Filed pursuant to Rule 424(b)(4)
Registration Nos. 333-282197 and 333-282592

Prospectus

15,000,000 shares

Common stock

This is an initial public offering of shares of common stock of Upstream Bio, Inc. We are offering 15,000,000 shares of our common stock to be sold in this offering. The initial public offering price is $17.00 per share.

Prior to this offering, there has been no public market for our common stock. Our common stock has been approved for listing on The Nasdaq Global Select Market under the symbol "UPB."

We are an "emerging growth company" and a "smaller reporting company" as defined under the U.S. federal securities laws and, as such, have elected to comply with certain reduced reporting requirements.

	Per share	Total
Initial public offering price	$ 17.00	$255,000,000
Underwriting discounts and commissions(1)	$ 1.19	$ 17,850,000
Proceeds to Upstream Bio, Inc., before expenses	$ 15.81	$237,150,000

(1) See "Underwriting" for a description of the compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to 2,250,000 additional shares of common stock.

Investing in our common stock involves a high degree of risk. Please see "Risk factors" beginning on page 15.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares to purchasers on or about October 15, 2024.

J.P. Morgan **TD Cowen** **Piper Sandler** **William Blair**

October 10, 2024

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Through and including November 4, 2024 (the 25th day after the date of this prospectus), all dealers effecting transactions in our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

Neither we nor the underwriters have authorized anyone to provide any information or make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus or in any applicable free writing prospectus is current only as of the date on the front cover of this prospectus, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into

possession of this prospectus must inform themselves about, and observe, any restrictions relating to the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

Upstream Bio, Inc. and our logo are our trademarks and are used in this prospectus. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the symbols ® and ™, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

Prospectus summary

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes included elsewhere in this prospectus. You should also consider, among other things, the matters described under the sections titled "Risk factors" and "Management's discussion and analysis of financial condition and results of operations," in each case appearing elsewhere in this prospectus. Unless the context otherwise requires, the terms "Upstream," "the Company," "we," "us," and "our" in this prospectus refer to Upstream Bio, Inc. and its wholly owned subsidiary, or either or both of them as the context may require.

Overview

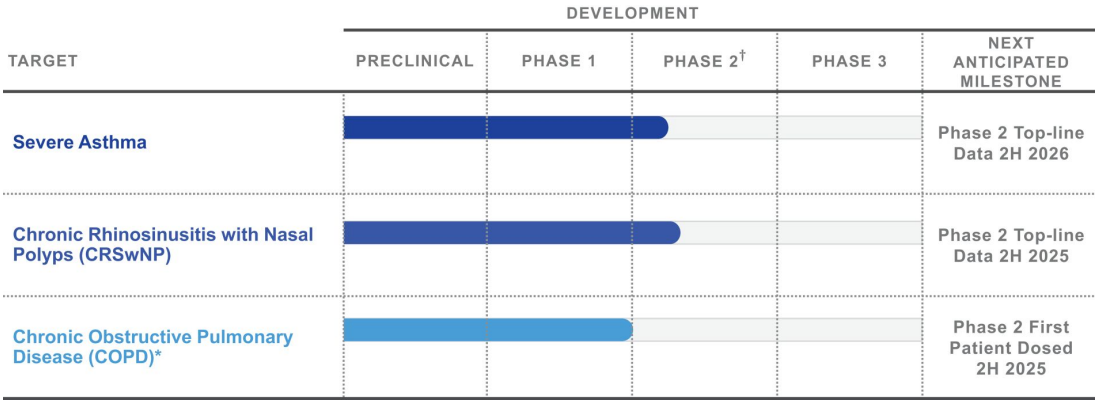
We are a clinical-stage biotechnology company developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. We are developing verekitug, the only known antagonist currently in clinical development that targets the receptor for Thymic Stromal Lymphopoietin ("TSLP"), a cytokine which is a clinically validated driver of inflammatory response positioned upstream of multiple signaling cascades that affect a variety of immune mediated diseases. Preclinical and clinical data to date demonstrate verekitug's highly potent inhibition of the TSLP receptor, which we believe will translate to a differentiated product profile, including improved clinical outcomes, substantially extended dosing intervals and the potential to treat a broad spectrum of patients. We have advanced this highly potent monoclonal antibody into separate Phase 2 trials for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps ("CRSwNP") and plan to initiate development in chronic obstructive pulmonary disease ("COPD"). Our experienced team is committed to maximizing verekitug's unique attributes to address the substantial unmet needs for patients underserved by today's standard of care.

There are six biologics approved for the treatment of severe asthma; three of these are also approved for CRSwNP. One biologic was recently approved for the treatment of COPD. Total estimated biologics sales in 2023 for asthma in the United States, Europe and Japan markets were approximately $7.5 billion. In December 2021, tezepelumab (marketed as Tezspire by Amgen Inc. ("Amgen") and AstraZeneca PLC ("AstraZeneca")), a monoclonal antibody targeting the TSLP ligand, not the receptor, was approved by the U.S. Food and Drug Administration ("FDA") as an add-on maintenance treatment for patients with severe asthma. Tezepelumab is the first and only treatment for severe asthma without any phenotype or biomarker limitation, highlighting the benefit of blocking TSLP signaling early in the inflammatory cascade as compared to other biologics' mechanisms of action which are further downstream. In May 2024, Amgen and AstraZeneca reported Phase 2a proof-of-concept data for tezepelumab for the treatment of moderate to very severe COPD at the American Thoracic Society ("ATS") International Conference. This trial reported a reduction in the frequency of COPD exacerbations that has supported advancement of tezepelumab into Phase 3 development for COPD. These clinical data further demonstrate the potential for a TSLP targeted therapy to treat a variety of inflammatory diseases. Despite the availability of existing biologics for severe respiratory disease, there remains a high unmet need that limits the utilization of these therapies, including suboptimal symptom control and frequent dosing intervals.

Verekitug is, to our knowledge, the only monoclonal antibody currently in clinical development that targets and inhibits the TSLP receptor. In May 2024, we presented full proof-of-concept data from our multicenter, randomized, double-blind, placebo-controlled Phase 1b multiple ascending dose ("MAD") clinical trial in asthma patients demonstrating that dosing with verekitug led to rapid and complete TSLP receptor occupancy, and reductions in fractional exhaled nitric oxide ("FeNO," a disease-related biomarker) and blood eosinophil levels ("eos," a disease-related biomarker) that were rapid, substantial and sustained for up to 24 weeks after the last dose. This study also demonstrated that verekitug is approximately 300-fold more potent than tezepelumab (based on published

tezepelumab data), which, combined with verekitug's pharmacokinetic ("PK") profile, enables an extended dosing interval of up to 24 weeks, compared to tezepelumab (four week dosing interval). Furthermore, clinical data from our Phase 1b MAD trial indicate an approximately 50% greater effect on FeNO than has previously been reported for tezepelumab. We have not conducted head-to-head clinical studies of verekitug against tezepelumab, and note that ongoing and future clinical trials for verekitug may produce differing clinical activity and tolerability results. Three Phase 1 clinical trials have been completed for verekitug across a total of 120 participants, including 32 patients with asthma. In these trials, which were not designed to support formal statistical comparisons, verekitug was well tolerated, demonstrated no evidence of clinically meaningful anti-drug antibodies ("ADAs"), and showed a predictable and consistent PK profile with high subcutaneous bioavailability. Although competitive product candidates may be sponsored by organizations with greater financial resources and expertise to support regulatory approval and market acceptance, we believe verekitug, if approved, will be the preferred biologic for the treatment of severe asthma, CRSwNP and COPD based on its extended dosing interval and effect on broadly accepted disease-associated biomarkers.

Our current clinical development plan for verekitug is summarized in the pipeline chart below. Having established clinical proof-of-concept in asthma, we are currently conducting two separate multi-national, placebo-controlled, randomized Phase 2 clinical trials to investigate the efficacy of two extended dosing intervals of 12 and 24 weeks for patients with severe asthma and 12 weeks for patients with CRSwNP. These trials have been designed using endpoints that, pending interactions with regulatory authorities, could allow data from these trials to support submissions for product approval. Data from these trials are expected in the second half of 2026 for severe asthma and the second half of 2025 for CRSwNP. Based on available data from Phase 1 trials with verekitug, we plan to initiate our first clinical trial in COPD and have commenced planning activities for a Phase 2 clinical trial, including development of a clinical trial protocol and regulatory approval strategy, and expect to dose the first COPD patient in the second half of 2025. Beyond these indications, we believe verekitug has broad potential, and we intend to leverage its unique attributes to develop it as a potential therapy for numerous TSLP-driven diseases.



† Phase 2 clinical trials in CRSwNP and severe asthma were initiated in January 2024 and March 2024, respectively, and enrollment is currently ongoing.

* Planning activities for a Phase 2 clinical trial in COPD have commenced, including development of a clinical trial protocol and regulatory approval strategy.

Leveraging TSLP biology to address unmet needs in severe asthma, CRSwNP and COPD

TSLP overview

Verekitug is a monoclonal antibody that targets and inhibits the TSLP receptor. TSLP is a member of a class of epithelial cytokines, also including IL-25 and IL-33, commonly referred to as alarmins. TSLP is primarily produced by epithelial cells, especially in the lung, gastrointestinal tract and skin. Dendritic cells, basophils, mast cells, keratinocytes and fibroblasts also produce TSLP with appropriate stimulation. In response to various environmental triggers, including viruses, bacteria, allergens, chemical irritants and physical injury, TSLP can initiate and amplify a wide range of innate and adaptive immune responses, including supporting epithelial barrier function, dendritic cell activation, type 2 innate lymphoid cell activation and survival, immune cell recruitment, induction of type 2 responses and regulation of B cell function. Beyond type 2 inflammation, data also support a role for TSLP in propagating non-type 2 inflammatory processes, including IL-17 production, modulation of airway structural cells and the promotion of fibrosis. As such, TSLP signaling is a central instigator of multiple downstream biologic pathways relevant to human diseases that are characterized by epithelial inflammation, including asthma, CRSwNP and COPD.

The TSLP signaling pathway is well-understood as a contributor to disease-driving proinflammatory pathways and is a clinically and commercially validated target for therapeutic development. Historically, development of biologics for severe asthma and related conditions has focused on type 2 inflammatory cytokines that are activated downstream in the TSLP signaling pathway, for instance IL-4, IL-5 and IL-13. However, in addition to its effect on type 2 inflammation, emerging evidence indicates that TSLP also impacts non-type 2 inflammation, which may result in broader downregulation of pathways relevant to the pathogenesis of multiple inflammatory diseases. We believe verekitug has the potential, if approved, to address unmet needs in multiple diseases characterized by TSLP-driven pathobiology due to the high potency and potential for extended dosing intervals that we have observed in our preclinical and clinical development to date.

Only one drug targeting the TSLP pathway has been approved for the treatment of severe asthma. In December 2021, tezepelumab (marketed as Tezspire by Amgen and AztraZeneca), a monoclonal antibody targeting the TSLP ligand, was approved by the FDA as an add-on maintenance treatment for patients with severe asthma. Tezepelumab is the first and only treatment for severe asthma without any phenotype or biomarker limitation, highlighting the benefit of blocking TSLP signaling early in the inflammatory cascade as compared to other biologics' mechanisms of action which are further downstream. In the Phase 3 clinical trial of tezepelumab in adults and adolescents with severe, uncontrolled asthma, patients who received tezepelumab had fewer exacerbations and better lung function, asthma control and health-related quality of life than those who received placebo. Based on pooled safety data from the clinical trials of tezepelumab, Tezspire's FDA approved label identifies hypersensitivity reactions following administration as a clinically significant adverse reaction, as well as pharyngitis, arthralgia and back pain as additional adverse reactions that occurred at an incidence of greater than or equal to 3% and more common than the placebo group. Furthermore, a Phase 2a clinical trial for tezepelumab in COPD patients, which demonstrated a clinically-significant reduction of COPD exacerbations, the most frequently reported adverse events for tezepelumab were worsening of COPD (12.1%) and incidents of COVID-19 infections (14.5%, trial commenced in July 2019), demonstrating a safety and tolerability profile consistent with that observed for tezepelumab in severe asthma. These clinical data further demonstrate the potential for a TSLP targeted therapy to treat a variety of inflammatory diseases.

Severe asthma

Asthma is a common respiratory disease characterized by chronic airway inflammation that is often underdiagnosed and under-treated. For some people, asthma can simply be a nuisance, for others it can

interfere with daily life and potentially even be life-threatening. Of the more than 25 million Americans living with asthma, it is estimated that 5% to 10% suffer from severe asthma. Severe asthma is defined as asthma that remains uncontrolled despite optimized treatment with high-dose inhaled corticosteroids or that requires high-dosed inhaled corticosteroids to prevent symptoms from becoming uncontrolled. It is estimated that approximately 90% of people with severe asthma are eligible for biologics, but only 440,000 patients are currently treated with biologics, suggesting more than 80% of eligible patients are not being optimally treated. U.S. sales in 2023 of biologics for the treatment of severe asthma is estimated to be approximately $6.0 billion.

These statistics show there is a large population of people living with uncontrolled symptoms of severe asthma. Key areas of unmet need for people living with severe asthma include improved control of exacerbations and symptoms and reduced treatment burden (e.g. need for frequent injections).

Chronic rhinosinusitis with nasal polyps (CRSwNP)

CRSwNP is an inflammatory disease of the upper airway, marked by chronic sinonasal inflammation and the presence of inflammatory polyps in the nasal passages and paranasal sinuses. It is estimated by Sanofi that approximately 900,000 patients in the United States and Europe suffer from CRSwNP. Nasal polyps are associated with significant morbidity and debilitating symptoms; it is estimated that 40% to 45% of people with severe asthma also have CRSwNP and that up to 65% of people with CRSwNP also have asthma, demonstrating a strong association between the two conditions.

The current treatment options for patients with CRSwNP are corticosteroids, surgery and, more recently, biologics. Although a treatment option, surgery does not guarantee symptom relief. Even with surgery, many people with CRSwNP remain symptomatic, with the recurrence rate of CRSwNP ranging from 20% to 60% within 18 months to four years and increasing to 79% after 12 years. Recurrence is particularly common for people with severe disease, including those also living with asthma or who have undergone prior surgeries. The recent FDA approvals of biologic treatments for CRSwNP have established a well-understood regulatory pathway and route to commercialization. It is estimated that approximately 200,000 adult patients in the United States, major European markets and Japan with CRSwNP are eligible for biologics.

Despite these available treatments, the quality of life studies and post-surgical recurrence rates clearly show that many people with CRSwNP have uncontrolled symptoms that are impacting their daily life and current treatments are not meeting their needs.

Chronic obstructive pulmonary disease (COPD)

Similar to asthma, COPD is a chronic inflammatory disease that obstructs airflow from the lungs. Chronic inflammation causes structural changes within the lungs, narrowing already small airways and damaging lung parenchyma which causes air sacs to lose functionality and decreases lung elasticity. It is typically caused by long-term exposure to irritants, most often cigarette smoke. People with a history of asthma are also more likely to have COPD. Historically, COPD has been considered to have elements of both type 2 and non-type 2 immune responses.

COPD is the third leading cause of death worldwide, causing approximately 3.2 million deaths in 2019. Almost 14.2 million Americans, or 6.5% of the adult population, reported they have been diagnosed with COPD, yet the actual number is likely higher given that more than half of adults with low pulmonary function were not aware that they had COPD.

Treatments for COPD are similar to those for asthma and CRSwNP, including inhaled steroids to reduce inflammation in the airways as well as bronchodilator inhalers to relax airways and improve airflow. Oxygen

and surgery may also be used for people with severe COPD. Dupilumab (marketed as Dupixent by Sanofi and Regeneron Pharmaceuticals, Inc.), an interleukin-4 receptor alpha antagonist, is the only biologic approved for the treatment of COPD.

Despite available treatments, 60% of all COPD patients report some limitations in their daily activity, with 45% being unable to work and 75% complaining of difficulty climbing stairs. Given the high levels of morbidity and mortality associated with COPD, the currently available medicines are not sufficient to control symptoms or disease progression.

Verekitug: Inhibiting TSLP signaling in severe asthma, CRSwNP and COPD

Verekitug is a novel recombinant fully human immunoglobulin G1 monoclonal antibody that binds to the TSLP receptor and inhibits its signaling. In 2021, we acquired verekitug from Astellas Pharma Inc. ("Astellas"). Astellas discovered the compound and completed preclinical studies and a Phase 1 single ascending dose ("SAD") trial, providing the early foundational work for our Phase 1b MAD trial. In those preclinical studies, which were not designed to support formal statistical comparisons, verekitug potently inhibited TSLP signaling. Additionally, verekitug inhibited cytokine production from CD4+ T cells, suggesting that it may be effective against type 2 and non-type 2 inflammation. In the Phase 1 SAD trial in 56 healthy volunteers, verekitug demonstrated a favorable safety profile with no drug-related serious treatment-emergent adverse events, dose proportional PK and a pharmacodynamic ("PD") effect consistent with TSLP antagonism.

We have conducted two additional clinical trials of verekitug: a Phase 1b MAD trial in patients with asthma and a Japanese ethnobridging study in healthy volunteers. Across the three clinical trials, we have data from 120 total participants, including 32 patients with asthma. In these trials, verekitug was well tolerated, had no clinically meaningful immunogenicity, and showed a predictable and consistent PK profile with high subcutaneous bioavailability.

Our Phase 1b MAD clinical trial, which enrolled 32 adult participants aged 18 to 60 with mild to moderate asthma, established clinical proof-of-concept for verekitug in asthma. In the trial, which was not designed to support formal statistical comparisons, verekitug demonstrated rapid, substantial and sustained target engagement and maintained maximal inhibition of disease-related biomarkers in patients with asthma for up to 24 weeks after the last study dose. Results of the Phase 1b study also demonstrated that verekitug is a potent inhibitor of the TSLP receptor and has the potential for an extending dosing interval compared to currently available treatments. Importantly, the PK/PD modeling that was done based on the preclinical data aligned very closely with these early clinical results, strengthening our understanding of verekitug's attributes and behavior in humans.

We are currently conducting two separate multi-national, placebo-controlled, randomized Phase 2 clinical trials to investigate the efficacy of two extended dosing intervals of 12 and 24 weeks for patients with severe asthma and 12 weeks for patients with CRSwNP. These trials have been designed using endpoints that, pending interactions with regulatory authorities, could allow data from these trials to support submissions for product approval. Data from these trials are expected in the second half of 2026 for severe asthma and the second half of 2025 for CRSwNP. Based on available data from Phase 1 trials with verekitug, we plan to initiate our first clinical trial in COPD and have commenced planning activities for a Phase 2 clinical trial, including development of a clinical trial protocol and regulatory approval strategy, and expect to dose the first COPD patient in the second half of 2025. Beyond these indications, we believe verekitug has broad potential, and we intend to leverage its unique attributes to develop it as a potential therapy for other TSLP-driven diseases.

Our team and investors

We have built a team with deep experience and a strong track record of execution that has allowed us to move from company inception to Phase 2 in less than three years. Our leadership team and board of directors have significant experience developing and commercializing innovative medicines, with deep expertise in severe asthma and other respiratory diseases. E. Rand Sutherland, M.D., M.P.H., our Chief Executive Officer ("CEO"), has more than 25 years of business and clinical experience, having most recently served as CEO of Seeker Biologics Inc., before that as President of Translate Bio, Inc. prior to its $3.2 billion acquisition by Sanofi, and before that in research and development and business unit roles at Sanofi developing and launching innovative medicines in immunology and rare diseases, including dupilumab. Before joining the biopharma industry, Dr. Sutherland was a Professor of Medicine at the University of Colorado and Chief of Pulmonary and Critical Care Medicine at National Jewish Health in Denver. Our Chief Medical Officer and Head of Research and Development, Aaron Deykin, M.D., leads our clinical development activities and strategy. Prior to joining us, Dr. Deykin was Senior Vice President of Clinical Sciences at Biogen, Inc. ("Biogen") overseeing biostatistics, statistical programming, biomarkers, clinical pharmacology, epidemiology and clinical operations for Biogen's pipeline globally. Dr. Deykin was previously Assistant Professor of Medicine at Harvard Medical School and a member of the Pulmonary and Critical Care faculty at Brigham and Women's Hospital, where he treated patients with asthma and other advanced respiratory diseases. Michael Paul Gray, M.B.A., our Chief Financial and Operating Officer, brings over 20 years of public and private leadership experience, including broad strategic, financial and operating experience in global life science companies. Mr. Gray previously held the same roles at Carmot Therapeutics, Inc. prior to its $2.7 billion acquisition by Roche Group. Our board of directors consists of highly experienced biotechnology executives and investors, including Ronald C. Renaud, Jr., M.B.A., CEO of Kailera Therapeutics, Inc., and Marcella Kuhlman Ruddy, M.D., M.S., Chief Medical Officer of Tectonic Therapeutic, Inc. and formerly Regeneron, as our independent directors. We have also assembled a team of well-known and respected advisors and investigators to provide perspective on our data and participate in our clinical program.

