development personnel, facilities, supplies, rent, insurance, stock-based compensation, depreciation and external expenses incurred under agreements with contract research organizations and investigative sites that conduct preclinical studies and manufacture the drug product for the preclinical activities and other costs associated with preclinical activities.

Before a compound receives regulatory approval, the Company records upfront and milestone payments to third parties under licensing arrangements as expense provided that there is no alternative future use of the rights in other research and developments projects.

Non-refundable prepayments for research and development costs that are paid in advance of performance are capitalized as a prepaid expense and amortized over the service period as the services are provided. Costs for certain development activities, such as outside research programs funded by the Company, are recognized based on an evaluation of the progress to completion of specific tasks with respect to their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the financial statements as prepaid or accrued research and development expense as applicable. There can be judgment involved in measuring the research and development expenses to be recognized in a particular period. In some cases, expense is recorded using an underlying assumption of the progress to completion of specific activities. For example, costs may be recognized based on the passage of time for activities that span reporting periods. If the provision of services is not linear then this assumption could impact the amount of expense recognized. The level of judgment varies based on the nature of the services being performed and the underlying support obtained. For some activities, such as for certain clinical trials, expense is recorded based on information obtained from vendors as an intermediary to those performing the underlying services, such as contract research organizations. These estimates are inherently more judgmental since the quality and availability of the underlying data may vary. The Company does not need to make significant estimates where costs incurred are supported by invoices or reports of costs incurred are obtained from a vendor that is directly performing the underlying services, such as a consultant or contract manufacturing organization.

In-process research and development ("IPR&D") that is acquired through licensing arrangements and accounted for as asset acquisitions are expensed immediately and within research and development expenses if the IPR&D has no alternative future use.

General and Administrative

General and administrative expenses consist primarily of personnel expenses, including salaries, benefits and stock-based compensation expense, for employees and consultants in executive, finance and accounting, legal, operations support, information technology and human resource functions. General and administrative expenses also include corporate facility costs not otherwise included in research and development expense, including rent, utilities, depreciation and maintenance, as well as legal fees related to intellectual property and corporate matters and fees for accounting and consulting services.

Stock-Based Compensation

The Company accounts for stock-based compensation awards in accordance with ASC Topic 718, Compensation – Stock Compensation ("ASC 718"). ASC 718 requires all stock-based payments, including grants of stock options and restricted stock, to be recognized in the consolidated statements of operations based on their fair values. All of the stock-based awards are subject only to service-based vesting conditions. Management estimates the fair value of the stock option awards using the Black-Scholes option pricing model, which requires the input of assumptions, including (a) the fair value of the Company's common stock, (b) the expected stock price volatility, (c) the calculation of expected term of the award, (d) the risk-free interest rate and (e) expected dividends. Management estimates the fair value of the restricted stock awards using the fair value of the Company's common stock. Forfeitures are recognized as they are incurred.

Prior to the reverse merger, the Company periodically estimated the fair value of the Company's common stock considering, among other things, valuations of its common stock prepared by management with the assistance of a third party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants 2013 Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* . Following the reverse merger, the fair value of the Company's common stock is based on the closing stock price on the date of grant as reported on the Nasdaq Global Market. The expected life of the stock options in years is estimated using the "simplified method," as prescribed in SEC's Staff Accounting Bulletin (SAB) No. 107, as the Company has no historical information from which to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for its stock option grants. The simplified method is the midpoint between the vesting period and the contractual term of the option. For stock price volatility, the Company uses comparable public companies as a basis for its expected volatility to calculate the fair value of option grants. The risk-free rate is based on the U.S. Treasury yield curve commensurate with the expected life of the option. The expected dividend yield is zero as the Company has no history of paying dividends and no plans to do so in the near term.

The Company classified stock-based compensation expense in its consolidated statement of operations in the same manner of the award recipient's payroll costs.

Income Taxes

The Company accounts for income taxes in accordance with ASC 740 , *Income Taxes* , which prescribes the use of the liability method whereby deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided to reduce the net deferred tax assets to a level which, more likely than not, will be realized.

The Company assesses its income tax positions and records tax benefits based upon management's evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, the Company records the amount of tax benefit with a greater than 50 percent likelihood of being realized upon ultimate settlement with a taxing authority having full knowledge of all relevant information. For those income tax positions for which it is not more likely than not that a tax benefit will be sustained, no tax benefit is recognized in the financial statements. Potential interest and penalties associated with such uncertain tax positions is recorded as a component of income tax expense.

Net Income (Loss) Per Share

For the prior year and pre-merger periods in which the Company had multiple classes of stock participating in earnings, the Company uses the two-class method in calculating earnings per share. Basic earnings per share of Class A and Class B common stock is computed by dividing net income attributable to Neurogene OpCo by the weighted-average number of shares of Class A and Class B common stock outstanding during the period.

For the post-merger period, the only period in which the Company had income, diluted earnings per share of the single class of common stock is computed by dividing net income attributable to the Company, adjusted for the assumed exchange of all potentially dilutive instruments for common stock, by the weighted-average number of shares of common stock outstanding, adjusted to give effect to potentially dilutive elements.

As of December 18, 2023, the Company consummated the reverse merger, leaving only one class of common stock remaining, and as such, the two-class method is not presented for the post-merger period from December 18, 2023 to December 31, 2023. The single class of common stock remaining post-merger is referred to throughout as "common stock."

The following table sets forth the computation of basic and diluted net income (loss) per share (in thousands, except share and per share amounts):

	Year Ended December 31, 2023			Year Ended December 31, 2022	
	Pre-Merger [1]		Post-Merger [2]	Pre-Merger [1]	
	Class A	Class B	Common stock	Class A	Class B
Net income (loss) per share, basic:					
Numerator:					
Net income (loss)	$ (49,971)	$ —	$ 13,654	$ (55,189)	$ —
Denominator:					
Weighted-average shares outstanding used in computing net income (loss) per share, basic	426,097	—	491,867	394,533	—
Net income (loss) per share, basic	$ (117.28)	$ —	$ 27.76	$ (139.88)	$ —
Net income (loss) per share, diluted:					
Numerator:					
Net income (loss)	$ (49,971)	$ —	$ 13,654	$ (55,189)	$ —
Denominator:					
Weighted-average shares outstanding used in computing net income (loss) per share, basic	426,097	—	491,867	394,533	—
Weighted-average effect of dilutive securities:					
Warrants to purchase common stock	—	—	4,063,361	—	—
Options to purchase common stock	—	—	101,719	—	—
Weighted-average shares outstanding used in computing net income (loss) per share, diluted	426,097	—	4,656,947	394,533	—
Net income (loss) per share, diluted	$ (117.28)	$ —	$ 2.93	$ (139.88)	$ —

[1] Represents the period starting January 1, 2023 through Closing for the year ended December 31, 2023 and for the year ended December 31, 2022.

[2] Represents the period subsequent to Closing (December 18, 2023) through December 31, 2023.

Potentially dilutive securities that were not included in the diluted per share calculations because they would be antidilutive were as follows:

	Year Ended December 31, 2023			Year Ended December 31, 2022	
	Pre-Merger [1]		Post-Merger [2]	Pre-Merger [1]	
	Class A	Class B	Common stock	Class A	Class B
Options to purchase common stock	614,729	—	541,180	468,632	—
Restricted stock awards	—	—	—	6,691	—
Series A-1 convertible preferred stock [3]	—	—	—	18,604,653	—
Series A-2 convertible preferred stock [3]	—	—	—	13,291,208	—
Series B convertible preferred stock [3]	—	—	—	74,405,719	—
Total awards excluded	614,729	—	541,180	106,776,903	—

[3] The convertible preferred stock does not reflect the application of the 0.0756 Exchange Ratio.

Recently Issued Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that the Company adopts as of the specified effective date. Unless otherwise discussed below, the Company does not believe that the adoption of recently issued standards have or may have a material impact on our financial statements or disclosures.

Recently Issued Accounting Pronouncements Not Yet Adopted

In November 2023, the FASB issued ASU 2023-07, Segment Reporting (Topic 280). The amendments in this update expand segment disclosure requirements, including new segment disclosure requirements for entities with a single reportable segment among other disclosure requirements. This update is effective for the Company in the consolidated financial statements for the year ending December 31, 2024, and interim periods beginning after January 1, 2025. The Company is analyzing the impact of this standard on its disclosures in the consolidated financial statements.

In December 2023, the FASB issued ASU 2023-09, Improvements to Income Tax Disclosures which requires consistent categories and greater disaggregation of information in the rate reconciliation and income taxes paid disaggregated by jurisdiction. This standard will be effective for annual periods beginning after December 15, 2024. The Company is currently evaluating the impact of this standard on the Company's consolidated financial statements and related disclosures but does not expect the adoption of ASU 2020-09 to be material.

Recently Adopted Accounting Pronouncements

The Company adopted ASU 2016-13, *Financial Instruments - Credit Losses*, as amended, on January 1, 2023. This ASU sets forth a current expected credit loss model which requires the Company to measure all expected credit losses for financial instruments held at the reporting date based on historical experience, current conditions, and reasonable supportable forecasts. This replaces the existing incurred loss model and is applicable to the measurement of credit losses on financial assets measured at amortized cost and applies to some off-balance sheet credit exposures. The impact of ASU 2016-13 on the Company's consolidated financial statements was not material.

4. Reverse Merger

As discussed within the *Reverse Merger and Pre-Closing Financing* section in Note 1, *Organization and Description of Business*, on December 18, 2023 the reverse merger between Neoleukin, Merger Sub, and Neurogene OpCo was consummated. Pursuant to the Merger Agreement, upon Closing, Merger Sub merged with and into Neurogene OpCo, with Neurogene OpCo surviving as a wholly owned subsidiary and surviving corporation of the merger. In connection with the completion of the reverse merger, the Company changed its name from "Neoleukin Therapeutics, Inc." to "Neurogene Inc.," and the business conducted by the Company became primarily the business conducted by Neurogene OpCo. The reverse merger was contemplated and consummated, along with the Pre-Closing Financing, to generate capital resources to support the advancement of the Company's pipeline and future operations.

As further discussed in Note 1, *Organization and Description of Business,* the reverse merger was accounted for as a reverse asset acquisition pursuant to ASC 805, *Business Combination*s as Neoleukin did not meet the definition of a business under ASC 805 but it did represent a group of assets. Therefore, the transaction was treated as the equivalent of Neurogene issuing stock to acquire the net assets of Neoleukin. In accordance with the relative fair value allocation guidance in ASC 805, to account for the reverse merger, the Company allocated the difference between the total consideration transferred and the fair value of the net assets acquired to Neoleukin's non-monetary assets on a pro rata basis. As the fair value of Neoleukin's net assets acquired at Closing exceeded the total consideration transferred after the fair value allocation, (i) $ 1.3 million of the difference was recorded as a contingent consideration liability on the Company's consolidated balance sheet for payments that are probable and estimable under the CVR Agreement and (ii) the remaining $ 16.4 million was recognized as a bargain purchase gain in the Company's consolidated statement of operations.

The following table summarizes the final purchase price paid in the reverse merger along with the fair value allocation (in thousands, except share and per share amounts):

Calculation of total purchase price:		
Number of common shares and pre-funded warrants of the combined company owned by Neoleukin stockholders [1]		2,777,017
Multiplied by the fair value per share of Neoleukin common stock [2]	$	13.76
Fair value of Neoleukin common stock issued [2]	$	38,212
Transaction costs [6]		4,140
Contingent consideration liability [3]		1,287
Total purchase price	$	43,639
Fair value of Neoleukin net assets acquired at Closing and fair value allocation:		
Monetary assets acquired [4]	$	76,906
Liabilities assumed [5]		(21,052)
Fair value of net assets acquired	$	55,854
Less: total consideration transferred		(38,212)
Excess of fair value of monetary assets acquired over total consideration transferred	$	17,642
Fair value allocated to contingent consideration liability [3]		1,287
Fair value allocated to bargain purchase gain		16,355
Total fair value allocated	$	17,642
Reconciliation of allocation to purchase price:		
Fair value of monetary assets acquired [4]	$	76,906
Transaction costs [6]		4,140
Neoleukin liabilities assumed [5]		(21,052)
Fair value allocated to bargain purchase gain		(16,355)
Total purchase price	$	43,639

[1] The number of shares is based on a total 2,351,030 shares of Neoleukin common stock and 425,987 pre-funded warrants outstanding as of December 18, 2023.

[2] The fair value of Neoleukin common stock (also referred to in discussions herein as “total consideration transferred”) was determined using the closing price of Neoleukin’s common stock on December 15, 2023, after giving effect to the Reverse Stock Split. As discussed in Note 3, *Summary of Significant Accounting Policies* , Neoleukin’s stock price is measured using Level 1 fair value measurements.

[3] Refer to Note 10, *Commitments and Contingencies*, for further discussion on the contingent consideration liability.

[4] In accordance with the guidance in ASC 805, *Business Combinations*, the fair value of the net assets acquired was allocated to any non-monetary assets on a pro rata basis. As such, the assets acquired only include cash, cash equivalents and restricted cash of $ 22.2 million, short-term investments of $ 53.9 million, and other immaterial monetary assets of $ 0.8 million.

[5] Included in Neoleukin liabilities assumed is (i) $ 10.9 million in lease liabilities, (ii) $ 3.8 million in accrued payroll and $ 6.3 million in other accrued costs and accounts payable. For the lease liabilities, the Company utilized judgment in estimating the IBR used in determining the fair value of the leases upon Closing.

[6] As indicated in ASC 805 regarding asset purchases, the accounting acquirer’s transaction costs incurred directly related to the asset purchase should be included in the consideration to acquire the assets. These costs were initially recorded as deferred financing costs and then reclassified to offset to equity upon Closing.

5. Investments

The following table summarizes the Company's investment securities as of December 31, 2023 (in thousands):

	December 31, 2023			
	Amortized cost, as adjusted	Gross unrealized holding gains	Gross unrealized holding losses	Estimated fair value
Short-term investments:				
U.S. treasury notes	$ 48,947	$ 16	$ —	$ 48,963

	December 31, 2022			
	Amortized cost, as adjusted	Gross unrealized holding gains	Gross unrealized holding losses	Estimated fair value
Short-term investments:				
U.S. treasury notes	$ —	$ —	$ —	$ —

All of the Company's investments mature within the next 12 months.

6. Fair Value of Financial Instruments

As of December 31, 2023 and December 31, 2022, financial assets measured at fair value on a recurring basis are categorized in the table below based upon the lowest level of significant input to the valuations (in thousands):

	December 31, 2023		
	Level 1	Level 2	Level 3
Assets:			
Money market funds	$ 144,358	$ —	$ —
U.S. treasury notes	48,947	—	—
Total	$ 193,305	$ —	$ —

	December 31, 2022		
	Level 1	Level 2	Level 3
Assets:			
Money market funds	$ 78,749	$ —	$ —

Money market funds are cash equivalents and are included in cash and cash equivalents in the consolidated balance sheet as of December 31, 2023 and 2022.

7. Prepaid expenses and other current assets

Prepaid expenses and other assets consist of the following (in thousands):

	December 31,	
	2023	2022
Refunds and other receivables	$ 600	$ 990
Prepaid expenses	1,496	1,078
Other current assets	1,095	630
Total prepaid and other current assets	$ 3,191	$ 2,698

8. Property and Equipment, Net

Property and equipment consist of the following (in thousands):

	December 31,	
	2023	2022
Lab equipment	$ 3,144	$ 3,088
Manufacturing equipment	6,142	5,955
Leasehold improvements	15,376	15,298
Office equipment	19	—
Software	268	289
Construction in progress	234	252
Total property and equipment, cost	25,183	24,882
Less accumulated depreciation and amortization	(8,009)	(4,767)
Property and equipment, net	$ 17,174	$ 20,115

Depreciation and amortization expense for the years ended December 31, 2023 and December 31, 2022 was approximately $ 3.3 million and $ 3.2 million, respectively.

9. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31,	
	2023	2022
Compensation and related benefits	$ 3,496	$ 3,357
Research and development	4,895	1,800
Accrued severance, bonus, and retention [(1)]	2,476	—
Accrued offering costs in connection with pre-closing financing	3,334	—
Accrued transaction costs related to reverse merger	2,557	—
Other	737	167
Total accrued expenses and other current liabilities	$ 17,495	$ 5,324

[(1)] Includes accrued severance, bonus, and retention payments for current and former Neoleukin employees. Refer to Note 10, *Commitments and Contingencies*, for further detail.

10. Commitments and Contingencies

Finance Leases

During the years ended December 31, 2023 and 2022, the Company leased information technology ("IT") equipment and copiers for periods ranging from 36 months to 63 months. The IT equipment were classified as finance leases due to the existence of bargain purchase options in the lease agreements, and the copiers were classified as finance leases as the lease periods represented a major portion of the economic life of those assets. In connections with these leases, the Company recorded finance lease right-of-use assets and finance lease liabilities of approximately $ 0.1 million.

Operating Leases

New York Headquarters Lease

In September 2019, the Company commenced a sub-lease of approximately 6,000 square feet of office space for the corporate headquarters in New York, New York with a term expiring in June 2023. In connection with the lease, the Company established an irrevocable letter of credit for approximately $ 0.4 million. Monthly lease payments were approximately $ 0.04 million.

In July 2021, the sublessor was released from the original lease by the landlord, and the Company attorned to the landlord the executory terms and provisions of the sub-lease. In February 2022, the Company entered into an extension of the New York office lease (retroactive to December 2021) through June 2026, with new monthly lease payments ranging from approximately $ 0.03 million to $ 0.04 million. The Company accounted for the amendment as a contract modification, and accordingly, recorded an additional operating right-of-use asset of approximately $ 1.0 million and an additional operating lease liability of approximately $ 1.0 million.

Houston Lease

In August 2019, the Company entered into an agreement to lease approximately 26,905 square feet in Houston, Texas to build a manufacturing facility and office with a term expiring in August 2029. The Company has the option to renew the lease term for two additional five-year terms. The renewal periods were not included in the lease term for purposes of determining the lease liability or right-of-use asset. Monthly rent payments were approximately $ 0.03 million. In connection with the lease, the Company paid a security deposit of approximately $ 0.04 million and prepaid rent of approximately $ 0.04 million.

In September 2020, the Company amended the lease agreement to further increase the rentable space to 42,342 square feet. The commencement date of the expansion space lease was January 1, 2021 and the monthly rent payments increased to a range of approximately $ 0.05 million to $ 0.06 million.

Blaine Lease in Seattle

As a result of the reverse merger, the Company assumed an operating lease for approximately 33,300 square feet of office space in Seattle, Washington for offices, a laboratory for research and development, and related uses. The lease expires on February 1, 2029, with the option to extend the lease for two five-year terms. The renewal periods were not included in the lease term for purposes of determining the lease liability or right-of-use asset.

Eastlake Lease in Seattle

As a result of the reverse merger, the Company assumed an operating lease for approximately 6,272 square feet of office space in Seattle, Washington, for additional office and laboratory space for research and development and related uses (the “Eastlake Lease”). The Company also assumed the existing agreement to sublease the Eastlake Lease to an unrelated third party (“Eastlake Sublease”). Pursuant to the terms of the EastLake Sublease, Neurogene is entitled to receive approximately $ 1.6 million in lease payments. The term of the sublease is through September 30, 2026.

Supplemental lease expense related to leases for the years ended December 31, 2023 and 2022 was as follows (in thousands):

	Years Ended December 31,	
	2023	2022
Operating lease cost	$ 1,037	$ 1,037
Finance lease cost		
Amortization of finance leases	35	4
Interest on finance lease liabilities	12	2
Variable lease cost	178	196
Short-term lease cost	80	74
Total lease cost	$ 1,342	$ 1,313

The calculation of the present value of the lease payments for operating leases did not include any options to extend the leases as the Company is not reasonably certain to exercise such options.