Since our inception, we have raised approximately $400 million from premier biotechnology investors. Prospective investors should not rely on the past investment decisions of our investors, as our investors may have different risk tolerances and have received their shares in prior offerings at prices lower than the price offered to the public in this offering.

Our strategy

Our mission is to develop verekitug to be the first approved antagonist of the TSLP receptor to benefit patients suffering from severe inflammatory diseases that are underserved by today's standard of care. The key components of our strategy to achieve this mission are:

- Leverage verekitug's unique mechanism of action to improve the treatment options for millions of patients living with severe inflammatory diseases.
- Advance our ongoing Phase 2 clinical trials for verekitug in severe asthma and CRSwNP.
- Expand the impact of verekitug through initiation of an additional development program in COPD.
- Maximize the potential of verekitug by identifying additional TSLP-driven diseases with high unmet needs that could be addressed by our product candidate.

Recent developments

Preliminary balance of cash, cash equivalents and short-term investments

As of September 30, 2024, we estimate that we had approximately $221.1 million in cash, cash equivalents and short-term investments.

This estimate was prepared based on information available as of the date of this prospectus and may vary from our actual financial position as of September 30, 2024. Our financial closing procedures as of and for the nine months ended September 30, 2024 are not yet complete and, as a result, our final results upon completion of those procedures may differ materially from our preliminary estimate. This preliminary estimate is subject to change, and any changes may be material. Further, this preliminary estimate does not present all information necessary for an understanding of our financial condition and liquidity as of and for the nine months ended September 30, 2024. This preliminary estimate should not be viewed as a substitute for financial statements prepared in accordance with accounting principles generally accepted in the United States and they are not necessarily indicative of the results to be achieved in any future period. Accordingly, you should not draw any conclusions based on the foregoing estimate and should not place undue reliance on this preliminary estimate. We assume no duty to update this preliminary estimate except as required by law.

The preliminary financial data included in the registration statement of which this prospectus forms a part has been prepared by, and is the responsibility of, our management. PricewaterhouseCoopers LLP has not audited, reviewed, examined, compiled, nor applied agreed-upon procedures with respect to this preliminary financial data. Accordingly, PricewaterhouseCoopers LLP does not express an opinion or any other form of assurance with respect thereto.

Risk factors summary

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks include, but are not limited to, the following:

- We are a clinical-stage biopharmaceutical company with a limited operating history, which may make it difficult to evaluate our current business and predict our future success and viability. We have incurred significant financial losses since our inception and anticipate that we will continue to incur significant financial losses for the foreseeable future.
- Even if this offering is successful, we will require additional funding in order to finance operations. If we are unable to raise capital when needed, or on acceptable terms, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.
- Verekitug is our only product candidate, and we are dependent on a third party having accurately generated, collected and reported data from certain preclinical studies that were previously conducted for verekitug.
- If we are unable to advance verekitug in clinical development for one or more of the indications that we are pursuing, obtain regulatory approval and ultimately commercialize verekitug, or experience significant delays in doing so, our business will be materially harmed.
- The successful development of pharmaceutical products involves a lengthy and expensive process and is highly uncertain.
- The regulatory approval processes of the U.S. Food and Drug Administration, the European Medicines Agency, and the European Commission and other comparable foreign regulatory authorities are lengthy,

time-consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for verekitug or any other potential future product candidates, our business will be substantially harmed.

- Verekitug represents a novel approach to the treatment of inflammatory diseases, which makes it difficult to predict its likelihood of success and the timing and cost of development and obtaining regulatory approval.
- If our clinical trials fail to replicate positive results from earlier preclinical studies or clinical trials conducted by us or third parties, we may be unable to successfully develop, obtain regulatory approval for or commercialize verekitug or any other potential future product candidates.
- We may incur unexpected costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of verekitug or any other potential future product candidates, which could prevent us from achieving our projected development and commercialization goals in the timeframes we announce and expect, and harm our business and results of operations. Many of the factors that cause or lead to a delay in the initiation or completion of clinical trials may also lead to the denial of regulatory approval or limit market acceptance of verekitug or any other potential future product candidates.
- Verekitug or any other potential future product candidates may cause undesirable side effects or have other properties that could delay or prevent regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following regulatory approval, if obtained.
- Even if verekitug or any other potential future product candidates receive regulatory approval, such product candidate may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success, in which case we may not generate significant revenues or become profitable.
- Competitive products may reduce or eliminate the commercial opportunity for verekitug or any other potential future product candidates, if approved. If our competitors develop technologies or product candidates more rapidly than we do, or their technologies or product candidates are more effective or safer than ours, our ability to develop and successfully commercialize verekitug or any other potential future product candidates may be adversely affected. Our competitors may have significantly greater financial resources and expertise such that they may be more successful than us in obtaining regulatory approval and achieving widespread market acceptance.
- We expect to expand our organization, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.
- Our ability to develop verekitug or any other potential future product candidates and our future growth depends on attracting, hiring and retaining our key personnel and recruiting additional qualified personnel.
- We currently rely, and plan to rely in the future, on third parties to conduct and support our clinical trials. If they do not perform satisfactorily, we may not be able to obtain regulatory approval or commercialize verekitug or any other potential future product candidates, or such approval or commercialization may be delayed, and our business could be substantially harmed.
- Our use of third parties to manufacture verekitug or any other potential future product candidates may increase the risk that we will not have sufficient quantities of verekitug or any other potential future product candidates, raw materials, active pharmaceutical ingredients or drug products when needed or at an acceptable cost.

- Our success is largely based upon our intellectual property and proprietary technologies, and we may be unable to protect and/or enforce our intellectual property.

The summary risk factors described above should be read together with the text of the full risk factors in the section titled "Risk factors" and the other information set forth in this prospectus, including our consolidated financial statements and the related notes and condensed consolidated financial statements and the related notes, as well as in other documents that we file with the Securities and Exchange Commission. The risks summarized above or described in full elsewhere in this prospectus are not the only risks that we face. Additional risks and uncertainties not presently known to us, or that we currently deem to be immaterial, may also materially adversely affect our business, financial condition, results of operations, and future growth prospects.

Corporate information

We were incorporated under the laws of the State of Delaware in April 2021 under the name Upstream Bio, Inc. Our principal corporate office is located at 890 Winter Street, Suite 200, Waltham, MA 02451, and our telephone number is (781) 208-2466. We have one subsidiary, Upstream Bio Securities Corporation, formed in November 2021 under the laws of the Commonwealth of Massachusetts. Our website address is www.upstreambio.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of being an emerging growth company and a smaller reporting company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (the "JOBS Act"). As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's discussion and analysis of financial condition and results of operations" disclosure;
- reduced disclosure about our executive compensation arrangements;
- not being required to hold advisory votes on executive compensation or to obtain stockholder approval of any golden parachute arrangements not previously approved;
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"); and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor's report on financial statements.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more;

(ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1.0 billion in non-convertible debt during the previous three years; or (iv) the date on which we are deemed to be a “large accelerated filer”, which would occur if the aggregate market value of our equity securities held by non-affiliates exceeds $700.0 million as of the last business day of our most recently completed second fiscal quarter. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Additionally, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, while we are an emerging growth company we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of these elections, the information that we provide in this prospectus, including our financial statements, may be different than the information you may receive from other public companies in which you hold equity interests. In addition, it is possible that some investors will find our common stock less attractive as a result of these elections, which may result in a less active trading market for our common stock and higher volatility in our share price.

We are also a “smaller reporting company,” meaning that the market value of our shares held by non-affiliates plus the aggregate amount of gross proceeds to us as a result of this offering is less than $700.0 million and our annual revenue was less than $100.0 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our shares held by non-affiliates is less than $250.0 million or (ii) our annual revenue was less than $100.0 million during the most recently completed fiscal year and the market value of our shares held by non-affiliates is less than $700.0 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, 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, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

The offering

Common stock offered by us	15,000,000 shares.
Option to purchase additional shares	We have granted the underwriters an option for a period of 30 days to purchase up to 2,250,000 additional shares of common stock from us at the public offering price, less underwriting discounts and commissions on the same terms as set forth in this prospectus.
Common stock to be outstanding immediately after this offering	51,341,695 shares (or 53,591,695 shares if the underwriters exercise their option to purchase additional shares in full).
Use of proceeds	We estimate that the net proceeds from the sale of shares of our common stock in this offering will be approximately $233.1 million, or $268.7 million if the underwriters exercise their option to purchase additional shares in full, based on the initial public offering price of $17.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. The principal purposes of this offering are to create a public market for our common stock and thereby facilitate future access to the public equity markets, increase our visibility in the marketplace and obtain additional capital. We currently intend to use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments: (i) to advance verekitug through the completion of our multi-national, placebo-controlled, randomized Phase 2 clinical trial in severe asthma, and to initiate subsequent Phase 3 clinical development; (ii) to advance verekitug through the completion of our multi-national, placebo-controlled, randomized Phase 2 clinical trial in CRSwNP, and to initiate subsequent Phase 3 clinical development; (iii) to expand the development of verekitug for the treatment of COPD, including for external clinical trial-related costs for the initiation and ongoing conduct of a Phase 2 clinical trial; (iv) for external costs associated with verekitug drug substance, drug product, process development or other manufacturing activities to support the continued development of verekitug in severe asthma, CRSwNP, COPD and potential future additional indications; and (v) the remainder for additional continued research and development efforts relating to verekitug, including expansion into potential additional indications, as well as for working capital and other general corporate purposes. See the section titled “Use of proceeds” for additional information.

Risk factors	You should carefully read the "Risk factors" section of this prospectus for a discussion of factors that you should consider before deciding to invest in our common stock.
Nasdaq Global Select Market symbol	"UPB"

The number of shares of our common stock to be outstanding after this offering is based on 36,341,695 shares of common stock outstanding as of June 30, 2024, after giving effect to the automatic conversion of all outstanding shares of our redeemable convertible preferred stock as of June 30, 2024 into the aggregate of 33,321,149 shares of common stock immediately prior to the completion of this offering, and excludes:

- 6,224,230 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2024 under our 2021 Stock Option and Grant Plan ("2021 Plan"), with a weighted-average exercise price of $4.96 per share;
- 74,027 shares of common stock reserved for future issuance as of June 30, 2024 under the 2021 Plan, which ceased to be available for issuance at the time that our 2024 Stock Option and Incentive Plan ("2024 Plan") became effective (which includes options to purchase an aggregate of 35,666 shares of our common stock, at a weighted-average exercise price of $10.62 per share, that were granted subsequent to June 30, 2024);
- 3,180,000 shares of our common stock reserved for future issuance under our 2024 Plan, which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2024 Plan and any shares underlying outstanding stock awards granted under the 2021 Plan that expire or are repurchased, forfeited, cancelled, or withheld; and
- 488,467 shares of common stock reserved for future issuance under our 2024 Employee Stock Purchase Plan ("ESPP"), which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP.

Unless otherwise indicated, all information in this prospectus reflects or assumes the following:

- the automatic conversion of all 31,764,693 outstanding shares of our Series A and Series B redeemable convertible preferred stock in the aggregate, as of June 30, 2024, into 33,321,149 shares of common stock immediately prior to the completion of this offering;
- no exercise of the outstanding options described above;
- no exercise by the underwriters of their option to purchase up to 2,250,000 additional shares of common stock in this offering;
- a 1.049-for-one split of our common stock, which was effected on October 4, 2024 and a corresponding adjustment to the ratio at which our redeemable convertible preferred stock will convert into common stock; and
- the filing and effectiveness of our third amended and restated certificate of incorporation to be in effect immediately prior to the completion of this offering and second amended and restated bylaws which became effective upon the effectiveness of the registration statement of which this prospectus forms a part.

Summary consolidated financial data

The following table sets forth our summary consolidated statements of operations for the years ended December 31, 2023 and 2022 and for the six months ended June 30, 2024 and 2023 and our summary condensed consolidated balance sheet data as of June 30, 2024. The summary consolidated statements of operations data for the years ended December 31, 2023 and 2022 have been derived from our audited consolidated financial statements included elsewhere in this prospectus. The summary condensed consolidated statements of operations data for the six months ended June 30, 2024 and 2023 and summary condensed consolidated balance sheet data as of June 30, 2024 have been derived from our unaudited condensed consolidated financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that should be expected in any future periods, and our interim results are not necessarily indicative of the results that may be expected for the full year or any other period. Our unaudited interim financial statements were prepared on the same basis as our audited financial statements and include, in the opinion of management, all adjustments, consisting of normal recurring adjustments, that are necessary for the fair statement of the financial information set forth in those financial statements. You should read the following summary financial data together with "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and the related notes included elsewhere in this prospectus. The summary consolidated financial data included in this section are not intended to replace the consolidated financial statements and are qualified in their entirety by our consolidated financial statements and the related notes included elsewhere in this prospectus.

	Year ended December 31,		Six months ended June 30,	
(in thousands, except per share amounts)	**2023**	**2022**	**2024**	**2023**
Consolidated statement of operations data:				
Collaboration revenue—related party	$ 2,380	$ 1,212	$ 1,150	$ 1,309
Operating expenses:				
Research and development	31,799	18,657	25,760	12,457
General and administrative	10,695	6,464	7,943	5,250
Total operating expenses	42,494	25,121	33,703	17,707
Loss from operations	(40,114)	(23,909)	(32,553)	(16,398)
Other income (expense):				
Change in fair value of preferred stock tranche right liabilities	15,527	(77)	2,859	9,769
Interest income	4,165	205	4,143	1,119
Other expense, net	(115)	(87)	(21)	(92)
Total other income, net	19,577	41	6,981	10,796
Net loss	$ (20,537)	$ (23,868)	$ (25,572)	$ (5,602)
Redeemable convertible preferred stock cumulative dividends	(17,718)	—	(8,000)	(11,416)
Net loss attributable to common stockholders	$ (38,255)	$ (23,868)	$ (33,572)	$ (17,018)
Net loss per share attributable to common stockholders, basic and diluted [1]	$ (12.95)	$ (8.13)	$ (11.18)	$ (5.79)
Weighted-average common shares outstanding, basic and diluted	2,953,756	2,937,197	3,002,173	2,937,809
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited) [2]	$ (0.57)		$ (0.70)	
Pro forma weighted average common shares outstanding, basic and diluted (unaudited)	36,274,905		36,323,322	

(1) See Note 12—"Net loss per share" to our audited consolidated financial statements and Note 12—"Net loss per share" to our unaudited condensed consolidated financial statements, included elsewhere in this prospectus for details on the calculation of basic and diluted net loss per share attributable to common stockholders.

(2) Pro forma basic and diluted net loss per share attributable to common stockholders has been prepared to give effect to adjustments to our capital structure arising in connection with the completion of this offering and is calculated by dividing the pro forma net loss attributable to common stockholders by the pro forma weighted-average common shares outstanding for the period. The pro forma net loss attributable to common stockholders used in the calculation of pro forma basic and diluted net loss per share attributable to common stockholders adjusts net loss attributable to common stockholders to remove the cumulative dividends on redeemable convertible preferred stock of $17.7 million and $8.0 million for the year ended December 31, 2023 and six months ended June 30, 2024, respectively. Pro forma weighted-average common shares outstanding is computed by adjusting the weighted-average common shares outstanding to give pro forma effect to the automatic conversion of all shares of our redeemable convertible preferred stock outstanding as of June 30, 2024 into 33,321,149 shares of common stock as if such conversion had occurred on January 1, 2023. Pro forma basic and diluted net loss per share attributable to common stockholders does not include the effect of the shares expected to be sold in this offering.

	As of June 30, 2024		
(in thousands)	**Actual**	**Pro forma(1)**	**Pro forma as adjusted(2)**
Consolidated balance sheet data:			
Cash, cash equivalents and short-term investments	$ 235,804	$ 235,804	$ 469,077
Working capital(3)	232,787	232,787	467,274
Total assets	244,511	244,511	476,437
Redeemable convertible preferred stock	380,874	—	—
Total stockholders' (deficit) equity	(146,607)	234,267	467,407

(1) Gives effect to (i) the automatic conversion of all 31,764,693 outstanding shares of our Series A and Series B redeemable convertible preferred stock in the aggregate, as of June 30, 2024, into 33,321,149 shares of our common stock immediately prior to the completion of this offering, and (ii) the filing and effectiveness of our third amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering.

(2) Gives effect to (i) the pro forma adjustments set forth in footnote (1) above and (ii) the issuance and sale of 15,000,000 shares of our common stock in this offering at the initial public offering price of $17.00 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us (of which $0.5 million was recorded in accounts payable, $0.7 million was recorded in accrued expenses and other current liabilities, and $0.1 million was paid as of June 30, 2024).

(3) We define working capital as current assets less current liabilities. See our condensed consolidated financial statements and the related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

Risk factors

Investing in our common stock involves a high degree of risk. You should consider and read carefully all of the risks and uncertainties described below, as well as the other information in this prospectus, including our consolidated financial statements and the related notes appearing elsewhere in this prospectus and "Management's discussion and analysis of financial condition and results of operations" before deciding whether to invest in our common stock. The risks described below are not the only ones facing us. The following risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition, results of operations and growth prospects. In such an event, the trading price of our common stock could decline, and you may lose all or part of your investment.

This prospectus also contains forward-looking statements and estimates that involve risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. Our actual results could differ materially from those anticipated in our forward-looking statements as a result of specific factors, including the risks and uncertainties described below.

Risks related to our limited operating history, financial condition and need for additional capital

We are a clinical-stage biopharmaceutical company with a limited operating history, which may make it difficult to evaluate our current business and predict our future success and viability. We have incurred significant financial losses since our inception and anticipate that we will continue to incur significant financial losses for the foreseeable future.

We are a clinical-stage biopharmaceutical company with a limited operating history. We were formed in April 2021 and our operations to date have been limited to pre-commercial activities. We have not yet demonstrated an ability to generate revenues, obtain regulatory approvals, manufacture any product on a commercial scale or arrange for a third party to do so on our behalf or conduct sales and marketing activities necessary for successful product commercialization. Our limited operating history as a company makes any assessment of our future success and viability subject to significant uncertainty. We will encounter risks and difficulties frequently experienced by early-stage biopharmaceutical companies in rapidly evolving fields, and we have not yet demonstrated an ability to successfully overcome such risks and difficulties. If we do not address these risks and difficulties successfully, our business will suffer.

We have no products approved for commercial sale and have not generated any revenue from product sales to date. Verekitug is currently our only product candidate. We will continue to incur significant research and development and other expenses related to our preclinical and clinical development of verekitug and ongoing operations. As a result, we are not profitable and have incurred losses in each period since our inception. Net losses and negative cash flows have had, and will continue to have, an adverse effect on our stockholders' deficit and working capital. Our net losses totaled $20.5 million and $23.9 million for the years ended December 31, 2023 and 2022, respectively, and $25.6 million and $5.6 million for the six months ended June 30, 2024 and 2023, respectively. As of June 30, 2024, we had an accumulated deficit of $153.5 million. We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we continue our research and development of, and seek regulatory approvals for, verekitug in multiple indications.

We anticipate that our expenses will increase substantially if, and as, we:

- advance verekitug through clinical development;
- seek regulatory approvals for verekitug in indications for which clinical trials are successful;

- hire additional clinical, quality control, medical, scientific and other technical personnel to support the ongoing development of verekitug;
- experience an increase in headcount as we expand our research and development organization and market development and pre-commercial planning activities;
- undertake any pre-commercial or commercial activities required to establish sales, marketing and distribution capabilities;
- seek to identify, acquire and develop additional product candidates, including through business development efforts to invest in or in-license other technologies or product candidates;
- maintain, expand and protect our intellectual property portfolio;
- make milestone, royalty or other payments due under our license agreements and any potential future in-license or collaboration agreements; and
- make milestone, royalty, interest or other payments due under any potential future financing or other arrangements with third parties.

Biopharmaceutical product development entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval, secure market access and reimbursement and become commercially viable, and therefore any investment in us is highly speculative. Accordingly, before making an investment in us, you should consider our prospects, factoring in the costs, uncertainties, delays and difficulties frequently encountered by companies in clinical development, especially clinical-stage biopharmaceutical companies such as ours. Any predictions you make about our future success or viability may not be as accurate as they would otherwise be if we had a longer operating history or a history of successfully developing and commercializing pharmaceutical products. We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives.