The following table summarizes the maturity of the Company's operating and finance lease liabilities on an undiscounted cash flow basis and a reconciliation to the operating and finance lease liabilities recognized on the Company's consolidated balance sheet as of December 31, 2023 (in thousands):

Maturity of operating lease liabilities	
2024	$ 3,862
2025	3,964
2026	3,672
2027	3,235
2028	3,294
2029	616
Total lease payments	$ 18,643
Less: interest	(3,782)
Total operating lease liabilities	$ 14,861

Maturity of finance lease liabilities	
2024	$ 51
2025	50
2026	15
2027	6
2028	1
Total lease payments	$ 123
Less: interest	(16)
Total finance lease liabilities	$ 107

Supplemental balance sheet information related to leases as of December 31, 2023 and 2022 was as follows (in thousands):

Leases	**December 31,**	
	2023	**2022**
Operating right-of-use assets	$ 3,681	$ 4,344
Operating current lease liabilities	2,559	678
Operating noncurrent lease liabilities	12,302	3,921
Total operating lease liabilities	$ 14,861	$ 4,599
Finance right-of-use assets	$ 98	$ 87
Finance current lease liabilities	42	24
Finance noncurrent lease liabilities	65	66
Total finance lease liabilities	$ 107	$ 90

Other information	December 31, 2023	December 31, 2022
Cash paid for amounts included in measurement of operating lease liabilities (in thousands)	$ 1,051	$ 1039
Cash paid for amounts included in measurement of finance lease liabilities (in thousands)	$ 42	$ 3
Weighted-average remaining lease term - operating leases (in years)	4.88	5.72
Weighted-average remaining lease term - finance lease (in years)	2.53	3.47
Weighted-average discount rate - operating leases	9.72 %	8.86 %
Weighted-average discount rate - finance lease	11.49 %	11.45 %

Lease CVR

In accordance with the terms of the Lease CVR within the CVR Agreement, the Company accrued for approximately $ 1.3 million as a contingent consideration liability on its consolidated balance sheet. As of the Closing, the expected range for the Lease CVR was approximately $ 1.3 million to $ 19.5 million based on the potential rights to CVR holders as described in the terms of the CVR Agreement.

As of December 31, 2023, $ 1.3 million was recorded on the Company's consolidated balance sheet as a lease contingent value rights liability consisting of lease commitments that were probable and estimable as the Closing. The commitments relate to Neoleukin's sublease agreement, effective October 31, 2023, for one of its properties with an unrelated third party for the remainder of the lease term. All other payments under the CVR Agreement were not considered probable and estimable as of December 31, 2023 and therefore no additional contingent consideration liability has been recorded.

The Company will evaluate the probable and estimable range of outcomes under the CVR Agreement at each reporting period until the end of the CVR term and adjust the amounts accrued for as necessary.

The following table summarizes the maturity of the Company's lease CVR as of December 31, 2023 (in thousands):

Maturity of Lease CVR	
2024	$ 281
2025	598
2026	408
Total lease CVR payments	$ 1,287

Intellectual Property CVR

Prior to the Closing, Neoleukin entered into a licensing agreement on December 13, 2023 with Accipiter Biosciences (“Accipiter”) to develop and commercialize Neoleukin’s *de novo* protein technology (the “Accipiter Licensing Agreement”). As discussed and defined within the *Reverse Merger and Pre-Closing Financing* section of Note 1, *Organization and Description of Business* , the terms of the CVR Agreement include that CVR holders are eligible to receive the Intellectual Property CVR. In addition, as discussed in Note 3, *Summary of Significant Accounting Policies* , contingent consideration liabilities related to the CVR Agreement will only be recorded if they are probable and estimable as of the balance sheet date.

Under the Accipiter Licensing Agreement, Accipiter will make a non-refundable up-front payment of approximately $ 0.2 million upon the earlier of six months after the effective date or within 30 days after Accipiter closes on a seed financing of at least $ 5.0 million. If Accipiter does not make the upfront payment within six months after the effective date, this agreement will terminate and neither party shall have any obligation to the other party. In addition, the Accipiter Licensing Agreement contains development, regulatory and commercialization milestones totaling up to approximately $ 13.4 million, as well as royalty payments.

Since the upfront payment, milestones and royalties were not considered probable as of December 31, 2023, the Company did not record a contingent consideration liability related to the Intellectual Property CVR.

Employment Agreements

Neoleukin entered into employment agreements with key personnel providing for severance payments, benefits, and other employee related costs in certain circumstances, as defined in the respective employment agreements. As of December 31, 2023, $ 2.5 million of accrued severance, bonus, and retention costs were recorded to accrued expenses and other current liabilities on the Company’s consolidated balance sheet as noted in Note 9, *Accrued Expenses and Other Current Liabilities* .

Other Research and Development Arrangements

The Company enters into agreements with contract research organizations (“CROs”) to assist in the performance of research and development activities. Expenditures to CROs will represent a significant cost in clinical development for the Company.

Litigation and Legal Proceedings

The Company is subject to litigation and other claims that arise in the ordinary course of business. While the ultimate result of outstanding legal matters cannot presently be determined, the Company does not expect that the ultimate disposition will have a material effect on its results of financial condition, results of operations or cash flows. However, legal matters are inherently unpredictable and subject to significant uncertainties, some of which are beyond the Company’s control. As such, there can be no assurance that the final outcome of any particular legal matter will not have a material adverse effect on the Company’s financial condition, results of operations or cash flows.

11. License Agreements

License Agreement with The University of North Carolina

In May 2019, Neurogene entered into an Exclusive License Agreement with the University of North Carolina at Chapel Hill (“UNC”) to obtain an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses under certain patents to make, use, or sell products covered by such patents for prevention or treatment of disease or medical or genetic conditions, including CLN5 Batten disease or other diseases from dysfunction of the CLN5 gene. The Company is obligated to pay UNC up to $ 1.7 million in sales-related milestones for licensed products based on annual sales of the licensed product in excess of defined thresholds and low single-digit percentage royalties on net sales of licensed product for as long as there is a valid patent claim under the patent rights. Neurogene is also required to reimburse any patent expenses, as well as pay a nonrefundable annual maintenance fee which, when royalties become due and payable, will be creditable against such royalties. The annual license fee was $ 4,000 for each of the years ended December 31, 2023 and 2022.

License Agreement with The University of Edinburgh

In January 2020, Neurogene entered into an Option Agreement (the "Edinburgh Option Agreement") with the University Court of the University of Edinburgh ("University of Edinburgh") for an option to license certain patents covering the EXACT technology (the "Licensed Technology"). To secure the option, Neurogene was solely required to pay the costs associated with the filing, preparing, prosecution and maintenance of the patents covering the Licensed Technology during the option period. No other payments were payable under the Edinburgh Option Agreement. Neurogene subsequently exercised the option under the Edinburgh Option Agreement and then entered into the Master Collaboration Agreement ("MCA") discussed below, and which superseded the Edinburgh Option Agreement.

In December 2020, University of Edinburgh and Neurogene entered into the MCA. Under the MCA, Neurogene and University of Edinburgh agreed to collaborate on certain research and development projects ("Projects") and Neurogene agreed to provide funding for such Projects for a 40 -month initial term, which term may be extended by mutual agreement. In exchange for such funding, University of Edinburgh granted Neurogene the option to exclusively license any intellectual property arising from such Projects. If Neurogene exercises an exclusive option for a particular Project, Neurogene will enter into a separate exclusive license agreement on its own terms with University of Edinburgh. Under the MCA, Neurogene is obligated to pay semi-annual installment payments relating to funding of costs for personnel and lab consumables for the 40 -month period. Either party may terminate the MCA for convenience upon 90 days' notice. If Neurogene terminates the MCA, it would be responsible for all non-cancellable costs and commitments related to any particular Project and any and all funding costs for any person working on such Project. The expense recorded for the years ended December 31, 2023 and 2022 was $ 1.6 million and $ 1.1 million, respectively.

In March 2022, Neurogene exercised its option through the collaboration under the MCA, and entered into a License Agreement (the "March 2022 Edinburgh License Agreement") with University of Edinburgh, pursuant to which Neurogene licensed certain patents and know-how related to the EXACT technology and optimized MECP2 cassettes on an exclusive basis. Under the March 2022 Edinburgh License Agreement, Neurogene obtained an exclusive, worldwide license to the licensed patents to develop, manufacture, supply, sell, and commercialize any products that utilize the licensed patents (the "Licensed Products") in exchange for low single-digit percentage royalties on future commercial net sales of the Licensed Products. Royalties are payable on a Licensed Product-by-Licensed Product and country-by-country basis until the latter of the expiration of the last licensed patent covering such Licensed Product in the country where the Licensed Product is sold, or, if no licensed patent exists or has expired in such country, then ten years from first commercial sale of such Licensed Product in such country. In connection with the license, Neurogene is also obligated to pay the University of Edinburgh up to $ 5.25 million in regulatory-related milestones and up to $ 25 million in sales-related milestones based on annual net sales of Licensed Products in excess of defined thresholds. During the year ended December 31, 2023, the Company expensed $ 0.3 million for a milestone related to the first patient dosing in the Phase 1/2 Rett study.

In November 2023, Neurogene and University of Edinburgh amended the MCA. Under the amended MCA, Neurogene and University of Edinburgh agreed to continue collaborating on certain Projects and Neurogene agreed to provide funding for such Projects through December 2026 or an additional 33 months. Neurogene is obligated to pay semi-annual installment payments relating to funding of costs for personnel and lab consumables for the entire period.

License Agreement with the University of North Carolina and University of Pennsylvania

In July 2020, the Company entered into an exclusive license agreement with the University of North Carolina and University of Pennsylvania, or the Universities, to further develop and commercialize the licensed technology for the Optimized GALC Genes and Expression Cassettes. The Company also has the right to sublicense the technology. The Company made an upfront payment to the Universities of $ 0.5 million that was immediately expensed within research and development expenses as the license has no alternative future use. On an on-going basis, the Company is obligated to pay for future patent costs incurred, and such costs were immaterial for the years ended December 31, 2023 and December 31, 2022. During the year ended December 31, 2022, the Company paid the University of North Carolina a $ 0.5 million milestone payment after receipt of the Rare Pediatric Disease Designation of NGN-201 from the FDA for Krabbe disease. An annual license maintenance fee is also payable commencing on the first anniversary of the effective date. The amount of the license fee was approximately $ 0 and $ 0.02 million for the years ended December 31, 2023 and 2022, respectively. In October 2023, the Company terminated the license agreement.

License Agreement with Virovek

In September 2020, Neurogene entered into a Non-Exclusive License Agreement with Virovek, Inc., pursuant to which Neurogene has a license to use certain patents and know-how on a non-exclusive basis related to Neurogene's baculovirus ("baculo") process in exchange for low single-digit percentage royalties on future commercial net sales of each product using the baculo process, development milestone payments of up to $ 0.2 million in the aggregate, and a nonrefundable annual license fee. During the year ended December 31, 2023, the Company recorded a milestone expense of $ 0.1 million for first filing of the IND filed in connection with the Company's Rett syndrome program. The license fee expense for each of the years ended December 31, 2023 and 2022 was $ 0.05 million.

License Agreement with Sigma-Aldrich Co

In January 2023, Neurogene entered into a Non-Exclusive License Agreement with Sigma-Aldrich Co. LLC, pursuant to which Neurogene has a license to certain patents and know-how on a non-exclusive basis related to certain cell lines used in Neurogene's baculo process in exchange for a small annual fee on a product-by-product basis, payable once the first product candidate enters the clinic. In addition, on a product-by-product basis, Neurogene is obligated to pay up to $ 2.5 million in the aggregate for development-related milestones. During the year end ended December 31, 2023, the Company recorded the expense for the initial annual license fee of approximately $ 0.06 million.

No expenses were recorded related to other in-process license agreements during the years ended December 31, 2023 and 2022, respectively. None will be due under these agreements unless and until certain development milestones are reached.

12. Preferred Stock

Preferred Stock

The Company is authorized to issue 50,000,000 shares of preferred stock with a par value of $ 0.000001 per share as of December 31, 2023. No shares are outstanding as of December 31, 2023.

Convertible Preferred Stock

On March 2, 2022, the Company entered into the Series B preferred stock purchase agreement, which provided for the purchase of 27,274,586 shares of Series B preferred stock, at $ 2.44 per share for net proceeds of approximately $ 66.5 million, of which the Company received such funds from March 2022 through June 2022.

On December 18, 2023, Neurogene OpCo completed the reverse merger with Neoleukin. Neurogene OpCo's Series A-1, Series A-2 and Series B preferred stock (collectively, "convertible preferred stock") was subject to certain pre-existing anti-dilution provisions that were triggered upon the closing of the Pre-Closing Financing. The private placement in Neurogene OpCo closed immediately before the Closing. As a result of the pre-existing anti-dilution feature, Neurogene OpCo preferred shareholders received an additional 13,505,271 shares of preferred stock. At the effective time of the reverse merger, each issued and outstanding share of Neurogene OpCo convertible preferred stock converted automatically into 0.0756 shares of the Company's common stock or pre-funded warrants, at the option of the preferred shareholder. At the Closing, the Company issued an aggregate of 7,231,747 shares of its common stock and 1,825,635 pre-funded warrants to Neurogene OpCo preferred shareholders.

Prior to the effective time of the reverse merger, the convertible preferred stock had the followings rights and privileges:

Dividends

The holders of convertible preferred stock were entitled to receive non-cumulative dividends that would accrue at the rate of $ 0.18 per share per year, payable only when and if declared by the Board of Directors. The Company would not declare, pay or set aside any dividends on shares of any class of common stock (as defined below) unless the holders of the convertible preferred stock would first receive dividends on each outstanding share of preferred stock in the amount of the accrued dividends unpaid as of such date. No dividends were issued for the convertible preferred stock from inception through the Closing.

Liquidation

In the event of any liquidation, dissolution, or winding-up of the Company, which would include the sale of the Company, the convertible preferred stock was senior to common stock. The preferred shareholders would be entitled to preferential payment in the amount per share equal to the greater of (i) the original issue price and accrued dividends declared and unpaid or (ii) the amount that would be due had all convertible preferred stock been converted to common stock immediately prior to a deemed liquidation event. Upon payment of the preferred liquidation preference payments, the holders of Series A-1 and common stock participate on a pro-rata basis until the A-1 stockholders have received a liquidation preference amount of $ 5.38 per share of Series A-1. Any remaining distribution thereafter would be distributed to holders of common stock.

Voting

The preferred stockholders were entitled to the number of votes equal to the number of Class A common stock into which the shares of convertible preferred stock Series A and B held by each holder are then convertible.

Conversion

The preferred stockholders had the option to convert each share of convertible preferred stock into Class A or Class B common stock, as applicable, at any time, and without additional payment. The number of Class A or Class B common stock into which the convertible preferred stock converts was equal to the original issuance price (defined as $ 2.15 per share for the Series A and $ 2.44 per share for the Series B) divided by the conversion price. The conversion price would initially be $ 2.15 per share for the Series A and $ 2.44 per share for the Series B and could be adjusted for certain dilutive events such as a down-round provision, stock splits and combinations, certain dividends and distributions or any merger or reorganization. Conversion to Class A common stock would have been mandatory upon the closing of an initial public offering resulting in net proceeds of at least $ 75.0 million for Series A and $ 50.0 million for Series B and at an offering price per share greater than or equal to $ 4.30 per share for Series A and $ 3.66 per share for Series B or upon the decision of the holders of at least a majority of the outstanding preferred stock shares. Prior to the Mandatory Conversion Time (as defined in the preferred stock purchase agreement), a preferred stockholder would have had the right to elect, upon written notice to the Company, to have all or a portion of its shares of convertible preferred stock automatically convert into shares of Class B common stock at the then effective conversion rate.

Redemption

The convertible preferred stock was subject to redemption under certain deemed liquidation events not solely within the control of the Company, as defined, and as such was considered contingently redeemable for accounting purposes and was classified as temporary equity in the Company's consolidated balance sheets.

13. Stockholders' Equity (Deficit)

Common stock and pre-funded warrants

The Company is authorized to issue 450,000,000 shares of common stock with a par value of $ 0.000001 per share as of December 31, 2023.

At the effective time of the Reverse Merger on December 18, 2023, the Company issued an aggregate number of 10,472,635 shares of Company common stock to the Neurogene OpCo stockholders based on the Exchange Ratio, including those shares of Neurogene OpCo common stock issued upon the conversion of Neurogene OpCo preferred stock and those shares of the Neurogene OpCo Class A common stock issued in the Pre-Closing Financing, resulting in 12,823,665 shares of Company common stock being issued and outstanding immediately following the effective time of the Reverse Merger.

The Company has pre-funded warrants outstanding to purchase an aggregate of 4,063,361 shares of common stock as of December 31, 2023. The pre-funded warrants are exercisable at any time for an exercise price of $ 0.000001 , except that the pre-funded warrants cannot be exercised by the holders if, after giving effect thereto, the holders would beneficially own more than 9.99 % of the outstanding common stock, subject to certain exceptions. However, any holder may increase or decrease such percentage to any other percentage (not in excess of 19.99 %) upon at least 61 days' prior notice from the holder to the Company. The holders of the pre-funded warrants will not have the right to vote the shares underlying the pre-funded warrants on any matter except to the extent required by Delaware law. These warrants were classified as equity.

Class A and Class B Common stock

Prior to the effective time of the reverse merger, Class A and Class B common stock had the followings rights and privileges:

The holders of Neurogene OpCo Class A common stock were entitled to one vote for each share of Class A common stock held at all meetings of stockholders. Unless required by law, there was no cumulative voting. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company, after the payment of all preferential amounts required to be paid to the holders of shares of preferred stock, the remaining funds and assets available for distribution to the stockholders of the Company would have been distributed among the holders of shares of Class A and Class B common stock, pro rata basis based on the number of shares of Class A and Class B common stock held by each such holder.

Holders of shares of Class B common stock had rights to convert each share of Class B common stock held into one share of Class A common stock at their election, provided that, following the closing of any initial public offering (as defined above), the shares of the Class B common stock would have been converted into shares of Class A common stock unless such conversion would have resulted in a holder owning in excess of 4.99 % of any class of securities.

Neurogene OpCo had reserved shares of common stock for future issuance as follows:

	December 31,	
	2023	**2022**
Conversion of Series A-1 [(1)]	—	18,604,653
Conversion of Series A-2 [(1)]	—	13,291,208
Conversion of Series B [(1)]	—	74,405,719
Total conversion of preferred stock	—	106,301,580
Options outstanding	823,833	468,632
Shares available for future grant under the 2018 Equity Incentive Plan	—	315,548
Shares available for future grant under the 2023 Equity Incentive Plan	2,237,722	—
Total common stock reserved	3,061,555	107,085,760

[(1)] The convertible preferred stock does not reflect the application of the 0.0756 Exchange Ratio.

14. Stock-Based Compensation

In connection with the reverse merger, the Company stockholders approved the 2023 Equity Incentive Plan (the "2023 EIP") on December 13, 2023 and Board of Directors ratified the 2023 EIP on December 18, 2023. The 2023 EIP provides for the grant of stock options, restricted stock, restricted stock units ("RSUs") and other stock-based awards, any of which may be performance-based, and for incentive bonuses, which may be paid in cash, Company common stock or a combination thereof.

The number of shares reserved for issuance under the 2023 EIP is equal to 2,237,722 shares of the Company's common stock. The 2023 EIP provides that the number of shares reserved and available for issuance under the 2023 EIP will automatically increase on January 1 of each year beginning in 2024 and ending with a final increase on January 1, 2033 in an amount equal to 4 % of the total number of shares of common stock outstanding on such date or to a lesser amount determined by the Compensation Committee of the Board of Directors.

As of December 31, 2023, no shares of the Company's common stock were issued under the 2023 EIP.

In connection with the reverse merger, the Company assumed all of the options outstanding under the Neurogene OpCo 2018 Equity Incentive Plan. All of the stock options outstanding under the 2018 Stock Incentive Plan at the time of the Closing of the reverse merger were adjusted to the number of shares and exercise price to reflect the Exchange Ratio. As of December 31, 2023, 609,124 shares of the Company's common stock were outstanding under the Neurogene OpCo 2018 Equity Incentive Plan and no further grants will be made under the Neurogene OpCo 2018 Equity Incentive Plan.

In connection with the reverse merger, the Company assumed all of the options outstanding under the Neoleukin 2014 Equity Incentive Plan. As of December 31, 2023, 214,709 shares of the Company's common stock were outstanding under the Neoleukin 2014 Equity Incentive Plan and no further grants will be made under the Neoleukin 2014 Equity Incentive Plan.