Additionally, our expenses could increase beyond our expectations if we are required by the U.S. Food and Drug Administration ("FDA"), the European Medicines Agency ("EMA"), the European Commission, or other comparable foreign regulatory authorities to perform clinical trials in addition to those that we currently expect, or if there are any delays in establishing appropriate manufacturing arrangements for or in completing our clinical trials or the development of verekitug.

Even if this offering is successful, we will require additional funding in order to finance operations. If we are unable to raise capital when needed, or on acceptable terms, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

Developing biopharmaceutical products, including conducting preclinical studies and clinical trials, is a time-consuming, expensive and uncertain process that takes years to complete. We expect our expenses to continue to increase in connection with our ongoing activities, particularly as we conduct clinical trials of, and seek regulatory and marketing approval for, verekitug in multiple indications. Even if verekitug or our potential future product candidates are approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. To date, we have funded our operations principally through private financings. We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the clinical development of verekitug, and commence additional clinical trials.

As of December 31, 2023 and June 30, 2024, we had cash, cash equivalents and short-term investments in the amount of $109.8 million and $235.8 million, respectively. Based upon our current operating plan, we believe

that the net proceeds from this offering together with our existing cash, cash equivalents and short-term investments will enable us to fund our operating expenses and capital expenditure requirements through mid-2027. We have based this estimate on assumptions that may prove to be wrong, and we could expend our available capital resources sooner than we expect. We may also raise additional financing on an opportunistic basis in the future. For example, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Attempting to secure additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop verekitug. Our future capital requirements will depend on many factors, including but not limited to:

- the scope, timing, progress, costs and results of the ongoing development of verekitug as well as for potential discovery, preclinical development and clinical trials for other potential future product candidates;
- the number of clinical trials required for regulatory approval of verekitug or our potential future product candidates;
- the costs, timing and outcome of regulatory review of verekitug or our potential future product candidates;
- the costs associated with acquiring or licensing additional product candidates, technologies or assets, including the timing and amount of any milestones, royalties or other payments due in connection with our acquisitions and licenses;
- the cost of manufacturing clinical and commercial supplies of verekitug or our potential future product candidates;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims, including any claims by third parties that we are infringing upon their intellectual property rights;
- the effectiveness of our approach to identifying target patient populations;
- our ability to maintain existing, and establish new, strategic collaborations or other arrangements and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement;
- the costs and timing of future commercialization activities, including manufacturing, marketing, sales and distribution, for verekitug or any other potential future product candidates for which we receive marketing approval;
- the revenue, if any, received from commercial sales of verekitug or any other potential future product candidates for which we receive marketing approval;
- expenses to attract, hire and retain skilled personnel;
- the costs of operating as a public company;
- our ability to establish a commercially viable pricing structure and obtain approval for coverage and adequate reimbursement from third-party and government payors;
- the effect of macroeconomic trends including inflation and rising interest rates;
- addressing any potential supply chain interruptions or delays;
- the effect of competing technological and market developments; and
- the extent to which we acquire or invest in business, products and technologies.

Because of the numerous risks and uncertainties associated with research and development of product candidates, we are unable to predict the timing or amount of our working capital requirements. In addition, if we obtain regulatory approval for verekitug or any other potential future product candidates, we expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution which make it difficult to predict when or if we will be able to achieve or maintain profitability. Furthermore, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in order to support our continuing operations. Our ability to raise additional funds will depend on financial, economic, political and market conditions and other factors, over which we may have no or limited control. Additional funds may not be available when we need them, on terms that are acceptable to us, or at all. If we fail to obtain necessary capital when needed on acceptable terms, or at all, it could force us to delay, limit, reduce or terminate our product development programs, future commercialization efforts or other operations.

Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to verekitug or any other potential future product candidates.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations with our existing cash, cash equivalents and short-term investments, the net proceeds from this offering, any future equity or debt financings and upfront and milestone and royalties payments, if any, received under any future licenses or collaborations. If we raise additional capital through the sale of equity or convertible debt securities, or issue any equity or convertible debt securities in connection with a collaboration agreement or other contractual arrangement, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a holder of our common stock. In addition, the possibility of such issuance may cause the market price of our common stock to decline. Debt financing, if available, may result in increased fixed payment obligations and involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends or acquiring, selling or licensing intellectual property rights or assets, which could adversely impact our ability to conduct our business.

If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our intellectual property, technologies, future revenue streams or verekitug or any other potential future product candidates or grant licenses on terms that may not be favorable to us. We could also be required to seek funds through arrangements with collaborators or others at an earlier stage than otherwise would be desirable. Any of these occurrences may have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Risks related to our business

Verekitug is our only product candidate, and we are dependent on a third party having accurately generated, collected and reported data from certain preclinical studies that were previously conducted for verekitug.

We currently have a single product candidate, verekitug, which is in Phase 2 clinical development for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps (“CRSwNP”), and we also plan to initiate development in chronic obstructive pulmonary disease (“COPD”). Our business presently depends entirely on our ability to successfully develop, obtain regulatory approval for, and commercialize verekitug for one or more of the indications that we are pursuing in a timely manner. This may make an investment in our company riskier than similar companies that have multiple product candidates in active development and may be able to better sustain the delay or failure of a lead product candidate.

In addition, our assumptions about verekitug's development potential are partially based on data generated from preclinical studies conducted by Astellas Pharma, Inc. ("Astellas"), which sold the rights to verekitug to us pursuant to an asset purchase agreement in October 2021. We are dependent on Astellas having conducted its research and development in accordance with the applicable protocols, informed consent, legal and regulatory requirements, and scientific standards; having accurately reported the results of all preclinical studies conducted with respect to verekitug and having correctly collected the data from these studies. If these activities were not compliant, accurate or correct, the clinical development, regulatory approval or commercialization of verekitug will be adversely affected. Furthermore, we may observe materially and adversely different results as we continue to conduct our clinical trials. If we are unable to develop, receive marketing approval for and successfully commercialize verekitug, or if we experience delays as a result of any of the above factors or otherwise, our business would be significantly harmed.

If we are unable to advance verekitug in clinical development for one or more of the indications that we are pursuing, obtain regulatory approval and ultimately commercialize verekitug, or experience significant delays in doing so, our business will be materially harmed.

To date, as an organization, we have not completed the development of any product candidate, and verekitug remains in clinical development. Our future success and ability to generate revenue is dependent on our ability to successfully develop, obtain regulatory approval for and commercialize verekitug or any other potential future product candidates. Verekitug and any other potential future product candidates will require substantial additional investment for clinical development, regulatory review and approval in one or more jurisdictions. If verekitug or any other potential future product candidates encounter safety or efficacy problems, development delays or regulatory issues or other problems, our development plans and business would be materially harmed.

We may not have the financial resources to continue development of verekitug or any other potential future product candidates if we experience any issues that delay or prevent regulatory approval of, or our ability to commercialize, verekitug or any potential future product candidates, including:

- our inability to demonstrate to the satisfaction of the FDA, EMA, the European Commission, or other comparable foreign regulatory authorities that verekitug is, or any other potential future product candidates are, safe and effective;
- insufficiency of our financial and other resources to complete the necessary clinical trials and preclinical studies;
- negative or inconclusive results from our clinical trials, preclinical studies or the clinical trials of others for product candidates similar to ours, leading to a decision or requirement to conduct additional clinical trials or preclinical studies or abandon a program;
- product-related adverse events experienced by subjects in our clinical trials, or by individuals using drugs or therapeutic biologics similar to verekitug or any other potential future product candidates;
- delays in submitting an Investigational New Drug ("IND") application or other regulatory submission to the FDA, EMA, or other comparable foreign regulatory authorities, or delays or failure in obtaining the necessary approvals from regulators to commence a clinical trial or a suspension, termination, or hold, of a clinical trial once commenced;
- conditions imposed by the FDA, the competent authorities of individual EU Member States or other comparable foreign regulatory authorities regarding the scope or design of our clinical trials;
- poor performance of verekitug or any other potential future product candidates during clinical trials;

- better than expected performance of control arms, such as placebo groups, which could lead to negative or inconclusive results from our clinical trials;
- delays in enrolling subjects in our clinical trials;
- high drop-out rates of subjects from our clinical trials;
- inadequate supply or quality of verekitug or any other potential future product candidates or other materials necessary for the conduct of our clinical trials;
- higher than anticipated clinical trial or manufacturing costs;
- unfavorable FDA, EMA, competent authorities of individual EU Member States, or other comparable foreign regulatory authority inspection and review of our clinical trial sites;
- failure of our third-party contractors or investigators to comply with regulatory requirements or the clinical trial protocol or otherwise meet their contractual obligations in a timely manner, or at all;
- delays and changes in regulatory requirements, policies and guidelines, including the imposition of additional regulatory oversight around clinical testing generally or with respect to our therapies in particular; or
- varying interpretations of data by the FDA, EMA, the European Commission, and other comparable foreign regulatory authorities.

We are currently conducting, and may in the future conduct, clinical trials for verekitug or any other potential future product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials.

We are currently conducting, and may in the future conduct, clinical trials for verekitug or any other potential future product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials. We are currently conducting clinical trials outside the United States, including but not limited to in Canada, Japan, South Korea, South Africa, the United Kingdom ("UK") and countries in South America and the European Union, and we expect to continue to conduct trials internationally in the future. The acceptance of data from clinical trials conducted outside the United States or another jurisdiction by the FDA or any other comparable foreign regulatory authorities may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless the data are applicable to the U.S. population and U.S. medical practice, the trials were performed by clinical investigators of recognized competence and pursuant to Good Clinical Practice ("GCP") regulations, and the FDA can validate the data through on-site inspections 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, including in relation to the use of data from clinical trials conducted in foreign jurisdictions. In addition, such foreign trials are 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 comparable foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. If the FDA or any comparable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which could be costly and time-consuming, and which may result in verekitug or any other potential future product candidates that we may develop being delayed or not receiving approval for commercialization in the applicable jurisdiction.

The successful development of pharmaceutical products involves a lengthy and expensive process and is highly uncertain.

Successful development of pharmaceutical products is highly uncertain and is dependent on numerous factors, many of which are beyond our control. Product candidates that appear promising in the early phases of development may fail to reach the market for several reasons, including:

- clinical trial results may show product candidates to be less effective than expected (for example, a clinical trial could fail to meet its primary or key secondary endpoint(s)) or have an unacceptable safety or tolerability profile;
- failure to receive the necessary regulatory approvals or a delay in receiving such approvals, which, among other things, may be caused by patients who fail the trial screening process, slow enrollment in clinical trials, patients dropping out of trials, patients lost to follow-up, length of time to achieve trial endpoints, additional time requirements for data analysis or a Biologics License Application ("BLA") or similar foreign application preparation, discussions with the FDA, an FDA request for additional preclinical or clinical data (such as long-term toxicology studies) or unexpected safety or manufacturing issues;
- preclinical study results may show verekitug or any other potential future product candidates to have harmful side effects;
- post-marketing approval requirements; or
- the proprietary rights of others and their competing products and technologies that may prevent verekitug or any other potential future product candidates from being commercialized.

The length of time necessary to complete clinical trials and submit an application for marketing approval for a final decision by a regulatory authority varies significantly from one product candidate to the next and from one country or jurisdiction to the next and may be difficult to predict.

Furthermore, any product candidate we develop and the activities associated with its development and commercialization, including its design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, and distribution, are subject to comprehensive regulation by the FDA and other regulatory authorities in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for verekitug or any other potential future product candidates will prevent us from commercializing the product candidate in a given jurisdiction. We have not received approval to market any product candidates from regulatory authorities in any jurisdiction, and it is possible that verekitug or any of our other potential future product candidates will not ever obtain regulatory approval.

We have no experience as an organization in submitting and supporting the applications necessary to gain marketing approvals and expect to rely on third-party contract research organizations ("CROs") or regulatory consultants to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Securing regulatory approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. Any product candidates we develop may not be effective, may be only moderately effective, or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude its obtaining marketing approval or prevent or limit commercial use.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially

based upon a variety of factors, including the type, complexity, and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have 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 studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent marketing approval of a product candidate. Any marketing approval that we may ultimately obtain could be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

Even if we are successful in obtaining marketing approval, commercial success of any approved products will also depend in large part on the availability of coverage and adequate reimbursement from third-party payors, including government payors such as the Medicare and Medicaid programs and comparable foreign programs and managed care organizations in the United States or country-specific governmental organizations in foreign countries, which may be affected by existing and future healthcare reform measures designed to reduce the cost of healthcare. Third-party payors could require us to conduct additional studies, including post-marketing studies related to the cost effectiveness of a product, to qualify for reimbursement, which could be costly and divert our resources. If government and other healthcare payors were not to provide coverage and adequate reimbursement for our products once approved, market acceptance and commercial success would be reduced.

In addition, if verekitug or any other potential future product candidates receive marketing approval, we will be subject to significant regulatory obligations regarding the submission of safety and other post-marketing information and reports and registration, and will need to continue to comply (or ensure that our third-party providers comply) with current Good Manufacturing Practices (“cGMPs”) and GCPs for any clinical trials that we conduct post-approval. In addition, there is always the risk that we, a regulatory authority or a third party might identify previously unknown problems with a product post-approval, such as adverse events of unanticipated severity or frequency. Compliance with these requirements is costly, and any failure to comply or other issues with verekitug or any other potential future product candidates post-approval could adversely affect our business, financial condition, results of operations and growth prospects.

Certain estimates of market opportunity and forecasts included in this prospectus may prove to be smaller than we believe.

The estimates of market opportunity and forecasts of market growth included in this prospectus may prove to be smaller than we believe, 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 initial focus is on the development of verekitug for the treatment of severe respiratory disorders, including severe asthma, CRSwNP and COPD. Our projections of addressable patient populations within these indications are based on our estimates and independent market research, industry and general publications obtained from third parties. Market opportunity estimates and growth forecasts included in this prospectus are subject to significant uncertainty and are based on assumptions and estimates. These estimates, which have been derived from a variety of sources, including scientific literature, surveys of clinics, patient foundations and market research, may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these indications. Additionally, the potentially addressable patient population may not ultimately be amenable to treatment with our product candidate if we cannot achieve our intended dosing interval. Our market opportunity may also be limited by current and future products of our competitors that are already available in the market or may enter the market for such patients. If any of our estimates prove to be inaccurate, the market opportunity for verekitug could be significantly diminished and have an adverse material impact on our business.

Due to the significant resources required for drug development and depending on our ability to access capital, we must prioritize the development of verekitug. Moreover, we may fail to expend our limited resources on the development of verekitug for the treatment of additional indications or for the development of other potential future product candidates that may have been more profitable or for which there is a greater likelihood of success.

Our product candidate, verekitug for the treatment of severe asthma and CRSwNP, is currently in Phase 2 clinical development in each of these indications, and we plan to initiate clinical development for verekitug in COPD. Our initial focus is on developing verekitug for the treatment of severe respiratory disorders.

Due to the significant resources required for the development of verekitug, we must decide which indications to pursue and advance and the amount of resources to allocate to each. Our decisions concerning the allocation of research, development, collaboration, management and financial resources toward particular indications may not lead to the development of viable commercial products and may divert resources away from better opportunities. If we make incorrect determinations regarding the viability or market potential of verekitug or misread trends in the pharmaceutical industry, our business, financial condition, results of operations and growth prospects could be materially and adversely affected. As a result, we may fail to capitalize on viable commercial products or profitable market opportunities, be required to forego or delay pursuit of opportunities verekitug or any potential future product candidates with other diseases and disease pathways that may later prove to have greater commercial potential than those we choose to pursue, or relinquish valuable rights to verekitug through collaboration, licensing or royalty arrangements in cases in which it would have been advantageous for us to invest additional resources to retain sole development and commercialization rights.

If we successfully commercialize verekitug, our results of operations will be affected by the level of royalty payments that we are required to pay to Regeneron.

In connection with our Asset Purchase Agreement with Astellas, we also entered into a letter agreement (the “Regeneron Letter Agreement”) with Astellas and Regeneron Pharmaceuticals Inc. (“Regeneron”). Under the Regeneron Letter Agreement, we assumed from Astellas an obligation to make mid-single-digit percentage royalty payments to Regeneron upon the commercialization of products developed from materials originally licensed to Astellas. The payment of royalties may have a negative effect on our results of operations and our ability to reinvest capital generated from commercialization to develop verekitug in additional indications or grow our company. Furthermore, any failure on our part to pay royalties owed to Regeneron could impact our rights to verekitug, lead to the initiation of legal proceedings against us and thereby adversely affect our business. For additional information on the Regeneron Letter Agreement, see the section titled “Business—Asset purchase and license agreements—Asset acquisition from Astellas” included elsewhere in this prospectus.

We may seek to grow our business through acquisitions or investments in new or complementary businesses, products or technologies, through the licensing of products or technologies from third parties or other strategic alliances. The failure to manage acquisitions, investments, licenses or other strategic alliances, or the failure to integrate them with our existing business, could have a material adverse effect on our operating results, dilute our stockholders’ ownership, increase our debt or cause us to incur significant expense.

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing clinician and patients’ needs, competitive technologies and market pressures. Accordingly, from time to time we may consider opportunities to acquire, make investments in or license other technologies, products and businesses that may enhance our capabilities, complement our existing products and technologies or expand the breadth of our markets or customer base. Potential and completed acquisitions, strategic investments, licenses and other alliances involve numerous risks, including:

- difficulty assimilating or integrating acquired or licensed technologies, products, employees or business operations;

- issues maintaining uniform standards, procedures, controls and policies;
- unanticipated costs associated with acquisitions or strategic alliances, including the assumption of unknown or contingent liabilities and the incurrence of debt or future write-offs of intangible assets or goodwill;
- diversion of management's attention from our core business and disruption of ongoing operations;
- adverse effects on existing business relationships with suppliers, sales agents, healthcare facilities, surgeons and other healthcare professionals;
- risks associated with entering new markets in which we have limited or no experience;
- potential losses related to investments in other companies;
- potential loss of key employees of acquired businesses; and
- increased legal and accounting compliance costs.

We do not know if we will be able to identify acquisitions or strategic relationships we deem suitable, whether we will be able to successfully complete any such transactions on favorable terms, if at all, or whether we will be able to successfully integrate any acquired business, product or technology into our business or retain any key personnel, suppliers, sales agent, healthcare facilities, physicians or other healthcare providers. Our ability to successfully grow through strategic transactions depends upon our ability to identify, negotiate, complete and integrate suitable target businesses, technologies or products and to obtain any necessary financing. These efforts could be expensive and time-consuming and may disrupt our ongoing business and prevent management from focusing on our operations.

To finance any acquisitions, investments or strategic alliances, we may choose to issue shares of our common stock as consideration, which could dilute the ownership of our stockholders. If the price of our common stock is low or volatile, we may be unable to consummate any acquisitions, investments or strategic alliances using our common stock as consideration. Additional funds may not be available on terms that are favorable to us, or at all.

We, our collaborators, and our service providers are subject to a variety of stringent and evolving privacy and data security laws, regulations, and rules, contractual obligations, industry standards, policies, and other obligations related to privacy and data security. Any actual or perceived failure to comply with such obligations could expose us to significant fines or other penalties and otherwise harm our business and operations.

In the ordinary course of our business, we and the third parties upon which we rely collect, receive, store, or otherwise process personal data, including information we may collect about participants in our clinical trials. Our data processing activities subject us to numerous, evolving privacy and data security obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contractual requirements, and other obligations relating to privacy and data security.

The legislative and regulatory framework for the processing of personal data worldwide is rapidly evolving in a manner that is increasingly stringent and, globally, this legal and regulatory framework is likely to remain uncertain for the foreseeable future. In the United States, numerous federal, state and local laws and regulations, including federal health information privacy laws, state information security and data breach notification laws, federal consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), state consumer protection and privacy laws, and other similar laws (e.g., wiretapping and communications interception laws) govern the processing of health-related and other personal data.

At the state level, numerous U.S. states have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording

individuals certain rights concerning their personal data. Similar laws are being considered in several other states, as well as at the federal and local levels, and we expect more states to pass similar laws in the future. While existing state comprehensive privacy laws exempt some data processed in the context of clinical trials, these developments may further complicate compliance efforts, and increase legal risk and compliance costs for us and the third parties upon whom we rely.

Additionally, we may be subject to new laws governing the privacy of consumer health data. These various privacy and data security laws may impact our business activities, including our identification of research subjects, relationships with business partners and ultimately the marketing and distribution of our products.