The Company measures stock-based awards at their grant-date fair value and records compensation expense on a straight-line basis over the vesting period of the awards. The Company recorded stock-based compensation expense in the following expense categories in its accompanying consolidated statements of operations (in thousands):

	Year Ended December 31,	
	2023	2022
Research and development	$ 897	$ 732
General and administrative	521	520
Total expense	$ 1,418	$ 1,252

The following table summarizes the option activity under the stock option plans:

	Number of shares	Weighted average exercise price per share	Weighted average remaining contractual term (years)
Outstanding at December 31, 2022	468,632	$ 13.23	7.37
Assumption of options in connection with the reverse merger	215,207	$ 77.20	2.50
Granted	183,391	$ 18.91	
Exercised	(20,348)	$ 8.24	
Expired/Forfeited	(23,049)	$ 20.34	
Outstanding at December 31, 2023	823,833	$ 31.43	5.89
Exercisable at December 31, 2023	527,053	$ 38.42	4.73

At December 31, 2023, the aggregate intrinsic value of outstanding options and exercisable options was approximately $ 2.6 million and $ 2.3 million, respectively. The aggregate intrinsic value of options exercised was approximately $ 0.3 million for the year ended December 31, 2023.

The weighted-average grant date fair value of options granted was $ 12.99 and $ 15.37 per share for the years ended December 31, 2023 and 2022, respectively. The Company recorded stock-based compensation related to stock options of approximately $ 1.4 million and $ 1.0 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, the total unrecognized compensation expense related to unvested stock option awards was approximately $ 3.2 million, which the Company expects to recognize over a weighted-average period of 2.59 years.

The following table summarizes information about the outstanding and exercisable options at December 31, 2023 (in thousands, except share and per share amounts):

	Options Outstanding				Options Exercisable			
Exercise Price Range	Number Outstanding	Weighted Average Remaining Contractual	Weighted Average Exercise Price	Intrinsic Value	Number Exercisable	Weighted Average Remaining Contractual	Weighted average Exercise Price	Intrinsic Value
$ 5.19 - $ 9.99	108,600	5.12	$ 5.86	$ 1,469	108,315	5.12	$ 5.86	$ 1,465
$ 10.00 - $ 19.99	365,112	6.95	$ 15.06	$ 1,596	184,871	5.37	$ 13.42	$ 1,120
$ 20.00 - $ 29.99	196,723	7.14	$ 22.43	$ —	80,817	7.41	$ 22.88	$ —
$ 30.00 - $ 274.80	153,398	2.27	$ 100.05	$ —	153,050	2.26	$ 99.86	$ —

The fair value of each option was estimated on the date of grant using the weighted average assumptions in the table below:

	Year Ended December 31,	
	2023	2022
Expected volatility	82.96 %- 83.70 %	71.71 %- 74.01 %
Risk-free interest rate	3.45 %- 4.46 %	1.47 %- 4.22 %
Expected life (in years)	3.58 - 6.08	5.87 - 6.09
Expected dividend yield	-	-
Fair value of common stock	$ 18.39	$ 20.24

Restricted Stock Awards

The Company granted shares of its restricted Class A common stock to certain of its employees in accordance with the terms of their restricted stock award agreements (“RSA”).

The following table summarizes restricted Class A common stock activity:

	Number of shares	Weighted-average grant date fair value
Unvested balance at December 31, 2022	6,691	$ 5.82
Vested	(6,691)	$ 5.82
Unvested balance at December 31, 2023	—	$ —

The Company recorded stock-based compensation expense related to RSAs of approximately $ 0.02 million and $ 0.2 million for the years ended December 31, 2023, and 2022, respectively.

Employee Stock Purchase Plan

In connection with the reverse merger, the Company stockholders approved the 2023 Employee Stock Purchase Plan (the “2023 ESPP”) on December 13, 2018 and Board of Directors ratified the 2023 ESPP on December 18, 2018. A total of 173,223 shares of common stock have been reserved for issuance under the 2023 ESPP.

Subject to share and dollar limits as described in the plan, the 2023 ESPP allows eligible employees to contribute, through payroll deductions, up to 15 % of their earnings for the purchase of the Company’s shares of common stock at the

lower of 85 % of the closing price of the Company's common stock on the first trading day of the offering period or 85 % of the closing price of the Company's common stock on the last trading day of the offering period. As of December 31, 2023, no shares have been issued under the 2023 ESPP.

15. Income Taxes

Income (loss) before provision for income taxes consisted of the following (in thousands):

	Year Ended December 31,	
	2023	2022
United States	$ (36,317)	$ (55,189)
Loss before provision for income taxes	$ (36,317)	$ (55,189)

No provision for federal or state income taxes was recorded during the years ended December 31, 2023 and 2022, as the Company incurred operating losses and maintains a full valuation allowance against its net deferred tax assets. The reported amount of income tax benefit for the years ended December 31, 2023 and 2022 differs from the amount that would result from applying domestic federal statutory rates to pretax losses primarily because of changes in the valuation allowance, state taxes, and the generation of research and development credits.

The reconciliation of the Federal statutory income tax provision to the Company's effective income tax provision is as follows:

	Year Ended December 31,	
	2023	2022
Federal statutory income tax	21.0 %	21.0 %
State income taxes, net of federal tax benefit	(0.8)%	(0.1 %)
Other permanent items	(0.5)%	(0.4) %
Research and development credit	5.8 %	3.0 %
Bargain purchase gain	9.5 %	— %
Valuation allowance	(35.0)%	(23.5) %
Effective income tax rate	—	—

Significant components of the Company's net deferred tax assets are as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Deferred tax assets:		
Net operating loss carryforwards	$ 60,287	$ 25,253
Research and development credits	9,765	3,681
Accruals & reserves	802	727
Stock compensation	2,952	107
Amortization	778	298
Lease liability	3,157	995
Capitalized research and development expenses	22,134	8,271
Total deferred tax assets	99,875	39,332
Valuation allowance	(98,926)	(38,168)
Net deferred tax assets	949	1,164
Deferred tax liabilities:		
Depreciation	(152)	(224)
Right of use asset	(797)	(940)
Total deferred tax liabilities	(949)	(1,164)
Net deferred taxes	$ —	$ —

As of December 31, 2023 and 2022, the Company had a federal net operating loss carryforward of $ 277.9 million and $ 110.5 million, respectively, which may be available to offset future income tax liabilities. Of this amount, approximately $ 2.3 million will begin to expire in 2038 and approximately $ 275.6 million are carried forward indefinitely. As of December 31, 2023 and 2022, the Company has state NOL carryforwards of $ 35.1 million and $ 36.0 million, respectively. Of this amount, approximately $ 33.4 million will begin to expire in 2038 and approximately $ 1.7 million are carried forward indefinitely.

As of December 31, 2023 and 2022, the Company has federal research and development tax credit carryforwards of $ 7.5 million and $ 2.9 million, respectively, which begin to expire in 2039. As of December 31, 2023, the Company has federal orphan drug tax credit carryforwards of $ 2.2 million, which begin to expire in 2042. As of December 31, 2023, the Company has state research and development tax credit carryforwards of $ 0.1 million which begin to expire in 2036.

Future realization of the tax benefits of existing temporary differences and net operating loss carryforwards ultimately depends on the existence of sufficient taxable income within the carryforward period. As of December 31, 2023 and 2022, the Company performed an evaluation to determine whether a valuation allowance was needed. The Company considered all available evidence, both positive and negative, which included the results of operations for the current and preceding years. The Company determined that it was not possible to reasonably quantify future taxable income and determined that it is more likely than not that all of the deferred tax assets will not be realized. Accordingly, the Company maintained a full valuation allowance as of December 31, 2023 and 2022.

The Tax Cuts and Jobs Act (TCJA) resulted in significant changes to the treatment of research and developmental (R&D) expenditures under Section 174 of the IRC. For tax years beginning after December 31, 2021, taxpayers are required to capitalize and amortize all R&D expenditures that are paid or incurred in connection with their trade or business. Specifically, costs for U.S.-based R&D activities must be amortized over five years and costs for foreign R&D activities must be amortized over 15 years—both using a midyear convention. As of December 31, 2023, the Company capitalized a substantial amount of R&D expenditures primarily related to research and development activities performed in the US.

The Company's valuation allowance increased by $ 60.7 million and $ 13.0 million for the years ended December 31, 2023 and 2022, respectively, due primarily to the generation of NOLs. The Company's valuation allowance for the years ended December 31, 2023 and 2022 is as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Valuation allowance beginning of year	$ 38,168	$ 25,195
Increases recorded to income tax provision	12,701	12,973
Increase recorded to equity	48,057	—
Valuation allowance at end of year	$ 98,926	$ 38,168

Utilization of the net operating loss and research and development credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986 due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes may limit the amount of net operating loss and research and development credit carryforwards that can be utilized annually to offset future taxable income and tax, respectively. The Company has not completed a study to assess whether a change of ownership has occurred, or whether there have been multiple ownership changes since its formation, due to the significant cost and complexity associated with a study. There could also be additional ownership changes in the future which may result in additional limitations on the utilization of net operating loss carryforwards and tax credits.

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. The Company's tax returns are open under statute from 2018 to the present.

As of December 31, 2023 and 2022, the Company had liabilities for uncertain tax positions of $ 2.6 million and $ 1.1 million, respectively, which, if recognized, would impact the Company's effective income tax rate. The Company's policy is to record interest and penalties related to income taxes as part of its income tax provision. As of December 31, 2023 and 2022, the Company had not accrued interest or penalties related to uncertain tax positions.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Beginning balance	$ 1,108	$ 632
Additions based on tax positions related to current year	574	476
Additions for tax positions of prior years	929	—
Ending Balance	$ 2,611	$ 1,108

16. Employee Benefit Plan

The Company sponsors a 401(k) Plan. Employees become eligible for participation upon the start of employment. Participants may elect to have a portion of their salary deferred and contributed to the 401(k) Plan up to the limit allowed under the Internal Revenue Code. The Company makes a matching contribution to the plan for each participant who has elected to make tax-deferred contributions for the plan year. The Company made matching contributions which amounted to approximately $ 0.5 million and $ 0.5 million for each of the years ended December 31, 2023 and 2022, respectively. These amounts were charged to the consolidated statement of operations. The employer contributions vest over a five-year period.