Outside the United States, an increasing number of laws, regulations, and industry standards may govern privacy, data security, and the transfer of personal data between jurisdictions. For example, the European Union's General Data Protection Regulation ("EU GDPR") and the United Kingdom's General Data Protection Regulation ("UK GDPR", together with the EU GDPR, "GDPR") impose strict requirements for processing personal data including relating to processing of sensitive data (such as health data), ensuring there is a legal basis or condition to justify the processing of personal data, where required requirements relating to obtaining consent of individuals, disclosures about how personal data is to be used, limitations on retention of information, implementing safeguards to protect the security and confidentiality of personal data, where required providing notification of data breaches, maintaining records of processing activities and documenting data protection impact assessments where there is high risk processing and taking certain measures when engaging third-party processors. Under GDPR, companies may face temporary or definitive bans on data processing and other corrective activities, fines of up to €20 million (£17.5 million GBP) or 4% of annual global revenues, whichever is greater, and private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests. Non-compliance could also result in a material adverse effect on our business, financial position and results of operations.

In addition, we may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area ("EEA") and the UK have significantly restricted the transfer of personal data to the United States and other countries. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA's standard contractual clauses, the UK's International Data Transfer Agreement / Addendum, and the EU-U.S. Data Privacy Framework ("Framework") and the UK extension thereto (which allows for transfers to relevant U.S.-based organizations who self-certify compliance and participate in the Framework), these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States (or other countries), or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions (such as Europe) at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigants, and activities activist groups. Some European regulators have ordered certain companies to suspend or

permanently cease certain transfers of personal data out of Europe for allegedly violating the GDPR's cross-border data transfer limitations.

In addition to privacy and data security laws, we are contractually subject to industry standards adopted by industry groups and may become subject to such obligations in the future. We are also bound by other contractual obligations related to privacy and data security, and our efforts to comply with such obligations may not be successful.

We publish privacy policies and other statements, such as compliance with certain certifications or self-regulatory principles, regarding privacy and data security. If these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators, or other adverse consequences.

Obligations related to privacy and data security are quickly changing, becoming increasingly stringent, and creating uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources and may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf.

We may at times fail in our efforts to comply with our privacy and data security obligations. Moreover, despite our efforts, our personnel or third parties on whom we rely may fail to comply with such obligations, which could negatively impact our business operations. If we or the third parties on which we rely fail, or are perceived to have failed, to address or comply with applicable privacy and data security obligations, we could face significant consequences, including but not limited to: government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-action claims), and mass arbitration demands; additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data. In particular, plaintiffs have become increasingly more active in bringing privacy-related claims against companies, including class claims and mass arbitration demands. Some of these claims allow for the recovery of statutory damages on a per violation basis, and, if viable, carry the potential for significant statutory damages, depending on the volume of data and the number of violations. Any of these events could have a material adverse effect on our reputation, business, financial condition, results of operations and growth prospects, including but not limited to: loss of customers; interruptions or stoppages in our business operations (including, as relevant, clinical trials); inability to process personal data or to operate in certain jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or substantial changes to our business model or operations.

Artificial intelligence presents risks and challenges that can impact our business including by posing security risks to our confidential information, proprietary information, and personal data.

Issues in the development and use of artificial intelligence, combined with an uncertain regulatory environment, may result in reputational harm, liability, or other adverse consequences to our business operations. As with many technological innovations, artificial intelligence presents risks and challenges that could impact our business. We may adopt and integrate generative artificial intelligence tools into our systems for specific use cases reviewed by legal and information security. Our vendors may incorporate generative artificial intelligence tools into their offerings without disclosing this use to us, and the providers of these generative artificial intelligence tools may not meet existing or rapidly evolving regulatory or industry standards with respect to privacy and data protection and may inhibit our or our vendors' ability to maintain an adequate level of service and experience. If we, our vendors, or our third-party partners experience an actual or

perceived breach or privacy or security incident because of the use of generative artificial intelligence, we may lose valuable intellectual property and confidential information and our reputation and the public perception of the effectiveness of our security measures could be harmed. Further, bad actors around the world use increasingly sophisticated methods, including the use of artificial intelligence, to engage in illegal activities involving the theft and misuse of personal information, confidential information, and intellectual property. Any of these outcomes could damage our reputation, result in the loss of valuable property and information, and adversely impact our business.

Risks related to the discovery and development of Verekitug or any other potential future product candidates

The regulatory approval processes of the FDA, the EMA, and the European Commission and other comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for verekitug or any other potential future product candidates, our business will be substantially harmed.

We are not permitted to commercialize, market, promote or sell any product candidate in the United States without obtaining regulatory approval from the FDA. Regulatory authorities outside of the United States impose similar requirements. The time required to obtain approval by the FDA, European Commission and other comparable foreign regulatory authorities is inherently unpredictable, but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including substantial discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. For instance, jurisdictions outside of the United States, such as the European Union or Japan, may have different requirements for regulatory approval, which may require us to conduct additional clinical, nonclinical or chemistry, manufacturing and control studies. To date, we have not submitted a BLA to the FDA or similar drug approval submissions to comparable foreign regulatory authorities for any product candidate. We must complete additional preclinical studies and clinical trials to demonstrate the safety and efficacy of verekitug or any other potential future product candidates in humans before we will be able to obtain these approvals.

Clinical testing is expensive, difficult to design and implement, can take many years to complete and is inherently uncertain as to outcome. The general approach for FDA approval of a new drug is dispositive data from two or more adequate and well-controlled clinical trials of the product candidate in the relevant patient population. The FDA, the EMA, the European Commission, or other comparable foreign regulatory authorities may disagree with us about whether a clinical trial is adequate and well-controlled or may request that we conduct additional clinical trials prior to regulatory approval. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. In addition, there is no assurance that the doses, endpoints and trial designs that we intend to use for our planned clinical trials, including those that we have developed based on feedback from regulatory agencies or those that have been used for the approval of similar drugs, will be acceptable for future approvals. The clinical development of verekitug or any other potential future product candidates is also susceptible to the risk of failure inherent at any stage of development, including failure to demonstrate efficacy in a clinical trial or across a broad population of patients, the occurrence of adverse events that are severe or medically or commercially unacceptable, failure to comply with protocols or applicable regulatory requirements and determination by the FDA or any comparable foreign regulatory authority that a product candidate may not continue development or is not approvable. It is possible that even if verekitug or any other potential future product candidates have a beneficial effect, that effect will not be detected during clinical evaluation as a result of one or more of a variety of factors, including the size, duration, design, measurements, conduct or analysis of our clinical trials. Conversely, as a result of the same

factors, our clinical trials may indicate an apparent positive effect of such product candidate that is greater than the actual positive effect, if any. Similarly, in our clinical trials we may fail to detect toxicity of, or intolerability caused by, such product candidate, or mistakenly believe that verekitug or any other potential future product candidates are toxic or not well tolerated when that is not in fact the case. Serious adverse events or other adverse events, as well as tolerability issues, could hinder or prevent market acceptance of the product candidate at issue.

Verekitug or any other potential future product candidates could fail to receive regulatory approval, or regulatory approval could be delayed, for many reasons, including the following:

- the FDA, the EMA, the competent authorities of individual EU Member States, or other comparable foreign regulatory authorities may disagree with the dosing regimen, design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA, the EMA and the European Commission, or other comparable foreign regulatory authorities that a product candidate is safe and effective for any of its proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the FDA, the EMA and the European Commission, or other comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA, the EMA or the European Commission, or other comparable foreign regulatory authorities may disagree with our interpretation of data from clinical trials or preclinical studies;
- the data collected from clinical trials of verekitug or any other potential future product candidates may not be sufficient to support the submission of a BLA to the FDA or other submission or to obtain regulatory approval in the United States, the European Union or elsewhere;
- the FDA, the EMA or other comparable foreign regulatory authorities may not file or accept our BLA or marketing application for substantive review;
- the FDA, the competent authorities of individual EU Member States or other comparable foreign regulatory authorities may find deficiencies with or 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, the EMA and the European Commission, or other comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

This lengthy approval process as well as the unpredictability of clinical trial results may result in our failing to obtain regulatory approval to market any product candidate we develop, which would substantially harm our business, results of operations and prospects. The FDA and other comparable foreign authorities have discretion in the approval process and determining when or whether regulatory approval will be granted for verekitug or any other potential future product candidates that we develop. Even if we believe the data collected from future clinical trials verekitug or any other potential future product candidates are promising, such data may not be sufficient to support approval by the FDA, the European Commission, or any other comparable foreign regulatory authority.

In addition, even if we were to obtain approval, regulatory authorities may approve verekitug or any other potential future product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval contingent on the performance of costly post-

marketing clinical trials or may approve verekitug or any other potential future product candidates with a label that does not include the labeling claims necessary or desirable for the successful commercialization. Any of the foregoing scenarios could materially harm the commercial prospects for verekitug or any other potential future product candidates.

Verekitug represents a novel approach to the treatment of inflammatory diseases, which makes it difficult to predict its likelihood of success and the timing and cost of development and obtaining regulatory approval.

We have concentrated our research and development efforts to develop the only known antagonist currently in clinical development that targets the receptor for Thymic Stromal Lymphopoietin ("TSLP") and our future success depends on the successful development of this differentiated therapeutic approach. We are in the early stages of developing verekitug and there can be no assurance that any development problems we have experienced or may experience in the future will not cause significant delays or result in unforeseen issues or unanticipated costs, or that any such development problems or issues can be overcome. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process or transferring that process to commercial partners, which may prevent us from completing our future clinical studies or commercializing our products on a timely or profitable basis, if at all. In addition, our expectations with regard to the advantages of inhibiting the TSLP receptor relative to the approach of other therapies may not materialize or materialize to the degree we anticipate. Further, our scalability and costs of manufacturing may vary significantly as we develop verekitug and understand these critical factors.

In addition, the clinical study requirements of the FDA, the EMA and the European Commission, and other regulatory authorities and the criteria these regulators use to determine the safety and efficacy of a product candidate are determined according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates such as ours can be more complex and consequently more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates. Approvals by the European Commission and FDA for existing biologic treatments for asthma, such as dupilumab and tezepelumab, as well as other pathways to approval, may not be indicative of what these regulators may require for approval of our therapy. More generally, approvals by any regulatory authority may not be indicative of what any other regulatory authority may require for approval or what such regulatory authorities may require for approval in connection with new product candidates.

Verekitug may also not perform successfully in clinical trials or may be associated with adverse events that distinguish it from previously approved therapies or those that may be approved in the future. Unexpected clinical outcomes could materially and adversely affect our business, results of operations and prospects.

If our clinical trials fail to replicate positive results from earlier preclinical studies or clinical trials conducted by us or third parties, we may be unable to successfully develop, obtain regulatory approval for or commercialize verekitug or any other potential future product candidates.

The results observed from preclinical studies or early-stage clinical trials of verekitug or any other potential future product candidates may not necessarily be predictive of the results of later-stage clinical trials that we conduct. Similarly, positive results from such preclinical studies or early-stage clinical trials may not be replicated in our subsequent preclinical studies or clinical trials. For instance, results seen in our Phase 1b multiple ascending dose ("MAD") clinical trial for verekitug in patients with asthma may not translate to similar results in our ongoing Phase 2 clinical trial in patients with severe asthma. Furthermore, verekitug or any other potential future product candidates may not be able to demonstrate similar activity or adverse event profiles as other product candidates that we believe may have similar profiles. In addition, in our planned future clinical trials, we may utilize clinical trial designs or dosing regimens that have not been tested in prior clinical trials.

There can be no assurance that any of our clinical trials will ultimately be successful or support further clinical development of verekitug or any other potential future product candidates. There is a high failure rate for drugs proceeding through clinical trials. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development, and we cannot be certain that we will not face similar setbacks. These setbacks have been caused by, among other things, adverse safety or efficacy observations made in clinical trials.

Additionally, we may utilize an "open-label" clinical trial design. An "open-label" clinical trial is one where both the patient and investigator know whether the patient is receiving the investigational product candidate or either an existing approved drug or placebo. Most open-label clinical trials test only the investigational product candidate and sometimes may do so at different dose levels. Open-label clinical trials are subject to various limitations that may exaggerate any therapeutic effect as patients in open-label clinical trials are aware when they are receiving treatment. Open-label clinical trials may be subject to a "patient bias" where patients perceive their symptoms to have improved merely due to their awareness of receiving an experimental treatment. In addition, open-label clinical trials may be subject to an "investigator bias" where those assessing and reviewing the physiological outcomes of the clinical trials are aware of which patients have received treatment and may interpret the information of the treated group more favorably given this knowledge. The results from an open-label trial may not be predictive of future clinical trial results of a product candidate when studied in a controlled environment with a placebo or active control.

Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain FDA, European Commission, or comparable foreign regulatory authority approval.

We may incur unexpected costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of verekitug or any other potential future product candidates, which could prevent us from achieving our projected development and commercialization goals in the timeframes we announce and expect, and harm our business and results of operations. Many of the factors that cause or lead to a delay in the initiation or completion of clinical trials may also lead to the denial of regulatory approval or limit market acceptance of verekitug or any other potential future product candidates.

We may experience delays in completing our clinical trials or preclinical studies and initiating or completing additional clinical trials or preclinical studies, including as a result of regulators not allowing or delay in allowing clinical trials to proceed under an IND or similar foreign authorization, or not approving or delaying approval for any clinical trial grant or similar approval we need to initiate a clinical trial. We may also experience numerous unforeseen events during our clinical trials that could delay or prevent our ability to receive marketing approval or commercialize verekitug or any other potential future product candidates we develop, including:

- regulators, institutional review boards ("IRBs"), ethics committees, or other reviewing bodies may not authorize us or our investigators to commence a clinical trial, or to conduct or continue a clinical trial at a prospective or specific trial site, or provide a related positive opinion permitting such activities;
- we may not reach 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 trial sites;
- we may experience challenges or delays in recruiting principal investigators or study sites to lead our clinical trials;

- the number of subjects or patients required for clinical trials of verekitug or any other potential future product candidates may be larger than we anticipate, enrollment in these clinical trials may be insufficient or slower than we anticipate, and the number of clinical trials being conducted at any given time may be high and result in fewer available patients for any given clinical trial, or patients may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors, including those manufacturing verekitug or any other potential future product candidates or conducting clinical trials on our behalf, may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- we may have to amend clinical trial protocols submitted to regulatory authorities or conduct additional studies to reflect changes in regulatory requirements or guidance, which may be required to resubmit to an IRB, ethics committee and regulatory authorities for re-examination;
- regulators or other reviewing bodies may find deficiencies with, fail to approve or subsequently find fault with the manufacturing processes or facilities of third-party manufacturers with which we enter into agreements for clinical and commercial supplies, or the supply or quality of any product candidate or other materials necessary to conduct clinical trials of verekitug or any other potential future product candidates may be insufficient, inadequate or not available at an acceptable cost, or we may experience interruptions in supply; and
- the potential for approval policies or regulations of the FDA, the EMA, and the European Commission, or the applicable regulatory authorities to significantly change in a manner rendering our clinical data insufficient for approval.

Regulators, IRBs, or ethics committees of the institutions in which clinical trials are being conducted may suspend, limit or terminate a clinical trial, or data monitoring committees may recommend that we suspend or terminate a clinical trial, due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA, the competent authorities of individual EU Member States, or other comparable foreign regulatory authorities resulting in the imposition of a clinical hold, safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Negative or inconclusive results from our clinical trials or preclinical studies could mandate repeated or additional clinical trials and, to the extent we choose to conduct clinical trials in other indications, could result in changes to or delays in clinical trials of verekitug or any other potential future product candidates in such other indications. We do not know whether any clinical trials that we conduct will demonstrate adequate efficacy and safety to result in regulatory approval to market verekitug or any other potential future product candidates for the indications that we are pursuing. If later-stage clinical trials do not produce favorable results, our ability to obtain regulatory approval for verekitug or any other potential future product candidates will be adversely impacted.

For planning purposes, we sometimes estimate the timing of the accomplishment of various scientific, clinical, regulatory and other product development objectives. These milestones may include our expectations regarding the commencement or completion of scientific studies and clinical trials, the submission of regulatory filings or commercialization objectives. From time to time, we may publicly announce the expected timing of some of these milestones, such as the completion of an ongoing clinical trial, the initiation of other clinical programs, receipt of marketing approval or a commercial launch of a product. The achievement of many of these milestones may be outside of our control. All of these milestones are based on a variety of assumptions

which, if not realized as expected, may cause the timing of achievement of the milestones to vary considerably from our estimates, including:

- our available capital resources or capital constraints we experience;
- the rate of progress, costs and results of our clinical trials and research and development activities, including the extent of scheduling conflicts with participating clinicians and collaborators;
- our ability to identify and enroll patients who meet clinical trial eligibility criteria;
- our receipt of approvals by the FDA and other comparable foreign regulatory authorities and the timing thereof;
- other actions, decisions or rules issued by regulators;
- our ability to access sufficient, reliable and affordable supplies of materials used to manufacture verekitug or any other potential future product candidates;
- the efforts of our collaborators with respect to the commercialization of verekitug or any other potential future product candidates; and
- the securing of, costs related to, and timing issues associated with, product manufacturing as well as sales and marketing activities.

If we fail to achieve announced milestones in the timeframes we expect, the development and commercialization of verekitug or any other potential future product candidates may be delayed, and our business, financial condition, results of operations and growth prospects may be harmed.

Our failure to successfully initiate and complete clinical trials and to demonstrate the efficacy and safety necessary to obtain regulatory approval to market verekitug or any other potential future product candidates would also significantly harm our business. Our development costs will also increase if we experience delays in testing or regulatory approvals and we may be required to obtain additional funds to complete clinical trials. We cannot assure you that our clinical trials will begin as planned or be completed on schedule, if at all, or that we will not need to restructure or otherwise modify our trials after they have begun. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize verekitug or any other potential future product candidates or allow our competitors to bring products to market before we do and impair our ability to successfully commercialize verekitug or any other potential future product candidates, which may harm our business, financial condition, results of operations and growth prospects. In addition, many of the factors that cause, or lead to, delays of clinical trials may ultimately lead to the denial of regulatory approval of verekitug or any other potential future product candidates.

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

Interim, initial, top-line and preliminary 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 that could result in material changes in the final data.

Interim, initial, top-line and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data. From time to time, we publicly disclose preliminary or

top-line data from our preclinical studies and clinical trials, which are based on preliminary analyses of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular preclinical study or clinical trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the top-line or preliminary results that we report may differ from future results of the same studies or trials, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Top-line data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, top-line data should be viewed with caution until the final data are available. From time to time, we may also disclose interim data from our preclinical studies and clinical trials. Interim data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as participants enrollment continues and more participants' data become available or as participants from our clinical trials continue other treatments for their disease. Adverse differences between interim data and final data could significantly harm our business prospects. 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 program, the approvability or commercialization of the particular product candidate and could adversely affect the success of our business. In addition, the information we choose to publicly disclose regarding a particular 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 interim, top-line or preliminary 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, verekitug or any other potential future product candidates may be harmed, which could harm our business, financial condition, results of operations and growth prospects. Further, disclosure of interim, top-line or preliminary data by us or by our competitors could result in volatility in the price of our common stock after this offering. Furthermore, if we fail to replicate the positive results from our preclinical studies or clinical trials in our future clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize verekitug or any other potential future product candidates.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with our protocols depends, among other things, on our ability to enroll a sufficient number of patients who remain in the study until its conclusion. Patient enrollment is affected by many factors, including:

- the patient eligibility and exclusion criteria defined in the protocol;
- the size of the patient population required for analysis of the trial's primary endpoints;
- the number and location of study sites and proximity of patients to study sites;
- the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- competing clinical trials and clinicians' and patients' perceptions as to the potential advantages and risks of the product candidate being studied in relation to other available therapies, including any new drugs that may be approved for the indications that we are investigating;

- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in our clinical trials will drop out of the trials before completion.

We may experience challenges in recruiting principal investigators and patients to participate in ongoing and future clinical trials for verekitug or any other potential future product candidates if we are unable to sufficiently demonstrate the potential of such product candidate. In addition, our clinical trials may compete with other clinical trials for product candidates that are in the same therapeutic areas as verekitug or any other potential future product candidates, and this competition will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we may conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials in such clinical trial site. Furthermore, if significant adverse events or other side effects are observed in any of our clinical trials, we may have difficulty recruiting patients to our trials and patients may drop out of our trials.