17. Employee Retention Credit

Pursuant to the Coronavirus Aid, Relief, and Economic Security Act, the Company is eligible for an employee retention credit subject to certain criteria. Since there are no generally accepted accounting principles for for-profit business entities that receive government assistance that is not in the form of a loan, an income tax credit or revenue from a contract with a customer, the Company determined the appropriate accounting treatment by analogy to other guidance. The Company accounted for the employee retention credit by recognizing the employee retention credit on a systematic basis over the periods in which the entity recognizes the payroll expenses for which the grant (i.e., tax credit) is intended to compensate when there is reasonable assurance (i.e., it is probable) that the entity will comply with any conditions attached to the grant and the grant (i.e., tax credit) will be received.

The Company accounted for and received approximately $ 0.9 million of employee retention credits during the years ended December 31, 2023, which was recorded as a reduction of research and development expenses and general and administrative expenses on the consolidated statement of operations.

18. Subsequent Events

From January 1, 2024 until the financial statements were issued, the Company granted 740,752 options and 482,384 RSUs to employees and consultants, and 29,320 options were exercised.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosures

None.

Item 9A. Controls and Procedure

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our principal executive officer and principal financial officer, our management conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, prior to the filing of this annual report on Form 10-K. Based on that evaluation, they have concluded that, as of the end of the period covered by this annual report on Form 10-K, our disclosure controls and procedures were, in design and operation, effective at a reasonable assurance level.

Previously Identified Material Weakness in Internal Control Over Financial Reporting

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

In August 2023, we discovered that we had been subjected to a business email compromise attack by a third party, resulting in a loss of $0.9 million dollars due to a diversion of payments to two fraudulent bank accounts. This email compromise attack highlighted a deficiency in our internal control over financial reporting, specifically in our controls relating to changes made to supplier payment information, which we determined amounted to a material weakness in our controls.

Following the discovery of this attack, we implemented steps to remediate the control deficiency, including increasing communication of and training around our controls relating to changes made to supplier information, emphasizing security awareness and the importance of exercising professional skepticism, and designing a process whereby supplier information changes were reviewed before releasing supplier payments.

Remediation of Prior Material Weakness

Through effective implementation of our remediation plan, we have strengthened our internal control environment and have addressed the material weaknesses that were identified in August 2023. Based on the evaluation of the effectiveness of our internal control over financial reporting discussed in the prior paragraph, our management determined that as of December 31, 2023, the identified material weakness has been remediated. However, completion of remediation does not provide assurance that our remediated controls will continue to operate properly or that our financial statements will be free from error.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934, as amended. Our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2023 based on the 2013 framework in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on its evaluation under the framework in Internal Control-Integrated Framework, management concluded that our internal control over financial reporting was effective as of December 31, 2023.

Inherent Limitation on the Effectiveness of Internal Controls and Disclosure Controls

The effectiveness of any system of internal control over financial reporting and disclosure controls and procedures, including ours, is subject to inherent limitations, including the exercise of judgment in designing, implementing, operating, and evaluating the controls and procedures, and the inability to eliminate misconduct completely. Accordingly, any system of internal control over financial reporting and disclosure controls and procedures, including ours, no matter how well designed and operated, can only provide reasonable, not absolute assurances. In addition, 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. We intend to continue to monitor and upgrade our internal controls as necessary or appropriate for our business, but cannot assure you that such improvements will be sufficient to provide us with effective internal control over financial reporting and disclosure controls and procedures.

Attestation Report of the Registered Public Accounting Firm

As a smaller reporting company and non-accelerated filer, as defined in the Exchange Act, we are exempt from the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002. As a result, our independent registered public accounting firm has not audited or issued an attestation report with respect to the effectiveness of our internal control over financial reporting as of December 31, 2023.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the three months ended December 31, 2023 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act), other than the internal controls implemented in connection with our remediation efforts described above.

Item 9B. Other Information

(b) Trading Arrangements

None of our directors or executive officers adopted or terminated a Rule 10b5-1 trading arrangement or a non-Rule 10b5-1 trading arrangement during the three months ended December 31, 2023, as such terms are defined under Item 408(a) of Regulation S-K.

Item 9C. Disclosure Regarding Foreign Jurisdiction that Prevent Inspections

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is incorporated herein by reference to the information in our 2024 Proxy Statement, including under the sections entitled “Proposal 1 Election of Directors,” “Corporate Governance,” “Executive Officers” and, if applicable, “Delinquent Section 16(a) Reports.”

Item 11. Executive Compensation

The information required by this Item is incorporated herein by reference to the information in the 2024 Proxy Statement, including under the sections entitled “Director Compensation” and “Executive Compensation.”

Item 12. Security Ownership of Certain Beneficial Owner and Management and Related Stockholder Matters

The information required by this Item is incorporated herein by reference to the information in the 2024 Proxy Statement, including under the sections entitled “Security Ownership of Certain Beneficial Owners and Management” and “Securities Authorized for Issuance Under Equity Compensation Plans.”

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item is incorporated herein by reference to the information in the 2024 Proxy Statement, including under the sections entitled “Certain Relationships and Related Party Transactions” and “Director Independence.”

Item 14. Principal Accountant Fees and Services

The information required by this Item is incorporated herein by reference to the information in the 2024 Proxy Statement, including under the section entitled “Proposal 3 Ratification of Independent Auditor Appointment.”

Part IV

Item 15. Exhibits, Financial Statement Schedules

The following documents are filed as part of this Annual Report on Form 10-K:

(a) Financial Statements.

See Index to Consolidated Financial Statements at Part II, Item 8 “Financial Statements and Supplementary Data - Audited Financial Statements.”

(b) Financial Statement Schedules.

No financial statement schedules are provided because the information called for is not required or is shown in the financial statements or the notes thereto.

(c) Exhibits.

The following exhibits are filed (or incorporated by reference herein) as part of this Annual Report on Form 10-K:

Exhibit	Description
2.1†	Agreement and Plan of Merger, dated as of July 17, 2023, by and among Neoleukin Therapeutics, Inc., Project North Merger Sub, Inc. and Neurogene Inc. (Incorporated by reference to Exhibit 2.1 to the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on July 18, 2023).
3.1	Amended and Restated Certificate of Incorporation of the Company, filed December 18, 2023 (Incorporated by reference to Exhibit 3.2 of the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
3.2	Amended and Restated Bylaws of the Company (Incorporated by reference to Exhibit 3.3 of the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
3.3	Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Stock of Neurogene Inc. filed August 8, 2019 (Incorporated by reference to Exhibit 3.1 of the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission August 12, 2019).
4.1	Specimen Common Stock Certificate of Neurogene Inc. (Incorporated by reference to Exhibit 4.1 to the Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2014 filed with the Securities and Exchange Commission on May 13, 2014).
4.2	Registration Rights Agreement, dated September 19, 2016, by and between Aquinox Pharmaceuticals, Inc. and the persons listed on Schedule A attached thereto (Incorporated by reference to Exhibit 10.1 to the Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on September 20, 2016).
4.3*	Description of Securities Registered Under Section 12 of the Securities Exchange Act of 1934, as amended.
4.4	Form of Pre-Funded Warrant (Incorporated by reference to Exhibit 4.1 to Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2019).
4.5	Form of Pre-Funded Warrant (Incorporated by reference to Exhibit 4.1 to Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on July 2, 2020).
4.6	Form of Pre-Funded Warrant (Incorporated by reference to Exhibit A of Exhibit C to Exhibit 2.1 to Registrant’s Current Report on Form 8-K filed with the Securities and Exchange Commission on July 18, 2023).

Exhibit	Description
10.1	Lease Agreement, dated September 23, 2019, by and between Neoleukin Therapeutics, Inc. and ARE-Eastlake Avenue No. 3, LLC (Incorporated by reference to Exhibit 10.7 to Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019 filed with the Securities and Exchange Commission on November 13, 2019).
10.2	Lease Agreement, dated December 23, 2019, by and between Neoleukin Therapeutics, Inc. and ARE Eastlake Avenue No. 3, LLC (Incorporated by reference to Exhibit 10.8 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 filed with the Securities and Exchange Commission on March 12, 2020).
10.3	First Amendment to Lease, dated June 18, 2020, by and between Neoleukin Therapeutics, Inc. and ARE-Eastlake Avenue No. 3, LLC (Incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020 filed with the Securities and Exchange Commission on August 12, 2020).
10.4	First Amendment to Lease, dated November 5, 2020, by and between Neoleukin Therapeutics, Inc. and ARE-Seattle No. 28, LLC (Incorporated by reference to Exhibit 10.24 to Registrant's Annual Report on Form 10-K for the year ended December 31, 2020 filed with the Securities and Exchange Commission on March 25, 2021).
10.5	Second Amendment to Lease, dated March 24, 2021, by and between Neoleukin Therapeutics, Inc. and ARE-Seattle No. 28, LLC (Incorporated by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021 filed with the Securities and Exchange Commission on May 12, 2021).
10.6	Contingent Value Rights Agreement, dated December 18, 2023, by and among Neoleukin Therapeutics, Inc., Equiniti Trust Company, LLC and Donna Cochener (Incorporated by reference to Exhibit 10.6 of Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.7	Form of Lock-Up Agreement (Incorporated by reference to Exhibit 10.4 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 18, 2023).
10.80	Letter Agreement, dated July 17, 2023, by and between Neoleukin Therapeutics, Inc. and Baker Bros. Advisors LP (Incorporated by reference to Exhibit 10.5 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 18, 2023).
10.9††	Master Research Collaboration Agreement, dated December 4, 2020, by and between Neurogene Inc. and The University Court of The University of Edinburgh (Incorporated by reference to Exhibit 10.29 to Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.10	Amendment 1 to the Master Research Collaboration Agreement, dated November 29, 2023, by and between Neurogene Inc. and The University Court of The University of Edinburgh (Incorporated by reference to Exhibit 10.19 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.11††	Option Agreement, dated January 7, 2020, by and between Neurogene Inc. and the University Court of the University of Edinburgh (Incorporated by reference to Exhibit 10.30 to Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.12††	Exclusive License Agreement, dated May 16, 2019, by and between The University of North Carolina at Chapel Hill and Neurogene Inc. (Incorporated by reference to Exhibit 10.32 to Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.13††	License Agreement, dated March 4, 2022, by and between The University Court of the University of Edinburgh and Neurogene Inc. (Incorporated by reference to Exhibit 10.31 to the Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.14††	Non-Exclusive License Agreement, dated September 30, 2020, by and between Neurogene Inc. and Virovek, Inc. (Incorporated by reference to Exhibit 10.33 to the Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.15††	Non-Exclusive License Agreement, dated January 19, 2023, by and between Sigma-Aldrich Co. LLC and Neurogene Inc. (Incorporated by reference to Exhibit 10.34 to the Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).

Exhibit	Description
10.16	Lease Agreement, dated August 4, 2019, by and between Stella Link Investments, Ltd. and Neurogene Inc as amended by that certain First Amendment to Lease Agreement, dated Se ptember 17, 2020, by and between Stella Link Investments, Ltd. and Neurogene Inc. (Incorporated by reference to Exhibit 10.35 to Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.17	Sublease Agreement, dated May 16, 2019, by and between GPB Capital Holdings, LLC and Neurogene Inc., as amended and assumed pursuant to that certain Assumption and Attornment o f Lease and Release Agreement, dated July 30, 2021, by and among GTM Associates, LLC, GPB Capital Holdings, LLC and Neurogene Inc., as further amended by that certain Amendment to Attorned Sublease, dated February 22, 2022, by and between GTM Associates, LLC and Neurogene Inc. (Incorporated by reference to Exhibit 10.36 to Registrant's Registration Statement on Form S-4/A filed with the Securities and Exchange Commission on September 28, 2023).
10.18	Form of Indemnification Agreement entered into between Neurogene Inc. and each of its directors and its execu tive officers (Incorporated by reference to Exhibit 10.20 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.19#	Neurogene Inc. 2018 Equity Incentive Plan (Incorporated by reference to Exhibit 99.1 to Regis trant's Registration Statement on Form S-8 filed with the Securities and Exchange Commission on February 20, 2024).
10.20#	Neurogene Inc. 2023 Equity Incentive P lan (Incorporated by reference to Exhibit 99.2 to Registrant's Registration Statement on Form S-8 filed with the Securities and Exchange Commission on Feb ruary 20, 2024).
10.21#	Neurogene Inc. 2023 Employee Stock P urchase Plan (Incorporated by reference to Ex hibit 99.3 to Registrant's Registration Statement on Form S-8 filed with the Securities and Exchange Commission on February 20, 2024).
10.22#	Neoleukin Therapeutics, Inc. Am ended and Restated 2014 Equity Ince ntive Plan as amended and restated on May 13 , 2021 (Incorporated by reference to Exhibit 10.1 to Registrant's 8-K filed with the Sec urities and E xchange Commission on May 14, 2021).
10.23#	Form of Separation Agreement, by and b etween Neoleukin Therapeutics, Inc. and D onna Cochener (Incorporated by reference to Exhibit 10.23 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Comm ission on December 19, 2023).
10.24#	Form of Separation Agreement, by and between Neoleukin Therapeutics, Inc. and Sean S mith (Incorporated by refere nce to Exhibit 10.24 to Registrant's Current Report on Form 8-K filed with the Securities and Exchan ge Commission on December 19, 2023).
10.25#	Separation Agreement dated March 6, 2023 and effective March 31, 2023 by and between Neoleukin Ther apeutics, Inc. and Jonathan Drachman (Incorporated by reference to Exhibit 10.2 to Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2023 filed with the Securities and Exchange Commission on May 8, 2023).
10.26	Form of Subscription Agreement (Incorporated by reference to Exh ibit A to Exhibit 2.1 to Registrant 's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 18, 2023).
10.27#	Employment Letter, dated September 1, 201 9, by and between Neurogene Inc. and Christine Mikail Cvijic (Incorporated by reference to Exhibit 10.27 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.28#	Employment Letter, dated January 7, 2019, by and between Neurogene Inc. and Rachel McMinn (Incorporated by reference to Exhibit 10.28 to Registrant's Current Report on Form 8-K fi led with the Securities and Exchange Commission on December 19, 2023).
10.29#	Consulting Agreement, dated December 12, 2018, by and between Neurogene Inc. and Stuart Cobb Consu lting Ltd. (Incorporated by reference to Exhibit 10.29 to Registrant's Current Report on Form 8-K filed with the S ecurities and Exch ange Commission on December 19, 2023).
10.30#	First Amendment to the Consulting Agreement, date d July 13, 2020, by and between Neurogene Inc. and Stuart Cobb Consulting Ltd. (Incorporated by reference to Exhibit 10.30 to Registrant 's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).

Exhibit	Description
10.31#	Second Amendment to the Consulting Agreement , dated January 1, 2020, by and between Neurogene Inc. and S tuart Cobb Consulting Ltd. (Incorporated by reference to Exhibit 10.31 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.32#	Third Amendment to the Consulting Agreement, dated April 1, 2022 by and between Neurogene Inc. and Stuart Cobb Consulting Ltd. (Incorporated by reference to Exhibit 10.32 to Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
10.33#	Fourth Amendment to the Consulting Agreement, dated January 1, 2023 by and between Neurogene Inc. and Stuart Cobb Consulting Ltd. (Incorporated by reference to E xhibit 10.33 to Registrant's Current Report on Form 8-K filed with the Secu rities and Exchange Commission on December 19, 2023).
21.1	List of Subsidiaries of Neurogene Inc. (Incorporated by reference to Exhibit 21.1 to Registrant 's Current Report on Form 8-K filed with the Securities and Exchange Commission on December 19, 2023).
23.1*	Consent of Deloitte & Touche LLP.
23.2*	Consent of Ernst & Young LLP.
31.1*	Certification of the Chief Executive Officer (Principal Executive Officer) pursuant to Rule 13a-14(a).
31.2*	Certification of the Chief Financial Officer (Principal Financial Officer) pursuant to Rule 13a-14(a).
32.1*##	Certification of Chief Executive Officer (Principal Executive Officer) and Chief Financial Officer (PFO) pursuant to 18 U.S.C. Section 1350.
97.1*	Compensation Recoupment (Clawback) Policy.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document).

* Filed herewith.

\# Indicates management contract or compensatory plan.

† The annexes, schedules, and certain exhibits to the Merger Agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K. Neurogene Inc. hereby agrees to furnish supplementally a copy of any omitted annex, schedule or exhibit to the Commission upon request.

†† Portions of this exhibit (indicated by asterisks) have been omitted in accordance with the rules of the Securities and Exchange Commission.

This certification is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (Exchange Act), or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act.

Item 16. Form 10-K Summary

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: March 18, 2024

Neurogene Inc.

By: /s/ Rachel McMinn

Name: Rachel McMinn, Ph.D.

Title: Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Rachel McMinn Rachel McMinn, Ph.D.	Chief Executive Officer, Director	March 18, 2024
/s/ Christine Mikail Christine Mikail, J.D.	President and Chief Financial Officer	March 18, 2024
/s/ Robert Baffi Robert Baffi, Ph.D.	Director	March 18, 2024
/s/ Cory Freedland Cory Freedland, Ph.D.	Director	March 18, 2024
/s/ Sarah B. Noonberg Sarah B. Noonberg, M.D., Ph.D.	Director	March 18, 2024
/s/ Rohan Palekar Rohan Palekar	Director	March 18, 2024
/s/ Robert Keith Woods Robert Keith Woods	Director	March 18, 2024

Exhibit 4.3

DESCRIPTION OF REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our amended and restated certificate of incorporation (as amended, the "Amended Certificate"), our amended and restated bylaws (the "Amended Bylaws") and applicable provisions of Delaware corporate law. You should read our Amended Certificate and Amended Bylaws, copies of which are filed as exhibits to our Annual Report on Form 10-K, to which this exhibit is also appended.

Our authorized capital stock consists of 450,000,000 shares of common stock and 50,000,000 shares of preferred stock, each having a par value of $0.000001 per share.

Common Stock

Our Amended Certificate authorizes the issuance of up to 450,000,000 shares of our common stock. All outstanding shares of our common stock are validly issued, fully paid and nonassessable.

The holders of our common stock are entitled to one vote per share on all matters submitted to a vote of stockholders, except for matters relating solely to the terms of preferred stock on which holders of our common stock shall not be entitled to vote as provided in our Amended Certificate. A majority vote of the shares present in person or represented by proxy and entitled to vote on the subject matter is required for the holders of our common stock to take action on all matters, except as otherwise required by law, our Amended Certificate or our Amended Bylaws. Our Amended Certificate does not provide for cumulative voting in the election of directors.

Subject to preferences that may be applicable to any then-outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of preferred stock. Holders of common stock have no preemptive, conversion or subscription rights and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Preferred Stock

Under the terms of our Amended Certificate, our board of directors has the authority, without further action by our stockholders, to issue up to 50,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the dividend, voting and other rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control and may adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock.

Anti-Takeover Effects of Our Amended Certificate, Amended Bylaws and Delaware Law

Our Amended Certificate and our Amended Bylaws include a number of provisions that may have the effect of delaying, deferring or preventing another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts.