If we are unable to enroll a sufficient number of patients for our clinical trials, it would result in significant delays or might require us to abandon one or more clinical trials or our development efforts altogether. Delays in patient enrollment may result in increased costs, affect the timing or outcome of the planned clinical trials, product candidate development and approval process and jeopardize our ability to seek and obtain the regulatory approval required to commence product sales and generate revenue, which could prevent completion of these trials, adversely affect our ability to advance the development of verekitug or any other potential future product candidates, cause the value of the company to decline and limit our ability to obtain additional financing if needed.

Verekitug or any other potential future product candidates may cause undesirable side effects or have other properties that could delay or prevent regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following regulatory approval, if obtained.

Undesirable side effects caused by verekitug or any other potential future product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA, European Commission, or other comparable foreign regulatory authorities. We may also observe additional safety or tolerability issues with verekitug or any other potential future product candidates in ongoing or future clinical trials.

Many compounds that initially showed promise in clinical or earlier-stage testing are later found to cause undesirable or unexpected side effects that prevented further development of the compound. Results of ongoing or future clinical trials of verekitug or any other potential future product candidates could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics, despite a favorable tolerability profile observed in earlier-stage testing. In addition, although we believe that verekitug's mechanism of action may differentiate it from other products that address the TSLP signaling pathway, such as tezepelumab, adverse events observed in clinical studies or postmarket use of these products may also be observed with verekitug, which could impact our ability to recruit patients to our clinical trials and our clinical development strategy.

If unacceptable side effects arise in the development of verekitug or any other potential future product candidates, we, the FDA, competent authorities of individual EU Member States, or other comparable foreign regulatory authorities, the IRBs, or independent ethics committees at the institutions in which our trials are conducted, could suspend, limit or terminate our clinical trials, or the independent safety monitoring committee could recommend that we suspend, limit or terminate our trials, or the FDA, competent authorities of individual EU Member States or other comparable foreign regulatory authorities could order us to cease clinical trials, or

the FDA, the European Commission, or other comparable foreign regulatory authorities could deny approval of verekitug or any other potential future product candidates for any or all targeted indications. Treatment-emergent side effects that are deemed to be drug-related could delay recruitment of clinical trial subjects or may cause subjects that enroll in our clinical trials to discontinue participation in our clinical trials. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff. We may need to train medical personnel using verekitug or any other potential future product candidates to understand the side effect profiles for our clinical trials and upon any commercialization of verekitug or any other potential future product candidates. Inadequate training in recognizing or managing the potential side effects of verekitug or any other potential future product candidates could result in harm to patients that are administered verekitug or any other potential future product candidates. Any of these occurrences may adversely affect our business, financial condition, results of operations and growth prospects significantly.

Moreover, clinical trials are conducted in carefully defined sets of patients who have agreed to enter into clinical trials. Consequently, it is possible that our clinical trials may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any, or alternatively fail to identify undesirable side effects.

If we fail to expand our development of verekitug into additional indications, or discover or acquire, and subsequently develop and commercialize other product candidates, we may be unable to grow our business and our ability to achieve our strategic objectives would be impaired.

Although the development and commercialization of verekitug in severe asthma, CRSwNP and COPD are our initial focus, as part of our longer-term growth strategy, we plan to initiate and advance development of verekitug in additional indications. Expansion into new indications will require additional, time-consuming development efforts prior to commercial sale, including preclinical studies, clinical trials and approval by the FDA, the European Commission, and comparable foreign regulatory authorities. All product candidates are prone to the risks of failure that are inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe and effective for approval by regulatory authorities. In addition, we cannot assure you that any such products that are approved will be manufactured or produced economically, successfully commercialized or widely accepted in the marketplace or be more effective than other commercially available alternatives.

Risks related to the commercialization of Verekitug or any other potential future product candidates

Even if verekitug or any other potential future product candidates receive regulatory approval, such product candidate may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success, in which case we may not generate significant revenues or become profitable.

We have never commercialized a product, and even if verekitug or any other potential future product candidate is approved by the appropriate regulatory authorities for marketing and sale, such product candidate may nonetheless fail to achieve sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. Many of the indications for verekitug have well-established standards of care that physicians, patients and payors are familiar with. Even if verekitug or any other potential future product candidates are successful in registrational clinical trials, such product candidate may not be successful in displacing these current standards of care if we are unable to demonstrate superior efficacy, safety, ease of administration and/or cost-effectiveness. For example, physicians may be reluctant to take their patients off their current medications and switch their treatment regimen to verekitug or any other potential future product candidates. Further, patients often acclimate to the treatment regimen that they are currently taking and do

not want to switch unless their physicians recommend switching products or they are required to switch due to lack of coverage and adequate reimbursement. Even if we are able to demonstrate verekitug's or any other potential future product candidates' safety and efficacy to the FDA, the European Commission, and other regulators, safety or efficacy concerns in the medical community may hinder market acceptance.

Efforts to educate the medical community and third-party payors on the benefits of verekitug or any other potential future product candidates may require significant resources, including management time and financial resources, and may not be successful. If verekitug or any other potential future product candidates are approved but do not achieve an adequate level of market acceptance, we may not generate significant revenues and we may not become profitable. The degree of market acceptance of verekitug or any other potential future product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the efficacy and safety of the product;
- the potential advantages of the product compared to competitive therapies;
- the prevalence and severity of any side effects;
- whether the product is designated under physician treatment guidelines as a first-, second- or third-line therapy;
- our ability, or the ability of any future collaborators, to offer the product for sale at competitive prices;
- the product's convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try, and of physicians to prescribe, the product;
- limitations or warnings, including distribution or use restrictions contained in the product's approved labeling;
- the strength of sales, marketing and distribution support;
- changes in the standard of care for the targeted indications for the product; and
- availability and adequacy of coverage and reimbursement from government payors, managed care plans and other third-party payors.

Any failure by verekitug or any other potential future product candidate that obtains regulatory approval to achieve market acceptance or commercial success would adversely affect our business prospects.

Competitive products may reduce or eliminate the commercial opportunity for verekitug or any other potential future product candidates, if approved. If our competitors develop technologies or product candidates more rapidly than we do, or their technologies or product candidates are more effective or safer than ours, our ability to develop and successfully commercialize verekitug or any other potential future product candidates may be adversely affected.

The clinical and commercial landscapes for the treatment of inflammatory diseases are highly competitive and subject to rapid and significant technological change. We face competition with respect to our indications for verekitug and will face competition with respect to any other drug candidates that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. There are a number of large pharmaceutical and biotechnology companies, such as Sanofi, Regeneron, AstraZeneca and Amgen, that currently market and sell drugs or are pursuing the development of drug candidates for the treatment of the indications that we are pursuing. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

We believe that a significant number of product candidates are currently under development for the same indications we are currently pursuing, and some or all may become commercially available in the future for the treatment of conditions for which we are trying or may try to develop product candidates. Our potential competitors include large pharmaceutical and biotechnology companies, specialty pharmaceutical and generic drug companies, academic institutions, government agencies and research institutions. See the section titled "Business—Competition" included elsewhere in this prospectus for examples of the competition that verekitug faces.

In most cases, we do not currently plan to run head-to-head clinical trials evaluating verekitug or any other potential future product candidates against the current standards of care, which may make it more challenging for verekitug or any other potential future product candidates to compete against the current standards of care due to the lack of head-to-head clinical trial data.

Our competitors may have significantly greater financial resources, established presence in the market, expertise in research and development, manufacturing, preclinical and clinical testing, obtaining regulatory approvals and reimbursement and marketing approved products than we do. Accordingly, our competitors may be more successful than we may be in obtaining regulatory approval for therapies and achieving widespread market acceptance. Our competitors' products may be more effective, or more effectively marketed and sold, than verekitug or any other potential future product candidates we may commercialize and may render our therapies obsolete or non-competitive before we can recover development and commercialization expenses. If verekitug or any other potential future product candidates are approved, it could compete with a range of therapeutic treatments that are in development. In addition, our competitors may succeed in developing, acquiring or licensing technologies and drug products that are more effective or less costly than verekitug or any other potential future product candidates, which could render verekitug or any other potential future product candidates obsolete and noncompetitive.

If we obtain approval for verekitug or any other potential future product candidates, we may face competition based on many different factors, including the efficacy, safety and tolerability of our products, the ease with which our products can be administered, the timing and scope of regulatory approvals for these products, the availability and cost of manufacturing, marketing and sales capabilities, price, reimbursement coverage and patent position. Existing and future competing products could present superior treatment alternatives, including being more effective, safer, less expensive or marketed and sold more effectively than any products we may develop. Competitive products may make any products we develop obsolete or noncompetitive before we recover the expense of developing and commercializing verekitug or any other potential future product candidates. Such competitors could also recruit our employees, which could negatively impact our level of expertise and our ability to execute our business plan.

In addition, our competitors may obtain patent protection, regulatory exclusivities or FDA approval and commercialize products more rapidly than we do, which may impact future approvals or sales of verekitug or any other potential future product candidates that receive regulatory approval. If the FDA approves the commercial sale of verekitug or any other potential future product candidates, we will also be competing with respect to marketing capabilities and manufacturing efficiency. We expect competition among products will be based on product efficacy and safety, the timing and scope of regulatory approvals, availability of supply, marketing and sales capabilities, product price, reimbursement coverage by government and private third-party payors, regulatory exclusivities and patent position. Our profitability and financial position will suffer if verekitug or any other potential future product candidates receives regulatory approval but cannot compete effectively in the marketplace.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with

large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites, as well as in acquiring technologies complementary to, or necessary for, our programs.

If we are unable to develop our sales, marketing and distribution capability on our own or through collaborations with marketing partners, we will not be successful in commercializing verekitug or any other potential future product candidates.

We currently have no marketing, sales or distribution capabilities. We intend to establish a sales and marketing organization, either on our own or in collaboration with third parties, with technical expertise and supporting distribution capabilities to commercialize verekitug or any other potential future product candidates that may receive regulatory approval in key territories. These efforts will require substantial additional resources, some or all of which may be incurred in advance of any approval of the product candidate. Any failure or delay in the development of our or third parties' internal sales, marketing and distribution capabilities would adversely impact the commercialization of verekitug or any other potential future product candidates.

Factors that may inhibit our efforts to commercialize verekitug or any other potential future product candidates on our own include:

- our inability to recruit and retain an adequate number of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to or persuade an adequate number of physicians to prescribe any future products;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

With respect to verekitug or any other potential future product candidates, we may choose to collaborate with third parties that have direct sales forces and established distribution systems to serve as an alternative to our own sales force and distribution systems. Our future product revenue may be lower than if we directly marketed or sold verekitug or any other potential future product candidates, if approved. In addition, any revenue we receive will depend in whole or in part upon the efforts of these third parties, which may not be successful and are generally not within our control. If we are not successful in commercializing any approved products, our future product revenue will suffer and we may incur significant additional losses.

If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing verekitug or any other potential future product candidates.

The increasing use of social media platforms presents new risks and challenges.

Social media is increasingly being used to communicate about our clinical development programs and the diseases our therapeutics are being developed to treat, and we intend to utilize appropriate social media in connection with our commercialization efforts following approval of our product candidates, if any. Social media practices in the biopharmaceutical industry continue to evolve and regulations and regulatory guidance relating to such use are evolving and not always clear. This evolution creates uncertainty and risk of noncompliance with regulations applicable to our business, resulting in potential regulatory actions against us, along with the potential for litigation related to off-label marketing or other prohibited activities. For example, patients may use social media channels to comment on their experience in an ongoing blinded clinical trial or to

report an alleged adverse event. When such disclosures occur, there is a risk that trial enrollment may be adversely impacted, that we fail to monitor and comply with applicable adverse event reporting obligations or that we may not be able to defend our business or the public's legitimate interests in the face of the political and market pressures generated by social media due to restrictions on what we may say about our product candidates. There is also a risk of inappropriate disclosure of sensitive information or negative or inaccurate posts or comments about us on any social networking website. If any of these events were to occur or we otherwise fail to comply with applicable regulations, we could incur liability, face regulatory actions or incur other harm to our business.

Risks related to employee matters and managing growth

We expect to expand our organization, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of regulatory affairs and sales, marketing and distribution, as well as to support our public company operations. To manage these growth activities, we must continue to implement and improve our managerial, operational, quality and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Our management may need to devote a significant amount of its attention to managing these growth activities. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion or relocation of our operations, retain key employees, or identify, recruit and train additional qualified personnel. Our inability to manage the expansion or relocation of our operations effectively may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could also require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. If we are unable to effectively manage our expected growth, our expenses may increase more than expected, our ability to generate revenues could be reduced and we may not be able to implement our business strategy, including the successful commercialization of verekitug or any other potential future product candidates.

Our ability to develop verekitug or any other potential future product candidates and our future growth depends on attracting, hiring and retaining our key personnel and recruiting additional qualified personnel.

Our success depends upon the continued contributions of our key management and scientific personnel, many of whom have been instrumental for us and have substantial experience with developing therapies, identifying potential product candidates and building the technologies related to the clinical development of verekitug or any other potential future product candidates. As we continue developing verekitug or any other potential future product candidates, we will require personnel with medical, scientific, or technical qualifications specific to each program. The loss of key personnel would delay our research and development activities. Despite our efforts to retain valuable employees, members of our team may terminate their employment with us on short notice. The competition for qualified personnel in the biotechnology and biopharmaceutical industries is intense, and our future success depends upon our ability to attract, retain, and motivate highly skilled scientific, technical and managerial employees. We face competition for personnel from other companies, universities, public and private research institutions, and other organizations. If our recruitment and retention efforts are unsuccessful in the future, it may be difficult for us to implement our business strategy, which would have a material adverse effect on our business.

In addition, our clinical operations and research and development programs depend on our ability to attract and retain highly skilled scientists, data scientists, and engineers, particularly in Massachusetts. There is

powerful competition for skilled personnel in these geographical markets, and we have from time to time experienced, and we expect to continue to experience, difficulty in hiring and retaining employees with appropriate qualifications on acceptable terms, or at all. Many of the companies with which we compete for experienced personnel have greater resources than we do, and any of our employees may terminate their employment with us at any time. If we hire employees from competitors or other companies, their former employers may attempt to assert that these employees or we have breached legal obligations, resulting in a diversion of our time and resources and, potentially, damages. In addition, job candidates and existing employees often consider the value of the stock awards they receive in connection with their employment. If the perceived benefits of our stock awards decline, it may harm our ability to recruit and retain highly skilled employees. If we fail to attract new personnel or fail to retain and motivate our current personnel, our business and future growth prospects would be harmed.

Risks related to our dependence on third parties

We currently rely, and plan to rely in the future, on third parties to conduct and support our clinical trials. If they do not perform satisfactorily, we may not be able to obtain regulatory approval or commercialize verekitug or any other potential future product candidates, or such approval or commercialization may be delayed, and our business could be substantially harmed.

We have relied upon and plan to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators, to conduct our clinical trials and expect to rely on these third parties to conduct clinical trials for verekitug or any other potential future product candidates that we develop. Our ability to complete clinical trials in a timely fashion depends on a number of key factors. These factors include protocol design, regulatory and IRB approval, or positive opinions from ethics committees, patient enrollment rates and compliance with GCPs. We have opened clinical trial sites and are enrolling patients in a number of countries where our experience is limited. In most cases, we use the services of third parties, including CROs, to carry out our clinical trial-related activities and rely on such parties to accurately report their results. Our reliance on third parties for clinical development activities may impact or limit our control over the timing, conduct, expense and quality of our clinical trials. 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. The FDA enforces these GCPs through periodic inspections of clinical trial sponsors, principal investigators, clinical trial sites and IRBs. For certain commercial prescription drug products, manufacturers and other parties involved in the supply chain must also meet chain of distribution requirements and build electronic, interoperable systems for product tracking and tracing and for notifying the FDA of counterfeit, diverted, stolen and intentionally adulterated products or other products that are otherwise unfit for distribution in the United States. Comparable requirements and enforcement actions apply in foreign countries.

We remain responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol, informed consent forms submitted to competent regulatory authorities, legal and regulatory requirements and scientific standards. Our failure or the failure of third parties to comply with the applicable protocol, informed consent forms, legal and regulatory requirements and scientific standards can result in rejection of our clinical trial data or other sanctions. If we or our third-party clinical trial providers or third-party CROs do not successfully carry out these clinical activities, our clinical trials or the potential regulatory approval of a product candidate may be delayed or be unsuccessful. Additionally, if we or our third-party contractors fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving verekitug or any other potential future product candidates, which would delay the regulatory approval process. We cannot be certain that, upon inspection, the FDA or comparable foreign

regulatory authorities will determine that any of our clinical trials comply with GCPs. We are also required to register certain clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions. Comparable transparency and publication requirements apply in foreign countries.

Furthermore, the third parties conducting clinical trials on our behalf are not our employees, and except for remedies available to us under our agreements with such contractors, we cannot control whether or not they devote sufficient time, skill and resources to our ongoing development programs. Moreover, many CROs, including some of those that we have engaged to conduct our clinical trials, are experiencing enrollment challenges as a result of, among other things, high employee turnover driven by the post-COVID macroeconomic environment and the inexperience of new employees. Furthermore, at clinical trial sites, the availability of staff and trial participants has been limited due to a decrease in the number of clinical investigative sites across the globe. These contractors may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could impede their ability to devote appropriate time to our clinical programs. If these third parties, including clinical investigators, do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we may not be able to obtain, or may be delayed in obtaining, regulatory approvals for verekitug or any other potential future product candidates. If that occurs, we will not be able to, or may be delayed in our efforts to, successfully commercialize verekitug or any other potential future product candidates. In such an event, our financial results and the commercial prospects for verekitug or any other potential future product candidates that we seek to develop could be harmed, our costs could increase and our ability to generate revenues could be delayed, impaired or foreclosed.

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

Any of the third-party organizations we utilize may terminate their engagements with us under certain circumstances. The replacement of an existing CRO or other third party may result in the delay of the affected trials or otherwise adversely affect our efforts to obtain regulatory approvals and commercialize verekitug or any other potential future product candidates. For example, although we believe there are a number of other CROs we could engage, we may not be able to enter into alternative arrangements or do so on commercially reasonable terms. In addition, while we believe there may be suitable replacements for one or more of these service providers, there is a natural transition period when a new service provider begins work. As a result, delays may occur, which could negatively impact our ability to meet our expected clinical development timelines and harm our business, financial condition, results of operations and growth prospects.

Our information technology systems, or those used by our CROs or other contractors or consultants, may fail or suffer security breaches, which could adversely affect our business.

Our information technology systems and data and those of our current or future contract research organizations or other contractors and consultants are vulnerable to compromise or damage from computer hacking, computer viruses, and malware (e.g., ransomware malicious software), fraudulent activity, employee misconduct, human error, telecommunication and electrical failures, natural disasters, or other cybersecurity attacks or accidents. Future acquisitions could expose us to additional cybersecurity risks and vulnerabilities from any newly acquired information technology infrastructure. Cybersecurity attacks are increasing in frequency and sophistication and are made by groups and individuals with a wide range of motives (including

industrial espionage) and expertise, including by organized criminal groups, “hacktivists,” nation states, and others. As a result of a continued hybrid working environment, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. Furthermore, because the techniques used to obtain unauthorized access to, or to sabotage systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or implement adequate preventative measures. Further, as a company with an increasingly global presence, our systems are subject to frequent attacks, which are becoming more commonplace in the industry, including attempted hacking, phishing attempts, such as cyber-related threats involving spoofed or manipulated electronic communications, which increasingly represent considerable risk. Due to the nature of some of the attacks described herein, there is a risk that an attack may remain undetected for a period of time. Even if identified, we may be unable to adequately investigate or remediate incidents or breaches due to attackers increasingly using tools and techniques that are designed to circumvent controls, to avoid detection, and to remove or obfuscate forensic evidence. While we continue to make investments to improve the protection of data and information technology, including in the hiring of information technology (“IT”) personnel, periodic cyber security awareness trainings, improvements to IT infrastructure and controls, and conduct regular testing of our systems, there can be no assurance that our efforts will prevent service interruptions or security breaches.

We and certain of our service providers are from time to time subject to cyberattack attempts or incidents and security incidents. Any cybersecurity incident could adversely affect our business, by leading to, for example, the loss of trade secrets or other intellectual property, demands for ransom or other forms of blackmail, or the unauthorized disclosure of personal or other sensitive information of our employees, clinical trial patients, customers, and others. Although to our knowledge we have not experienced any significant cybersecurity incident to date, if such an event were to occur, it could seriously harm our development programs and our business operations. We could be subject to breach notification requirements, regulatory actions taken by governmental authorities, litigation under laws that protect the privacy of personal information, or other forms of legal proceedings, which could result in significant liabilities or penalties, result in substantial costs and distract management. Further, a cybersecurity incident may disrupt our business or damage our reputation, which could have a material adverse effect on our business, financial condition, results of operations, growth prospects, share price and shareholder value. We could also incur substantial remediation costs, including the costs of investigating the incident, repairing or replacing damaged systems, restoring normal business operations, implementing increased cybersecurity protections, and paying increased insurance premiums.