- ***Issuance of undesignated preferred stock:*** Under our Amended Certificate, our board of directors has the authority, without further action by the stockholders, to issue up to 50,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our

board of directors. The existence of authorized but unissued shares of preferred stock enables our board of directors to make it more difficult to attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

- ***Classified board:*** Our Amended Certificate establishes a classified board of directors consisting of three classes of directors, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. This provision may have the effect of delaying a change in control of our board of directors.
- ***Election and removal of directors and board vacancies:*** Our Amended Bylaws provide that directors will be elected by a plurality vote. Our Amended Certificate and Amended Bylaws also provide that our board of directors has the right to increase or decrease the size of the board and to fill vacancies on the board. Directors may be removed only for cause by the affirmative vote of the holders of at least 66 2/3% of the votes that all our stockholders would be entitled to cast in an annual election of directors. Only our board of directors is authorized to fill vacant directorships. In addition, the number of directors constituting our board of directors may be set only by resolution adopted by a majority of the whole board. These provisions prevent stockholders from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- ***Requirements for advance notification of stockholder nominations and proposals:*** Our Amended Bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors that specify certain requirements as to the timing, form and content of a stockholder's notice. Business that may be conducted at an annual meeting of stockholders will be limited to those matters properly brought before the meeting. These provisions may make it more difficult for our stockholders to bring matters before our annual meeting of stockholders or to nominate directors at annual meetings of stockholders.
- ***No written consent of stockholders:*** Our Amended Certificate provides that all stockholder actions be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting. This limit may lengthen the amount of time required to take stockholder actions and would prevent the amendment of our Amended Bylaws or removal of directors by our stockholders without holding a meeting of stockholders.
- ***No stockholder ability to call special meetings:*** Our Amended Bylaws provide that only a majority of the members of our board of directors then in office may be able to call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders.
- ***Amendments to certificate of incorporation and bylaws:*** Any amendment to our Amended Certificate will be required to be approved by a majority of our board of directors as well as, if required by law or the Amended Certificate, a majority of the outstanding shares entitled to vote on the amendment and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of provisions to board classification, election, removal and vacancies, stockholder action, certificate amendments, bylaw amendments, liability of directors, indemnification of directors and officers, and Delaware exclusive forum must be approved by not less than 66 2/3% of the outstanding shares entitled to vote on the amendment, voting together as a single class. Any amendment to our Amended Bylaws must be approved by either a majority of the authorized number of directors constituting the board of directors or not less than 66 2/3% of the outstanding shares entitled to vote on the amendment, voting together as a single class.

These provisions are designed to enhance the likelihood of continued stability in the composition of our board of directors and its policies, to discourage certain types of transactions that may involve an actual or threatened acquisition of our company and to reduce our vulnerability to an unsolicited acquisition proposal. We also designed these provisions to discourage certain tactics that may be used in proxy fights. However, these provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they may also reduce fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Section 203 of the Delaware General Corporation Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in advance by a majority of the independent directors or by the holders of at least two-thirds of the outstanding disinterested shares. The application of Section 203 of the Delaware General Corporation Law could also have the effect of delaying or preventing a change of control of us.

Choice of Forum

Our Amended Certificate requires that the Court of Chancery of the State of Delaware be the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (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 director, officer or other employee to us or our stockholders; (3) any action asserting a claim against us or any director or officer or other employee arising pursuant to the Delaware General Corporation Law, our Amended Certificate or Amended Bylaws; or (4) any action asserting a claim against us that is governed by the internal affairs doctrine. This provision would not apply to claims brought to enforce a duty or liability created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction. Our Amended Bylaws provide further that the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act of 1933, as amended. The forum selection provisions will not apply to claims brought to enforce a duty or liability created by the Securities Exchange Act of 1934, as amended. It is possible that a court could find that such provisions are inapplicable for a particular claim or action or that such provisions are unenforceable. In addition, under the Securities Act, federal courts have concurrent jurisdiction over all suits brought to enforce any duty or liability created by the Securities Act, and investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. Although we believe these provisions benefit us by providing increased consistency in the application of Delaware law for the specified types of actions and proceedings, the provisions may have the effect of discouraging lawsuits against us or our directors or officers.

Transfer Agent and Registrar

Equiniti Trust Company, LLC serves as the transfer agent and registrar for our common stock.

Listing

Our common stock is listed on The Nasdaq Global Market under the symbol "NGNE."

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-194490, 333-203179, 333-210172, 333-216572, 333-223589, 333-234734, 333-237124, 333-238021, 333-254725, 333-263190, 333-270704 on Form S-8 of Neoleukin Therapeutics, Inc., Registration Statement No. 333-264803 on Form S-3 of Neoleukin Therapeutics, Inc., and Neurogene, Inc. (formerly Neoleukin Therapeutics, Inc.) Registration Statement No. 333-277186 on Form S-8, relating to the financial statements of Neurogene, Inc. appearing in this Annual Report on Form 10-K for the year ended December 31, 2023.

/s/ Deloitte & Touche LLP

Seattle, Washington

March 18, 2024

Exhibit 23.2

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-264803) of Neoleukin Therapeutics, Inc.,

(2) Registration Statement (Form S-8 Nos. 333-194490, 333-203179, 333-210172, 333-216572, 333-223589, 333-234734, 333-237124, 333-238021, 333-254725, 333-263190, and 333-270704) of Neoleukin Therapeutics, Inc., and

(3) Registration Statement (Form S-8 No. 333-277186) pertaining to the 2018 Equity Incentive Plan, 2023 Equity Incentive Plan and 2023 Employee Stock Purchase Plan of Neurogene Inc.;

of our report dated August 18, 2023 (except for the effects of the exchange ratio disclosed in Note 1, sub-section Reverse Merger and Pre-Closing Financing, as to which the date is March 18, 2024) with respect to the financial statements of Neurogene Inc. included in this Annual Report (Form 10-K) of Neurogene Inc. for the year ended December 31, 2022.

/s/ Ernst & Young LLP

Stamford, Connecticut

March 18, 2024

Exhibit 31.1

CERTIFICATIONS

I, Rachel McMinn, certify that:

1. I have reviewed this Annual Report on Form 10-K of Neurogene Inc:

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer 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 18, 2024

/s/ Rachel McMinn

Rachel McMinn

Chief Executive Officer (Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS

I, Christine Mikail, certify that:

1. I have reviewed this Annual Report on Form 10-K of Neurogene Inc:

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer 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 18, 2024

/s/ Christine Mikail

Christine Mikail

President and Chief Financial Officer (Principal Financial Officer)

Exhibit 32.1

NEUROGENE INC.
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 Neurogene Inc. (the "Company") for the year ended December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Rachel McMinn, Chief Executive Officer of the Company, and Christine Mikail, President and Chief Financial Officer of the Company, each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of her 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.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of March 18, 2024.

/s/ Rachel McMinn	/s/ Christine Mikail
Rachel McMinn	Christine Mikail
Chief Executive Officer	*President and Chief Financial Officer*

This certification is being furnished solely to accompany the Report pursuant to 18 U.S.C. Section 1350, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Neurogene Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

Note: A signed original of this written statement required by §906 has been provided to Neurogene Inc. and will be retained by Neurogene Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 97.1

NEUROGENE INC.

COMPENSATION RECOUPMENT (CLAWBACK) POLICY

Recoupment of Incentive-Based Compensation

It is the policy of Neurogene Inc. (the "Company") that, in the event the Company is required to prepare an accounting restatement of the Company's financial statements due to the Company's material non-compliance with any financial reporting requirement under the federal securities laws (including any such correction 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), the Company will recover on a reasonably prompt basis the amount of any Incentive-Based Compensation Received by a Covered Executive during the Recovery Period that exceeds the amount that otherwise would have been Received had it been determined based on the restated financial statements.

Policy Administration and Definitions

This Policy is administered by the Compensation Committee (the "Committee") of the Company's Board of Directors and is intended to comply with, and as applicable to be administered and interpreted consistent with, and subject to the exceptions set forth in, Listing Standard 5608 adopted by The Nasdaq Stock Market to implement Rule 10D-1 under the Securities Exchange Act of 1934, as amended (collectively, "Rule 10D-1").

For purposes of this Policy:

"Incentive-Based Compensation" means any compensation granted, earned, or vested based in whole or in part on the Company's attainment of a financial reporting measure that was Received by a person (i) on or after October 2, 2023 and after the person began service as a Covered Executive, and (ii) who served as a Covered Executive at any time during the performance period for the Incentive-Based Compensation. A financial reporting measure is (i) any measure that is determined and presented in accordance with the accounting principles used in preparing the Company's financial statements and any measure derived wholly or in part from such a measure, and (ii) any measure based in whole or in part on the Company's stock price or total shareholder return.

Incentive-Based Compensation is deemed to be "Received" in the fiscal period during which the relevant financial reporting measure is attained, regardless of when the compensation is actually paid or awarded.

"Covered Executive" means any "executive officer" of the Company as defined under Rule 10D-1.

"Recovery Period" means the three completed fiscal years immediately preceding the date that the Company is required to prepare the accounting restatement described in this Policy, all as determined pursuant to Rule 10D-1, and any transition period of less than nine months that is within or immediately following such three fiscal years.

If the Committee determines the amount of Incentive-Based Compensation Received by a Covered Executive during a Recovery Period exceeds the amount that would have been Received if determined or calculated based on the Company's restated financial results, such excess amount of Incentive-Based Compensation shall be subject to recoupment by the Company pursuant to this Policy. For 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 an accounting restatement, the Committee will determine the amount based on a reasonable estimate of the effect of the accounting restatement on the relevant stock price or total shareholder return. In all cases, the calculation of the excess amount of Incentive-Based Compensation to be recovered will be determined without regard to any taxes paid with respect to such compensation. The Company will maintain and will provide to The Nasdaq Stock Market documentation of all determinations and actions taken in complying with this Policy. Any determinations made by the Committee under this Policy shall be final and binding on all affected individuals.

The Company may effect any recovery pursuant to this Policy by requiring payment of such amount(s) to the Company, by set-off, by reducing future compensation, or by such other means or combination of means as the Committee determines to be appropriate. The Company need not recover the excess amount of Incentive-Based Compensation if and to the extent that the Committee determines that such recovery is impracticable, subject to and in accordance with any applicable exceptions under The Nasdaq Stock Market listing rules, and not required under Rule 10D-1, including if the Committee determines that the direct expense paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered after making a reasonable attempt to recover such amounts. The Company is authorized to take appropriate steps to implement this Policy with respect to Incentive-Based Compensation arrangements with Covered Executives.

Any right of recoupment or recovery pursuant to this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company pursuant to the terms of any other policy, any employment agreement or plan or award terms, and any other legal remedies available to the Company; provided that the Company shall not recoup amounts pursuant to such other policy, terms or remedies to the extent it is recovered pursuant to this Policy. The Company shall not indemnify any Covered Executive against the loss of any Incentive-Based Compensation (or provide any advancement of expenses in such instance), including any payment or reimbursement for the cost of third-party insurance purchased by any Covered Executives to fund potential recovery obligations under this Policy.