For example, the loss of clinical trial data from completed, ongoing or future clinical trials could result in delays in or denials of our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. If a security breach or other incident were to result in the unauthorized access to or unauthorized use, disclosure, release or other processing of clinical trial data or personal data, it may be necessary to notify individuals, governmental authorities, supervisory bodies, the media, and other parties pursuant to privacy and security laws. Likewise, we rely on our third-party research collaborators for research and development of verekitug and other third parties to conduct clinical trials, and similar events relating to their information technology systems could also seriously harm our business. Any security compromise affecting us, our collaborators or our industry, whether real or perceived, could harm our reputation, erode confidence in the effectiveness of our security measures, and lead to regulatory scrutiny. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or systems, or inappropriate disclosure of confidential or proprietary or personal information, we could incur liability, our competitive position could be harmed, and the further development and commercialization of verekitug or any other potential future product candidates could be delayed, result in substantial costs and distract management.

We may seek to establish collaborations and, if we are not able to establish them on commercially reasonable terms, we may have to alter our development and commercialization plans.

The advancement, development programs and potential commercialization of verekitug or any other potential future product candidates will require substantial additional cash to fund expenses. For some of our programs, we may decide to collaborate with other pharmaceutical and biotechnology companies with respect to development and potential commercialization. Likely collaborators may include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. In addition, if we are able to obtain regulatory approval for verekitug or any other potential future product candidates from foreign regulatory authorities, we may enter into collaborations with international biotechnology or pharmaceutical companies for the commercialization of such product candidate.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the potential differentiation of verekitug or any other potential future product candidates from competing product candidates, design or results of clinical trials, the likelihood of approval by the FDA, the European Commission, or other comparable foreign regulatory authorities and the regulatory pathway for any such approval, the potential market for the product candidate, the costs and complexities of manufacturing and delivering the product to patients and the potential of competing products. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available for collaboration and whether such a collaboration could be more attractive than the one with us for verekitug or any other potential future product candidates. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop verekitug or any other potential future product candidates or bring them to market and generate product revenue.

Collaborations are complex and time-consuming to negotiate and document. Further, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. Any collaboration agreements that we enter into in the future may contain restrictions on our ability to enter into potential collaborations or to otherwise develop specified product candidates. We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of verekitug or any other potential future product candidates for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense.

Our existing research and development arrangement as well as any future collaborations with third parties for the development and commercialization of verekitug or any other potential future product candidates may not be successful, which could adversely affect our ability to advance verekitug or any other potential future product candidates.

We have entered into a research and development arrangement and may in the future enter into collaborations for the development and commercialization of verekitug or any other potential future product candidates. Any collaborations may limit our control over the amount and timing of resources that our collaborators will dedicate to the development or commercialization of verekitug or any other potential future product candidates. Our ability to generate revenues from these arrangements will depend on any future collaborators'

abilities to successfully perform the functions assigned to them in these arrangements. For example, we granted Maruho Co., Ltd. (“Maruho”) an exclusive, irrevocable, perpetual, royalty-free, sublicensable license for the development and commercialization of verekitug in Japan (the “Maruho License Agreement”). Under the Maruho License Agreement, we are responsible for and control the global research and development of verekitug in Japan. In addition, any future collaborators may have the right to abandon research or development projects and terminate applicable agreements, including funding obligations, prior to or upon the expiration of the agreed upon terms.

Collaborations involving verekitug or any other potential future product candidates pose a number of risks, including the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of verekitug or any other potential future product candidates or may elect not to continue or renew development or commercialization programs, based on clinical trial results, changes in the collaborators’ strategic focus or available funding or external factors, such as an acquisition, which divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon verekitug or any other potential future product candidates, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with verekitug or any other potential future product candidates;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over proprietary rights, including trade secrets and intellectual property rights, contract interpretation, or the preferred course of development might cause delays or termination of the research, development or commercialization of verekitug or any other potential future product candidates, might lead to additional responsibilities for us with respect to such product candidate, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidate.

Collaboration agreements may not lead to development or commercialization of verekitug or any other potential future product candidates in the most efficient manner or at all. If any future collaborator of ours is involved in a business combination, it could decide to delay, diminish or terminate the development or commercialization of verekitug or any other potential future product candidates licensed to it by us.

Our use of third parties to manufacture verekitug or any other potential future product candidates may increase the risk that we will not have sufficient quantities of verekitug or any other potential future product candidates, raw materials, active pharmaceutical ingredients ("APIs") or drug products when needed or at an acceptable cost.

We do not own or operate manufacturing facilities for the production of clinical or commercial quantities of verekitug or any other potential future product candidates, and we lack the resources and the capabilities to do so. Our current strategy is to outsource all manufacturing of verekitug or any other potential future product candidates to third parties.

We currently rely on and engage third-party manufacturers to provide all of the APIs and the final drug product formulation of verekitug that is being used in our clinical trials and preclinical studies. Although we believe that there are several potential alternative manufacturers who could manufacture verekitug, we primarily rely on one manufacturer, WuXi Biologics (Hong Kong) Limited ("WuXi"), for the production of product necessary to complete our ongoing clinical trials. If a replacement manufacturer becomes necessary in the future, we may incur added costs and delays in identifying and qualifying another manufacturer. There have been Congressional legislative proposals, such as the bill titled the BIOSECURE Act, which would, among other things, prohibit U.S. federal funding in connection with biotechnology equipment or services produced or provided by certain named Chinese "biotechnology companies of concern" (which includes WuXi) and loans and grants to, and federal contracts with any entity that uses biotechnology equipment or services from one of these entities in performance of the government contract, grant, or loan. The legislation also gives the federal government the authority to name additional "biotechnology companies of concern" that are engaged in research activities with the Chinese government and that pose a risk of U.S. national security. We continue to monitor the status of the BIOSECURE Act, the implementation of which could materially impact our agreement with WuXi.

In addition, we typically order raw materials, APIs and drug product and services on a purchase order basis and do not enter into long-term dedicated capacity or minimum supply arrangements with any commercial manufacturer. We may not be able to timely secure needed supply arrangements on satisfactory terms, or at all. Our failure to secure these arrangements as needed could have a material adverse effect on our ability to complete the development of verekitug or any other potential future product candidates or, to commercialize them, if approved. We may be unable to conclude agreements for commercial supply with third-party manufacturers or may be unable to do so on acceptable terms. There may be difficulties in scaling up to commercial quantities and formulation of verekitug or any other potential future product candidates, and the costs of manufacturing could be prohibitive.

If our manufacturers have difficulty or suffer delays in successfully manufacturing material that meets our specifications, it may limit supply of verekitug or any other potential future product candidates and could delay our clinical trials. For example, during routine evaluation of drug samples as part of stability testing of material produced by a previous manufacturing process, particles were observed. This resulted in a brief pause in dosing in our Phase 1b MAD clinical trial of verekitug for the treatment of asthma while a standard investigation was conducted, after which dosing resumed. We cannot assure you that similar or longer delays will not be necessary in the future.

Even if we are able to establish and maintain arrangements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- the failure of the third-party manufacturer to comply with applicable regulatory requirements and reliance on third parties for manufacturing process development, regulatory compliance and quality assurance;
- manufacturing delays if our third-party manufacturers give greater priority to the supply of other products over verekitug or any other potential future product candidates or otherwise do not satisfactorily perform according to the terms of the agreement between us;

- limitations on supply availability resulting from capacity and scheduling constraints of third parties;
- the possible breach of manufacturing agreements by third parties because of factors beyond our control;
- the possible termination or non-renewal of the manufacturing agreements by the third party, at a time that is costly or inconvenient to us; and
- the possible misappropriation of our proprietary information, including our trade secrets and know-how.

If we are unable to maintain our key manufacturing relationships, we may fail to find replacement manufacturers or develop our own manufacturing capabilities, which could delay or impair our ability to obtain regulatory approval for verekitug or any other potential future product candidates. If we do find replacement manufacturers, we may not be able to enter into agreements with them on terms and conditions favorable to us and there could be a substantial delay before new facilities could be qualified and registered with the FDA and comparable foreign regulatory authorities.

Additionally, if any third-party manufacturer with whom we contract fails to perform its obligations, we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different manufacturer. In either scenario, our clinical trials supply could be delayed significantly as we establish alternative supply sources. In some cases, the technical skills required to manufacture verekitug or any other potential future product candidates may be unique or proprietary to the original manufacturer and we may have difficulty, or there may be contractual restrictions prohibiting us from, transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all. In addition, if we are required to change third-party manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations. We will also need to verify, such as through a manufacturing comparability study, that any new manufacturing process will produce verekitug or any other potential future product candidates according to the specifications previously submitted to the FDA, the EMA and the European Commission, or another comparable foreign regulatory authority. We may be unsuccessful in demonstrating the comparability of clinical supplies, which could require the conduct of additional clinical trials. The delays associated with the verification of a new third-party manufacturer could negatively affect our ability to develop or commercialize verekitug or any other potential future product candidates in a timely manner or within budget. Furthermore, a third-party manufacturer may possess technology related to the manufacture of verekitug or any other potential future product candidates that such third party owns independently. This would increase our reliance on such third-party manufacturer or require us to obtain a license from such third-party manufacturer in order to have another third party manufacture verekitug or any other potential future product candidates.

If verekitug is approved by any regulatory authority, we intend to utilize arrangements with third-party contract manufacturers for the commercial production of that product. This process is difficult and time consuming and we may face competition for access to manufacturing facilities as there are a limited number of contract manufacturers operating under cGMPs that are capable of manufacturing verekitug. Consequently, we may not be able to reach agreement with third-party manufacturers on satisfactory terms, which could delay our commercialization.

Some of our manufacturers are located outside of the United States. There is currently significant uncertainty about the future relationship between the United States and various other countries, including China, with respect to trade policies, treaties, government regulations and tariffs. It is possible further tariffs may be imposed that could affect imports of APIs used in verekitug or any other potential future product candidates, or our business may be adversely impacted by retaliatory trade measures taken by China or other countries, including restricted access to such raw materials used in verekitug or any other potential future product

candidates. Given the unpredictable regulatory environment in China and the United States and uncertainty regarding how the U.S. or foreign governments will act with respect to tariffs, international trade agreements and policies, further governmental action related to tariffs, additional taxes, contracting matters, regulatory changes or other retaliatory trade measures in the future could occur with a corresponding detrimental impact on our business, financial condition, results of operations and growth prospects.

Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including shutdown of the third-party vendor or rejection of drug product lots or processes, clinical holds, fines, injunctions, civil penalties, delays, suspension, variation or withdrawal of approvals, license revocation, seizures or voluntary recalls of product candidates or drugs if approved, operating restrictions and criminal prosecutions, any of which could significantly affect supplies of verekitug or any other potential future product candidates. The facilities used by our contract manufacturers to manufacture verekitug or any other potential future product candidates must be evaluated by the FDA and comparable foreign regulatory authorities. We have limited control over the manufacturing process of, and are dependent on, our contract manufacturing partners for compliance with cGMPs. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA, the European Union, or other comparable foreign regulatory authorities, we may not be able to secure and/or maintain regulatory approval for verekitug or any other potential future product candidates manufactured at these facilities. In addition, we limited control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority finds deficiencies or does not approve these facilities for the manufacture of verekitug or any other potential future product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market verekitug or any other potential future product candidates, if approved. Contract manufacturers may face manufacturing or quality control problems causing drug substance production and shipment delays or a situation where the contractor may not be able to maintain compliance with the applicable cGMP requirements. Any failure to comply with cGMP requirements or other FDA, European Union, and comparable foreign regulatory requirements could adversely affect our clinical research activities and our ability to develop, and if approved, market verekitug or any other potential future product candidates.

The FDA and comparable foreign regulatory authorities require manufacturers to register manufacturing facilities. The FDA and corresponding foreign regulators also inspect these facilities to confirm and monitor compliance with cGMPs.

If any third-party manufacturer of verekitug or any other potential future product candidates is unable to increase the scale of its production or the product yield of its manufacturing, then our manufacturing costs may increase and commercialization may be delayed.

In order to produce sufficient quantities to meet the demand for clinical trials and, if approved, subsequent commercialization of verekitug or any other potential future product candidates, our third-party manufacturers will be required to increase their production and optimize their manufacturing processes while maintaining the quality of verekitug or any other potential future product candidates. The transition to larger scale production could prove difficult. In addition, if our third-party manufacturers are not able to optimize their manufacturing processes to increase the product yield for verekitug or any other potential future product candidates, or if they are unable to produce increased amounts of verekitug or any other potential future product candidates while maintaining the same quality then we may not be able to meet the demands of clinical trials or market demands, which could decrease our ability to generate profits and have a material adverse impact on our business and results of operations.

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

As verekitug or any other potential future 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 the vendors used to manufacture drug product or manufacturing methods and formulation, are altered along the way in an effort to optimize processes and results. Such changes carry the risk that they will not achieve these intended objectives. Any of these changes could cause verekitug or any other potential future 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, notification or approval by the FDA, or comparable foreign regulatory authorities. This could delay or prevent completion of clinical trials, require conducting bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay or prevent approval of verekitug or any other potential future product candidates and jeopardize our ability to commence sales and generate revenue.

Risks related to government regulation

Obtaining and maintaining regulatory approval of verekitug or any other potential future product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval in other jurisdictions.

Obtaining and maintaining regulatory approval of verekitug or any other potential future product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA grants marketing approval of a product candidate, the European Commission, or other comparable foreign regulatory authorities must also approve the manufacturing and marketing of the product candidate in those territories. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials, as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

We may also submit marketing applications in other countries. Regulatory authorities in jurisdictions outside of the United States have requirements for approval of product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of verekitug or any other potential future product candidates will be harmed.

Even if we receive regulatory approval of verekitug or any other potential future product candidates, we will be subject to 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 verekitug or any other potential future product candidates.

If verekitug or any other potential future product candidates are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling,

record-keeping, conduct of post-marketing studies and submission of safety, efficacy and other post-market information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities. In addition, we will be subject to continued compliance with cGMP and GCP requirements for any clinical trials that we conduct post-approval.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA, European Union, and comparable foreign regulatory requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations and applicable product tracking and tracing requirements. As such, we and our contract manufacturers will be subject to continual review and inspections to assess continuous compliance with cGMP and adherence to commitments made in any BLA, other marketing application and previous responses to inspection observations. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

Any regulatory approvals that we receive for verekitug or any other potential future product candidates may be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials and surveillance to monitor the safety and efficacy of the product candidate. Certain endpoint data we hope to include in any approved product labeling also may not make it into such labeling, including exploratory or secondary endpoint data such as patient-reported outcome measures. The FDA may also require Risk Evaluation and Mitigation Strategies ("REMS") as a condition of approval of verekitug or any other potential future product candidates, which could entail requirements for long-term patient follow-up, a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. Comparable requirements may apply in foreign countries. In addition, if the FDA, the European Commission, or a comparable foreign regulatory authority approves verekitug or any other potential future product candidates, we will have to comply with requirements including submissions of safety and other post-marketing information and reports and registration.

The FDA or comparable foreign regulatory authorities may impose consent decrees or withdraw or vary 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 verekitug or any other potential future product candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or 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 trials to assess new safety risks or imposition of distribution restrictions or other restrictions under a REMS program or a comparable foreign program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary product recalls;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA or comparable foreign regulatory authorities to approve pending applications or supplements to approved applications filed by us or suspension, variation or withdrawal of approvals;
- product seizure or detention or refusal to permit the import or export of verekitug or any other potential future product candidates;
- total or partial suspension of production, distribution, manufacturing or clinical trials;

- operating restrictions;
- suspension of licenses; and
- injunctions, fines or the imposition of civil or criminal penalties.

Additionally, the FDA and comparable foreign regulatory authorities strictly regulate marketing, labeling, advertising and promotion of products that are placed on the market. Products may be promoted only for the approved indications and in accordance with the provisions of the approved label.

The policies of the FDA, the EMA, and the European Commission, and comparable foreign regulatory authorities may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of verekitug or any other potential future product candidates. In addition, the U.S. Supreme Court's July 2024 decision to overturn established case law giving deference to regulatory agencies' interpretations of ambiguous statutory language has introduced uncertainty regarding the extent to which the FDA's regulations, policies and decisions may become subject to increasing legal challenges, delays, and/or changes. 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. For more information, see the section titled "Business—Government regulation" included elsewhere in this prospectus.

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.

Verekitug or any other potential future product candidates for which we intend to seek approval as biological products may face competition sooner than anticipated.

The Biologics Price Competition and Innovation Act of 200 (the "BPCIA") 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 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 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.

We believe any of our potential future product candidates approved as a biological product under a BLA should qualify for the 12-year period of 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 verekitug or any other potential future product candidates to be reference products for competing products, potentially creating the opportunity for biosimilar competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, could be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products will depend on a number of marketplace and regulatory factors that are still developing.

In the European Union, there is a special regime for biosimilars, or biological medicinal products that are similar to a reference medicinal product but that do not meet the definition of a generic medicinal product. For such products, the results of appropriate preclinical or clinical trials must be provided in support of an application. Guidelines from the EMA detail the type of quantity of supplementary data to be provided for different types of biological product.

While we may in the future seek designations for verekitug or any other potential future product candidates with the FDA and comparable foreign regulatory authorities that are intended to confer benefits such as a faster development process, an accelerated regulatory pathway or regulatory exclusivity, there can be no assurance that we will successfully obtain such designations. In addition, even if verekitug or any other potential future product candidates are granted such designations, we may not be able to realize the intended benefits of such designations.

The FDA and comparable foreign regulatory authorities offer certain designations for product candidates that are designed to encourage the research and development of product candidates that are intended to address conditions with significant unmet medical need. These designations may confer benefits such as additional interaction with regulatory authorities, a potentially accelerated regulatory pathway and priority review. However, there can be no assurance that we will successfully obtain such designations for verekitug or any other potential future product candidates. In addition, while such designations could expedite the development or approval process, they generally do not change the standards for approval. Even if we obtain such designations for verekitug or any other potential future product candidates, there can be no assurance that we will realize their intended benefits.

For example, we may seek a Fast Track Designation for verekitug or any other potential future product candidates we develop. If a product is intended for the treatment of a serious or life-threatening condition and preclinical or clinical data demonstrate the potential to address an unmet medical need for this condition, the product sponsor may apply for Fast Track Designation. The FDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation, we cannot assure you that the FDA would decide to grant it. Even if we do receive Fast Track Designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may rescind the Fast Track Designation if it believes that the designation is no longer supported by data from our clinical development activities.

We also may seek Breakthrough Therapy Designation for verekitug or any other potential future product candidates we develop. A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over currently approved therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For drugs 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. Drugs designated as breakthrough therapies by the FDA are also eligible for accelerated approval and priority review.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe a product candidate we develop meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of Breakthrough Therapy Designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if any product candidate we develop qualifies as a breakthrough therapy, the FDA may later decide that the drug no longer meets the conditions for qualification and rescind the designation.

Even in the absence of obtaining fast track and/or breakthrough therapy designations, a sponsor can seek priority review at the time of submitting a marketing application. The FDA may designate a product for priority review if it is a product that treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness when compared with other available therapies. Significant improvement may be illustrated by

evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting adverse reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, or evidence of safety and effectiveness in a new subpopulation. A priority review designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months. Priority review designation may be rescinded if a product no longer meets the qualifying criteria.

We may be unsuccessful in obtaining or may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.

Under the Orphan Drug Act, the FDA may designate a drug as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually 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 U.S. 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 user fee waivers.

Similarly, in the EU, a medicinal product can be designated as an orphan medicinal product by the European Commission if its sponsor can establish that: (i) the product is intended for the diagnosis, prevention or treatment of life-threatening or chronically debilitating conditions; (ii) either (a) such conditions affect not more than 5 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 developing the medicinal product; and (iii) there exists no satisfactory authorized method of diagnosis, prevention, or treatment of the condition that has been authorized in the EU, or even if such method exists, the product will be of significant benefit to those affected by that condition. In the EU, orphan medicinal product designation entitles a party to incentives such as reduction of fees or fee waivers protocol assistance, and access to the centralized marketing authorization procedure.

Generally, if a product with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug is entitled to a period of marketing exclusivity, which precludes the FDA from approving another marketing application for the same product and indication for that time period, except in limited circumstances. In the EU, marketing exclusivity prevents the EMA from accepting another marketing authorization application or accepting an application to extend for a similar product and the European Commission cannot grant a marketing authorization for the same indication. The applicable period is seven years in the U.S. and ten years in the EU. The EU exclusivity period is extended by two years for orphan medicinal products that have also complied with an agreed Pediatric Investigation Plan. However, the EU exclusivity period can be reduced to six years, if at the end of the fifth, it is established that a product no longer meets the criteria on the basis of which it received orphan medicinal product designation, including where it can be demonstrated on the basis of available evidence that the product is sufficiently profitable so that market exclusivity is no longer justified or where the prevalence of the condition has increased above the threshold.

Even if we obtain orphan drug exclusivity for a drug, that exclusivity may not effectively protect the designated drug from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA or the European Commission can subsequently approve the same drug for the same condition if the FDA or the European Commission concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

Where appropriate, we may secure approval from the FDA, the European Commission or other comparable foreign regulatory authorities through the use of expedited approval pathways, such as accelerated approval or comparable foreign abbreviated pathways. If we are unable to obtain such approvals, we may be required to conduct additional preclinical studies or clinical trials beyond those that we contemplate, which could increase the expense of obtaining, and delay the receipt of, necessary marketing approvals. Even if we receive accelerated approval from the FDA or approval following comparable foreign abbreviated pathways by foreign regulatory authorities, if our confirmatory trials do not verify clinical benefit, or if we do not comply with rigorous post-marketing requirements, the FDA or such comparable foreign regulatory authorities may seek to withdraw the accelerated approval.

Where possible, we plan to pursue accelerated development strategies in areas of high unmet need. We may seek an accelerated approval pathway for our one or more of our potential future product candidates from the FDA, EMA or other comparable foreign regulatory authorities. Under the accelerated approval provisions in the Federal Food, Drug, and Cosmetic Act, and the FDA's implementing regulations, the FDA may grant accelerated approval to a product candidate designed to treat a serious or life-threatening condition that provides meaningful therapeutic benefit over available therapies upon a determination that the product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit. The accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the drug's clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022 ("FDORA"), the FDA is permitted to require, as appropriate, that a post-approval confirmatory study or studies be underway prior to approval or within a specified time period after the date of approval for a product granted accelerated approval. FDORA also gives the FDA increased authority to withdraw approval of a drug or biologic granted accelerated approval on an expedited basis if the sponsor fails to conduct such studies in a timely manner, send status updates on such studies to the FDA every 180 days to be publicly posted by the agency, or if such post-approval studies fail to verify the drug's predicted clinical benefit. The FDA is empowered to take action, such as issuing fines, against companies that fail to conduct with due diligence any post-approval confirmatory study or submit timely reports to the agency on their progress.

Prior to seeking accelerated approval, or approval following comparable foreign abbreviated pathways, we would seek feedback from the FDA or other comparable foreign regulatory authorities and would otherwise evaluate our ability to seek and receive such accelerated approval or approval following comparable foreign abbreviated pathways. There can be no assurance that after our evaluation of the feedback and other factors we will decide to pursue or submit a BLA for accelerated approval or any other form of expedited development, review or approval. Similarly, there can be no assurance that after subsequent feedback from the FDA, or other comparable foreign regulatory authorities, we will continue to pursue or apply for accelerated approval or any other form of expedited development, review or approval, even if we initially decide to do so. Furthermore, if we decide to submit an application for accelerated approval, or comparable foreign abbreviated pathways, there can be no assurance that such application will be accepted or that any approval will be granted on a timely basis, or at all. The FDA, the EMA, or the European Commission, or other comparable foreign regulatory authorities could also require us to conduct further studies prior to considering our application or granting

approval of any type, including, for example, if other products are approved via the accelerated pathway, or comparable foreign abbreviated pathway, and subsequently converted by FDA or comparable foreign regulatory authorities to full approval. A failure to obtain accelerated approval or any other form of expedited development, review or approval for our product candidate would result in a longer time period to commercialization of such product candidate, could increase the cost of development of such product candidate and could harm our competitive position in the marketplace.

Our relationships with healthcare professionals and physicians and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

It is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and regulations. Healthcare professionals, physicians and third-party payors in the United States and elsewhere play a primary role in the recommendation and prescription of pharmaceutical products. Arrangements with third-party payors and customers can expose pharmaceutical manufacturers to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we conduct research and would sell, market and distribute our products. As a pharmaceutical company, even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, supranational, national, federal and state healthcare laws and regulations that may affect our ability to operate may apply. For more information on healthcare laws and regulations that may impact our company, see the section titled “Business—Government regulation—Other healthcare laws” included elsewhere in this prospectus.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare professionals, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Ensuring business arrangements comply with applicable healthcare and privacy laws, as well as responding to possible investigations by government authorities, can be time and resource-consuming and can divert a company’s attention from the business.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency or other competent authority guidance or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including administrative, civil and criminal penalties, damages, fines, disgorgement, the exclusion from participation in federal and state healthcare programs, individual imprisonment, reputational harm and the curtailment or restructuring of our operations, as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws. Further, defending against any such actions can be costly and time consuming, and may require significant financial and 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. If any of the physicians or other professionals or entities with whom we expect to do business is found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs and imprisonment. If any of the above occur, our ability to operate our business and our results of operations could be adversely affected.

Coverage and reimbursement may be limited or unavailable in certain market segments for verekitug or any other potential future product candidates, if approved, which could make it difficult for us to sell them profitably.

The success of verekitug or any other potential future product candidates, if approved, depends on the availability of coverage and adequate reimbursement from third-party payors. Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Coverage and adequate reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance.

Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is:

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

In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors, and the principal decisions about reimbursement for new medicines are typically made by the Centers for Medicare & Medicaid Services ("CMS"). CMS decides whether and to what extent a new medicine will be covered and reimbursed under Medicare and private payors tend to follow CMS to a substantial degree. Even if we obtain coverage for a given product, the resulting reimbursement payment rates might not be adequate for us to achieve or sustain profitability or may require co-payments that patients find unacceptably high. Additionally, third-party payors may not cover, or provide adequate reimbursement for, long-term follow-up evaluations required following the use of product candidates, once approved. It is difficult to predict at this time what third-party payors will decide with respect to the coverage and reimbursement for verekitug or any other potential future product candidates. Even if we do receive a favorable coverage determination for our products by third-party payors, coverage policies and third-party payor reimbursement rates may change at any time.

Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. 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 verekitug or any other potential future product candidates that we 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 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. Payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives.

Moreover, increasing efforts by governmental and other third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment

for verekitug or any other potential future product candidates. There has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for drugs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

We expect that healthcare reform measures that may be adopted in the future may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products. Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals or clearances of verekitug or any other potential future product candidates, if any, may be.

In addition, in some foreign countries, the proposed pricing for a product must be approved before it may be lawfully marketed. The requirements governing product 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 verekitug or any other potential future product candidates. Historically, products launched in the European Union do not follow price structures of the United States and generally prices tend to be significantly lower.

For more information on the laws and regulations that may impact coverage and reimbursement of verekitug or any other potential future product candidates, see the section titled “Business—Government regulation—Coverage and reimbursement” included elsewhere in this prospectus.

Ongoing healthcare legislative and regulatory reform measures may have a material adverse effect on our business and results of operations.

Changes in regulations, statutes or the interpretation of existing regulations could impact our business in the future by requiring, for example, (1) changes to our manufacturing arrangements, (2) additions or modifications to product labeling, (3) the recall or discontinuation of our products or (4) additional record-keeping requirements. If any such changes were to be imposed, they could adversely affect the operation of our business. See the sections titled “Business—Government regulation—Coverage and reimbursement” and “—Healthcare reform” included elsewhere in this prospectus.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of products have been a focus in this effort. There have been a number of federal and state proposals

during the last few years regarding the pricing of pharmaceutical products, limiting coverage and the amount of reimbursement for drugs and other medical products, government control and other changes to the healthcare system in the United States. Governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our revenue generated from the sale of any approved products.

Moreover, payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives. For example, CMS may develop new payment and delivery models, such as bundled payment models. In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their commercial products, which has resulted in several Congressional inquiries and proposed and enacted state and federal legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical products. Congress has indicated that it will continue to seek new legislative measures to control drug costs.

In December 2021, Regulation No 2021/2282 on Health Technology Assessment ("HTA") amending Directive 2011/24/EU, was adopted in the EU. This Regulation, which entered into force in January 2022 and will apply in January 2025, is intended to boost cooperation among EU Member States in assessing health technologies, including new medicinal products, and providing the basis for cooperation at EU level for joint clinical assessments in these areas. The Regulation foresees a three-year transitional period and will permit EU Member States to use common HTA tools, methodologies, and procedures across the EU, working together in four main areas, including joint clinical assessment of the innovative health technologies with the most potential impact for patients, joint scientific consultations whereby developers can seek advice from HTA authorities, identification of emerging health technologies to identify promising technologies early, and continuing voluntary cooperation in other areas. Individual EU Member States will continue to be responsible for assessing non-clinical (e.g., economic, social, ethical) aspects of health technologies, and making decisions on pricing and reimbursement.

These laws, and future supranational, national state and federal healthcare reform measures may be adopted in the future, any of which may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for verekitug or any other potential future product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used.

Our employees, independent contractors, consultants, and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other illegal activity by our current and any future employees, independent contractors, consultants, contract manufacturing organizations, CROs and vendors. Misconduct by these parties could include intentional, reckless, and/or negligent conduct that fails to comply with FDA or other regulations, provide true, complete and accurate information to the FDA, the national competent authorities of individual EU Member States, and other comparable foreign regulatory authorities, comply with manufacturing standards we may establish, comply with healthcare fraud and abuse laws and regulations, report financial information or data accurately, or disclose unauthorized activities to us. If we obtain FDA approval of verekitug or any other potential future product candidates and begin commercializing those products in the United States, our potential exposure under these laws will increase significantly, and our costs associated with compliance with these laws are likely to increase. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. Additionally, we are subject to the risk that a person could allege such

fraud or other misconduct, even if none occurred. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a material and adverse effect on our business, financial condition, results of operations and growth prospects.

Off-label use or misuse of verekitug or any other potential future product candidates may harm our reputation in the marketplace or result in injuries that lead to costly product liability suits.

If verekitug or any other potential future product candidates are approved by the FDA, we may only promote or market them in a manner consistent with their FDA-approved labeling. We will train our marketing and sales force against promoting verekitug or any other potential future product candidates for uses outside of the approved indications for use, known as "off-label uses." We cannot, however, prevent a physician from verekitug or any other potential future product candidates off-label, when in the physician's independent professional medical judgment he or she deems it appropriate. Furthermore, the use of verekitug or any other potential future product candidates for indications other than those approved by the FDA may not effectively treat such conditions. Any such off-label use of verekitug or any other potential future product candidates could harm our reputation in the marketplace among physicians and patients. There may also be increased risk of injury to patients if physicians attempt to use verekitug or any other potential future product candidates for these uses for which they are not approved, which could lead to product liability suits that might require significant financial and management resources and that could harm our reputation. Similar requirements and considerations apply abroad.

Inadequate funding for the FDA, other government agencies or comparable foreign regulatory authorities could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA or comparable foreign regulatory authorities to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies or comparable foreign regulatory authorities on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA, other government agencies or comparable foreign regulatory authorities may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical employees and stop critical activities. If a prolonged government shutdown occurs, including as a result of reaching the debt ceiling, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, future government shutdowns could impact our ability to access the public markets and obtain necessary capital in order to properly capitalize and continue our operations.

EU drug marketing and reimbursement regulations may materially affect our ability to market and receive coverage for our products in the EU Member States.

We intend to seek approval to market verekitug or any other potential future product candidates in both the United States and in selected foreign jurisdictions. If we obtain approval in one or more foreign jurisdictions for verekitug or any other potential future product candidates, we will be subject to rules and regulations in those jurisdictions. In some foreign countries, particularly those in the European Union, the pricing of products is subject to governmental control and other market regulations which could put pressure on the pricing and usage of verekitug or any other potential future product candidates. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining marketing approval of a product candidate. In addition, market acceptance and sales of verekitug or any other potential future product candidates will depend significantly on the availability of adequate coverage and reimbursement from third-party payors for them and may be affected by existing and future healthcare reform measures.

Much like the federal Anti-Kickback Statute prohibition in the United States, the provision of benefits or advantages to physicians and other healthcare professionals to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is also prohibited in the European Union. Interactions between pharmaceutical companies and healthcare professionals, including the provision of benefits or advantages, are governed by strict laws, such as national anti-bribery laws of individual EU Member States and the Bribery Act 2010 in the UK, national sunshine rules, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment. Infringement of these laws could result in substantial fines and imprisonment.

Payments made to physicians and other healthcare professionals in certain EU Member States must be publicly disclosed. Moreover, agreements with physicians often may require prior notification or approval by the healthcare professional's employer, his or her competent professional organization and/or the regulatory authorities of the individual EU Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

In addition, in some foreign countries, including some countries in the European Union, the proposed pricing for a product must be approved before it may be lawfully marketed. The requirements governing product pricing and reimbursement vary widely from country to country. 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. An EU Member State may approve a specific price for the medicinal product, it may refuse to reimburse a product at the price set by the manufacturer 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. Many EU Member States also periodically review their reimbursement procedures for medicinal products, which could have an adverse impact on reimbursement status. We expect that legislators, policymakers and healthcare insurance funds in the individual EU Member States will continue to propose and implement cost-containing measures, such as lower maximum prices, lower or lack of reimbursement coverage and incentives to use cheaper, usually generic, products as an alternative to branded products, and/or branded products available through parallel import to keep healthcare costs down. Moreover, in order to obtain reimbursement for our products in some European countries, including some EU Member States, we may be required to compile additional data comparing the cost-effectiveness of our products to other available therapies. This HTA of medicinal products is becoming an increasingly common part of the pricing and reimbursement procedures in some EU Member States, including those representing the larger markets. The HTA process is the procedure to assess therapeutic, economic and societal impact of a given medicinal product in the national healthcare systems of the individual country. The outcome of an HTA will often influence the pricing and reimbursement status granted to these medicinal products by the

competent authorities of individual EU Member States. The extent to which pricing and reimbursement decisions are influenced by the HTA of the specific medicinal product currently varies between EU Member States. Reference pricing used by various EU Member States and parallel distribution, or arbitrage between low-priced and high-priced EU Member States, can further reduce prices. There can be no assurance that any country that has price controls or reimbursement limitations for biopharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the European Union do not follow price structures of the United States and generally prices tend to be significantly lower. 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 pricing is set at unsatisfactory levels or if reimbursement of our products is unavailable or limited in scope or amount, our revenues from sales and the potential profitability of verekitug or any other potential future product candidates in those countries would be negatively affected.

We are subject to export and import controls, economic sanctions, and anti-corruption laws and regulations of the United States and other jurisdictions. We can face criminal liability and other serious consequences for violations of these laws and regulations, 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, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control. Export controls and trade sanctions laws and regulations may restrict or prohibit altogether the provision, sale, or supply of our products to certain governments, persons, entities, countries, and territories, including those that are the target of comprehensive sanctions or an embargo. We are also subject to anti-corruption and anti-bribery laws, including 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, and other state and national anti-bribery 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 partners from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the transactions of the corporation and to devise and maintain an adequate system of internal accounting controls. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other partners, even if we do not explicitly authorize or have actual knowledge of such activities. Any violation 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.

If we or any third-party manufacturer we engage now or in the future fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs or liabilities that could have a material adverse effect on our business.

We and third-party manufacturers we engage now are, and any third-party manufacturer we may engage in the future will be, subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

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

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

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

Risks related to our intellectual property

Our success is largely based upon our intellectual property and proprietary technologies, and we may be unable to protect and/or enforce our intellectual property.

Our success will depend, in large part, on obtaining and maintaining patent protection and trade secret protection for verekitug or any other potential future product candidates and their formulations and uses, as well as successfully enforcing our patents against third-party infringers and/or defending these patents against third-party challenges. If we (or our licensees should such licensees be granted the right to prosecute or enforce certain patents within our portfolio) fails to appropriately prosecute or is unable to obtain and maintain patent protection for verekitug or any other potential future product candidates (or aspects thereof), our ability to develop, license and/or commercialize these product candidates may be adversely affected and we may not be able to prevent competitors from making, using, selling or importing competing products. This failure or inability to properly or adequately protect the intellectual property rights relating to these product candidates could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or our partners will be successful in protecting verekitug or any other potential future product candidates by obtaining, enforcing and defending patents. These risks and uncertainties include the following:

- patent applications may not result in any patent being issued;
- patents that may be issued may not include claims that cover a broad enough scope to prevent design around solutions by competitors;
- patents that may be issued may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable, or otherwise may not provide adequate barriers to entry or any competitive advantage;
- because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that before a potential product can be commercialized, any related patent may expire, or remain in existence for only a short period following commercialization, reducing, or eliminating any advantage of the patent;

- our competitors, many of which have substantially greater resources than us or our partners do, and many of which have made significant investments in competing technologies, may seek, or may already have sought or obtained, patents that will limit, interfere with, or eliminate our ability to make, use, and sell our potential products;
- there may be significant pressure on the U.S. government and other international governmental bodies to limit the scope of patent protection for disease treatments that prove successful as a matter of public policy regarding worldwide health concerns;
- countries other than the United States may have patent laws less favorable to patentees than those upheld by United States courts, allowing foreign competitors a better opportunity to create, develop, and market competing products; and
- we may be involved in lawsuits to protect or enforce our patents or the patents we have rights to enforce, which could be expensive, time consuming and/or unsuccessful.

In addition to patents, we also rely on trade secrets and proprietary know-how. Although we have taken steps to protect our trade secrets and unpatented know-how, including entering into confidentiality agreements with third parties, and confidential information and assignment agreements with employees, consultants, and advisors, there exists the potential that third parties may still somehow obtain this information or arrive at the same or similar information independently, which would reduce or eliminate our competitive advantage. Moreover, we may become subject to claims that we directly or indirectly (through our consultants, advisors, or independent contractors that we may engage to assist us in developing verekitug or any other potential future product candidates) have wrongfully or inadvertently disclosed, acquired or used trade secrets or other proprietary information of third parties.

We may be forced to litigate to enforce or defend our intellectual property rights.

We may be forced to litigate to enforce or defend our intellectual property rights against infringement by competitors, and to protect our trade secrets against unauthorized use. In so doing, we may place our intellectual property at risk of being invalidated, rendered unenforceable, or limited or narrowed in scope such that we may no longer be used to adequately prevent the manufacture, sale or import of competitive product. Further, an adverse result in any litigation or other proceedings before government agencies such as the United States Patent and Trademark Office (the “USPTO”), may place pending applications at risk of non-issuance or limitations in scope. Further, derivation proceedings, entitlement proceedings, ex parte reexamination, inter partes review, post grant review, and opposition proceedings provoked by third parties or brought by the USPTO or any foreign patent authority may be used to challenge the inventorship, ownership, claim scope, or validity of our patents. Additionally, because of the substantial amount of discovery typically required in connection with intellectual property litigation, there is a risk that some of our confidential and proprietary information or trade secrets could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the value of the company. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

If we enter into future arrangements involving government funding, and we make inventions as a result of such funding, our intellectual property rights to such discoveries may be subject to the applicable provisions of the Bayh Dole Act of 1980. 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. Any exercise by the government of certain of our rights could harm our competitive position, business, financial condition, results of operations and growth prospects.

If we or our partners are sued for infringing or misappropriating the intellectual property rights of third parties, it could be costly and time consuming, and an unfavorable outcome in any such litigation could have a material adverse effect on our business.

Our success also depends upon our ability and the ability of us any of our future partners to develop, manufacture, market and sell verekitug or any other potential future product candidates without infringing on the proprietary rights of third parties. Numerous United States and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing products, some of which may be directed at claims that overlap with the subject matter of our intellectual property. Because patent applications can take many years to issue, there may be currently pending applications, now unknown to us, which may later result in issued patents that verekitug or any other potential future product candidates or proprietary technologies may be alleged to infringe upon. Similarly, there may be issued patents relevant to verekitug or any other potential future product candidates of which we are not aware.

In addition, third parties may sue us alleging that we infringe, or have infringed, on their patents. Even if we are successful in defending any claims of infringement, the defense of such claims may be costly and present a time consuming distraction. In the event of a successful claim of infringement against us, we may be required to:

- pay substantial damages and/or ongoing royalty payments;
- stop using some or all of our technologies and methods;
- stop certain research and development efforts;
- develop non infringing products or methods (i.e., develop or design around); and/or
- obtain one or more licenses from third parties for an upfront lump sum, an ongoing royalty, or a combination thereof.

If required, we cannot assure you that we will be able to obtain such licenses on acceptable terms, or at all. If we are sued for infringement, we could encounter substantial delays in the development, manufacture, and commercialization of verekitug or any other potential future product candidates. Any litigation, whether to enforce our patent rights or to defend against allegations that we allegedly infringe on third-party rights, could be costly, time consuming, and may distract management from other important tasks.

As is commonplace in the biotechnology and pharmaceutical industry, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies, including our competitors or potential competitors. To the extent our employees are involved in research endeavors that are similar to those which they were involved in at their former place of employment, we may be subject to claims that such employees and/or we have inadvertently or otherwise used or disclosed the alleged trade secrets or other proprietary information of such former employers. Litigation may be necessary to defend against such claims, which could result in substantial costs, be a distraction to management and ultimately have a material adverse effect on us, even if we are successful in defending such claims.

The biotechnology and pharmaceutical industries have experienced substantial litigation and other proceedings concerning intellectual property rights, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which could be uncertain and may prevent, delay, or otherwise interfere with our product discovery and development efforts. Our commercial success depends upon our ability or may depend on the ability of future collaborators to develop, manufacture, market, and sell our products. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights as well as administrative proceedings for challenging patents, including derivation, inter partes review, post grant review, and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. We may be subject to, and may in the future become party to, or threatened with, adversarial proceedings or litigation concerning intellectual property rights with respect to verekitug or any other potential future product candidates we may develop, including interference proceedings, post grant review, inter partes review, and derivation proceedings before the USPTO and similar proceedings in foreign jurisdictions such as oppositions before the European Patent Office. Numerous United States and foreign issued patents and pending patent applications that are owned by third parties exist in the fields in which we are developing verekitug or any other potential future product candidates and infringement claims may be asserted against us or our partners based on existing patents or patents that may be granted in the future, regardless of their merit.

It is not always clear to industry participants, including us, which patents cover various types of therapies, products or their methods of use or manufacture. Moreover, as with many technology-based products, there may be third-party patent applications that, if issued, may include the claims that could be or are construed to cover components of verekitug or any other potential future product candidates. There may also be third-party patents of which we are currently unaware with claims to our technologies, compositions, methods of manufacture or methods of use.

Our ability to commercialize verekitug or any other potential future product candidates in the United States and abroad may be adversely affected if we cannot successfully defend against infringement claims or obtain a license on commercially reasonable terms to relevant third-party patents that cover verekitug or any other potential future product candidates. Even if we have a strong defense and/or believe that third-party intellectual property claims are without merit, there can be no assurance that a court would find in our favor on questions of infringement, validity, enforceability, and/or priority. A court of competent jurisdiction could hold that these third-party patents are valid and enforceable and have been infringed upon, which could materially and adversely affect our ability to commercialize verekitug or any other potential future product candidates or technologies covered by the asserted third-party patents. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claims, there is no assurance that a court of competent jurisdiction would invalidate the asserted claims of any such U.S. patent. If we are found to be infringing on a third party's intellectual property rights, and we are unsuccessful in demonstrating that any such patents are invalid or unenforceable, we could be required to pay damages and/or an ongoing royalty or obtain a license from such third party to continue developing, manufacturing, and marketing verekitug or any other potential future product candidates and our technologies. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain such a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to it, and it could require us to pay substantial licensing fees and/or make ongoing royalty payments. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, we may be unable to commercialize verekitug or any other potential future product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. While less likely given the high bar required for injunction, we also could be temporarily or permanently forced, including by court order, to cease developing, manufacturing, and

commercializing the infringing technology or product candidates. In addition, we could be found liable for significant monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed on a patent or other intellectual property right. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar material adverse effect on our business, financial condition, results of operations and growth prospects.

The defense of third-party claims of alleged infringement or misappropriation of a third party's intellectual property rights often involves substantial litigation expense and could also be a substantial diversion of management and employee time and resources from our business. Some third parties may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, financial condition, results of operations and growth prospects. There could also be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, this could have a substantial adverse effect on the price of our common stock.

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

Periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and applications are due to be paid to the USPTO and foreign patent agencies outside of the United States over the lifetime of our patents and applications. If, in the future, we in-license patent rights, in the case of any in-licensed patent rights, we generally rely on our licensors to pay these fees due to U.S. and non U.S. patent agencies. For patent rights we own, we may rely on our outside patent counsel and/or annuity services in the United States and foreign countries to monitor these deadlines and to pay these fees when so instructed by us.

The USPTO and foreign patent agencies require compliance with procedural, documentary, fee payment, and other similar provisions, such as the requirement to disclose known prior art, during the patent application process. In the case of any in-licensed patent rights, we will generally depend on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property, and for our owned patent applications, we engage counsel and other professionals to help us comply with these requirements. While certain inadvertent lapses can be cured by payment of a late fee, by petition, or by other means in accordance with the applicable rules, there are situations in which non-compliance can result in a partial or complete loss of patent rights in the relevant jurisdiction. In the unlikely event that a non-compliance event were to occur, our competitors might be able to enter the market with similar or identical products or technology given our partial or complete loss of patent rights, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Patent terms may be inadequate to protect our competitive position on verekitug or any other potential future product candidates for an adequate amount of time.

Patents have a limited lifespan. The terms of individual patents depend upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from the earliest non provisional filing date in the applicable country. However, the actual protection afforded by a patent varies from country to country, and also depends upon many factors, including the type of patent, the scope of coverage, the availability of regulatory related extensions, the availability of legal remedies in a particular country and the validity and

enforceability of the patent, and whether a portion of the patent term has been terminally disclaimed based on other patents. Various extensions including patent term extension and patent term adjustment may be available, but the lives of such extensions, and the protections they afford, are limited. Even if patents covering verekitug or any other potential future 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 verekitug or any other potential future product candidates might expire before or shortly after we or our partners commercialize those candidates. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours for an adequate time period.

If we do not obtain sufficient patent term protections for verekitug or any other potential future product candidates, our business may be materially harmed.

Patents have a limited term. In the United States, the statutory expiration of a patent is generally 20 years after it is filed. Additional patent terms may be available through a patent term adjustment process, resulting from USPTO delays during prosecution. Although various extensions may be available, the life of a patent, and the protection it affords, is limited. Even if patents covering verekitug or any other potential future product candidates are obtained, once the patent life has expired for a product candidate, we may be open to competition from generics or biosimilars.

Depending upon the timing, duration, and specifics of FDA regulatory approval of verekitug or any other potential future product candidates, one or more patents issued from U.S. patent applications that we file or those of our future licensors may be eligible for limited patent term restoration under the Drug Price Competition and Patent Term Restoration Act of 1984 (the “Hatch-Waxman Amendments”). The Hatch-Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during the FDA regulatory review process based on the first regulatory approval for a particular drug or biologic. A maximum of one patent may be extended per FDA-approved drug as compensation for the patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of drug approval, and only those claims covering such approved drug product, a method for using it or a method for manufacturing it may be extended. Patent term extension may also be available in certain foreign countries upon regulatory approval of verekitug or any other potential future product candidates.

Despite the possibility of an extension, we may not be granted an extension for which it applies in the United States or any other jurisdiction 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. Moreover, the applicable time or the scope of patent protection afforded could be less than we request.

If we are unable to obtain patent term extension or restoration, or the foreign equivalent, or the term of any such extension is less than we request, our competitors or other third parties may obtain approval of competing drugs following our patent expiration, and our revenue could be reduced, possibly materially. Further, if this occurs, our competitors or other third parties may take advantage of our investment in development and trials by referencing our clinical and preclinical data and launch their drug earlier than might otherwise be the case. Any of the foregoing could materially harm our business, financial condition, results of operations and growth prospects.

Changes in patent law in the United States and in non U.S. jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our technologies and verekitug or any other potential future product candidates.

As is the case with other biotech and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity, and are therefore costly, time consuming and inherently uncertain. Recent rulings from the U.S. Supreme Court and the Court of Appeals for the Federal Circuit have narrowed the scope of patent protection available in specified circumstances and weakened the rights of patent owners in specified situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

In addition, U.S. Supreme Court rulings over the past decade have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the validity and enforceability of issued patents. 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 weaken our ability to obtain new patents or to enforce and/or defend our existing patents and patents that we might obtain in the future.

The USPTO has issued subject matter eligibility guidance instructing USPTO examiners on the ramifications of the Supreme Court rulings in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Association for Molecular Pathology v. Myriad Genetics, Inc.*, and applied the *Myriad* ruling to natural products and principles including all naturally occurring molecules. In addition, the USPTO continues to provide updates to its guidance continues to be a developing area. The USPTO guidance may make it impossible for us to obtain similar patent claims in future patent applications. Currently, our patent portfolio contains claims of various types and scope, including methods of medical treatment. The presence of varying types of claims in our patent portfolio significantly reduces, but may not eliminate, our exposure to potential validity challenges.

On May 10, 2024, the USPTO issued a proposed rule to change terminal disclaimer practice to add a new requirement for terminal disclaimers filed to obviate (overcome) nonstatutory double patenting. Under the proposed rule, to overcome double patenting a patentee would need to agree that a patent with a terminal disclaimer will be enforceable only if the patent is not tied and has never been tied through one or more terminal disclaimers to a patent in which any claim has been finally held unpatentable or invalid over prior art. If this proposed rule becomes a final rule, it could significantly limit our patent rights and the ability to enforce them.

For our U.S. patent applications, which contain claims entitled to priority after March 16, 2013, there is a greater level of uncertainty due to the Leahy-Smith Act. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. The USPTO has promulgated regulations and developed procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, did not come into effect until March 16, 2013. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

An important change introduced by the Leahy-Smith Act is that, as of March 16, 2013, the United States transitioned to a “first-to-file” system for deciding which party should be granted a patent when two or more

patent applications are filed by different parties claiming the same invention. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to either: (i) file any patent application related to verekitug or any other potential future product candidates or (ii) invent any of the inventions claimed in our patents or patent applications.

Among some of the other changes introduced by the Leahy-Smith Act are changes that limit where a patentee may file a patent infringement suit and new procedures providing opportunities for third parties to challenge any issued patent in the USPTO. Included in these new procedures is a process known as Inter Partes Review ("IPR"), which has been generally used by many third parties since the enactment of the Leahy-Smith Act to invalidate patents. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal court 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. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. Additionally, the rights of review and appeal for IPR decisions is an area of law that is still developing.

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. For example, the United States and foreign government actions related to Russia's invasion of Ukraine may limit or prevent filing, prosecution and maintenance of patent applications in Russia. Government actions may also prevent maintenance of issued patents in Russia. These actions could result in abandonment or lapse of patents or patent applications, resulting in partial or complete loss of patent rights in Russia. If such an event were to occur, it could have a material adverse effect on our business. In addition, a decree was adopted by the Russian government in March 2022, allowing Russian companies and individuals to exploit inventions owned by patentees that have citizenship or nationality in, are registered in, or have predominately primary place of business or profit-making activities in the United States and other countries that Russia has deemed unfriendly without consent or compensation. Consequently, we would not be able to prevent third parties from practicing its inventions in Russia or from selling or importing products made using its inventions in and into Russia. Accordingly, our competitive position may be impaired, and our business, financial condition, results of operations and growth prospects may be adversely affected.

In addition, a European Unified Patent Court ("UPC") came into force on June 1, 2023. The UPC will be 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. Although we do not currently own any European patents, 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.

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

In addition to seeking patents for our technologies and verekitug or any other potential future product candidates, we also rely on trade secret protection, as well as confidentiality agreements, non-disclosure agreements and assignment agreements with our employees, consultants and third parties, to protect our know-how and other confidential and proprietary information, especially where we do not believe patent protection is appropriate or obtainable.

It is our policy to require our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements generally provide that all confidential information concerning our business or financial affairs developed by or made known to an individual or entity during the course of that party's relationship with us are to be kept confidential and not disclosed to third parties, except in certain specified circumstances. In the case of employees, the agreements also provide that all inventions conceived by the individual, and that are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In the case of consultants and other third-party service providers, the agreements provide us with certain rights to all inventions arising from the services provided to us by those individuals or entities. However, we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technologies and processes. Additionally, the assignment of intellectual property rights may not be self-executing, or assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. We may not be able to obtain adequate remedies for any breaches of such agreements. Ultimately, enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive, and time consuming, and the outcome is unpredictable.

In addition to contractual measures, we protect the confidential nature of our proprietary information through other appropriate precautions, such as physical and technological security measures. However, trade secrets and know-how can be difficult to protect despite these precautions. These measures may not, for example, in the case of misappropriation of a trade secret by an employee or third party with authorized access, provide adequate protection for our proprietary information. our security measures may not prevent an employee or consultant from misappropriating our trade secrets and providing them to a competitor, and any recourse we might take against this type of misconduct may not provide an adequate remedy to protect our interests fully. In addition, our trade secrets may be independently developed by others in a manner that could prevent us from receiving legal recourse. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any of that information was independently developed by a competitor, our competitive position could be harmed.

If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. In addition, courts inside and outside the United States are sometimes less willing or unwilling to protect trade secrets. Even if we are successful, these types of lawsuits may consume, in addition to substantial costs, significant amounts of our time and other resources. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Third parties may assert that our employees, consultants, or advisors have wrongfully used or disclosed confidential information or misappropriated trade secrets.

As is common in the biotechnology and pharmaceutical industries, we employ individuals that are currently or were previously employed at universities, research institutions or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we employ measures to ensure that our employees, consultants, and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these individuals have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. We may then be directly or indirectly involved in litigation proceedings to defend against these claims. If we fail in defending against any such claims, in addition to potentially paying monetary damages, we may lose valuable intellectual property rights and/or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and, if securities analysts or investors perceive these results to be negative, that perception could have a substantial adverse effect on the price of our common stock. Ultimately, any such litigation could substantially increase our operating losses and reduce our resources available for development activities, and we may not have sufficient financial or other resources to adequately engage in such litigation. For example, some of our competitors may be able to sustain the costs of such litigation more effectively than we can because of their substantially greater financial resources. In any case, uncertainties resulting from the initiation and continuation of intellectual property litigation or other intellectual property related proceedings could adversely affect our ability to compete in the marketplace.

Any trademarks we may obtain may be infringed or successfully challenged, resulting in harm to our business.

We expect to rely on trademarks as one means to distinguish verekitug or any other potential future product candidates that are approved for marketing from the products of our competitors. However, our trademarks or trade names may be challenged, infringed, circumvented, or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we benefit from to build name recognition among potential partners or customers in our markets of interest. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be allegations of trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively, and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversions of resources and could adversely affect our business, financial condition, results of operations and growth prospects.

In addition, any proprietary name we propose to use with verekitug or any other potential future product candidates in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed product names, including an evaluation of the potential for confusion with other product names. If the FDA objects to any of our proposed proprietary product names, we may be required to expend significant additional resources in an effort to identify a suitable proprietary product name that would qualify under applicable trademark laws, not infringe the existing rights of third parties, and be acceptable to the FDA.

Intellectual property rights do not necessarily address all potential threats.

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

- verekitug or any other potential future product candidates, if approved, may eventually become commercially available in generic or biosimilar product forms;
- others may be able to make similar antibodies to verekitug or any other potential future product candidates that are not covered by the claims of the patents that we license or may own in the future;
- we, or current or future licensors or collaborators, might not have been the first to make the inventions covered by the issued patent or pending patent application that we license or may own in the future, potentially resulting in the invalidation of such patents or refusal of such applications;
- we, or current or future licensors or collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- we, or current or future licensors or collaborators, may fail to meet our obligations to the U.S. government regarding any in licensed patents and patent applications funded by U.S. government grants, leading to the loss or unenforceability of patent rights;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing on our owned or licensed intellectual property rights;
- it is possible that our pending patent applications or those that we may own or license in the future will not lead to issued patents;
- it is possible that there are prior public disclosures that could invalidate our patents;
- it is possible that there are unpublished patent applications that may later issue with claims covering verekitug or any other potential future product candidates or technology similar to ours;
- it is possible that our patents or patent applications omit individual(s) that should be listed as inventor(s) or include individual(s) that should not be listed as inventor(s), which may cause these patents or patents issuing from these patent applications to be held invalid or unenforceable or result in a change in ownership;
- issued patents to which we hold rights may be held invalid, unenforceable, or narrowed in scope, including as a result of legal challenges by our competitors;
- the claims of our issued patents or patent applications, if and when issued, may not cover verekitug or any other potential future product candidates or narrowly cover them in such a way that competitors may be able to design around to avoid infringement allegations;
- the laws of foreign countries may not protect our proprietary rights or the proprietary rights of current or future licensors or collaborators to the same extent as the laws of the United States;
- the inventors of our patents or patent applications may become involved with competitors, develop products or processes that design around our patents, or become hostile to it or the patents or patent applications on which they are named as inventors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;

- we have engaged in scientific collaborations in the past and we intend to continue to do so in the future, and our collaborators may develop adjacent or competing products that are outside the scope of our patents;
- we may not develop additional proprietary technologies that are patentable;
- verekitug or any other potential future product candidates we develop may be covered by third-party patents or other exclusive rights;
- the patents of others may prohibit or otherwise harm our business; or
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently commercialize the technology and/or file a patent covering such intellectual property.

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

Risks related to this offering and ownership of our common stock

There has been no prior public market for our common stock, and an active trading market may not develop or be sustained.

There has been no public market for our common stock prior to this offering. The initial public offering price for our common stock was determined through negotiations among the underwriters and us and may vary from the market price of our common stock following this offering. An active or liquid market in our common stock may not develop upon closing of this offering or, if it does develop, it may not be sustainable. The lack of an active market may impair the value of your shares, your ability to sell your shares at the time you wish to sell them and the prices that you may obtain for your shares. An inactive market may also impair our ability to raise capital by selling our common stock and our ability to acquire other companies, products, or technologies by using our common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this section and elsewhere in this prospectus, these factors include:

- the commencement, enrollment, completion or results of our current or future preclinical and clinical trials for verekitug or any other potential future product candidates;
- any delay in identifying and advancing a clinical candidate for our other programs;
- any delay in our regulatory filings for verekitug or any other potential future product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- adverse results or delays, suspensions or terminations in future preclinical studies or clinical trials;
- our decision to initiate a clinical trial, not to initiate a clinical trial or to terminate an existing clinical trial;
- adverse regulatory decisions, including failure to receive regulatory approval of verekitug or any other potential future product candidates or the failure of a regulatory authority to accept data from preclinical studies or clinical trials conducted in other countries;

- changes in laws or regulations applicable to verekitug or any other potential future product candidates, including but not limited to clinical trial requirements for approvals;
- adverse developments concerning our manufacturers;
- our inability to obtain adequate product supply for any approved product or inability to do so at acceptable prices;
- our inability to establish collaborations, if needed;
- our failure to commercialize verekitug or any other potential future product candidates, if approved;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to verekitug or any other potential future product candidates;
- introduction of new products or services offered by us or our competitors;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry, or verekitug or any other potential future product candidates in particular, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- changes in the structure of the healthcare payment systems;
- overall performance of the equity markets;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- changes in accounting practices, such as the adoption of a new accounting standard;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and the market for biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources.

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations.

Our quarterly and annual operating results may fluctuate significantly, due to a variety of factors, many of which are outside of our control and may be difficult to predict, including:

- the timing and cost of, and level of investment in, research, development and, if approved, commercialization activities relating to verekitug or any other potential future product candidates, which may change from time to time;
- the timing and status of enrollment for clinical trials;
- the cost of manufacturing verekitug or any other potential future product candidates, as well as building out our supply chain, which may vary depending on the quantity of production and the terms of our agreements with manufacturers;
- expenditures that we may incur to acquire, develop or commercialize additional product candidates and technologies;
- timing and amount of any milestone, royalty or other payments due under any collaboration or license agreement;
- future accounting pronouncements or changes in our accounting policies;
- the timing and success or failure of preclinical studies and clinical trials for verekitug or any other potential future product candidates or competing product candidates, or any other change in the competitive landscape of our industry, including consolidation among our competitors or partners;
- the timing of receipt of approvals for verekitug or any other potential future product candidates from regulatory authorities in the United States and internationally;
- exchange rate fluctuations;
- coverage and reimbursement policies with respect to verekitug or any other potential future product candidates, if approved, and potential future drugs that compete with our products; and
- the level of demand for verekitug or any other potential future product candidates, if approved, which may vary significantly over time.

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance.

This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our future revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if any forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated revenue or earnings guidance we may provide.

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

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

Our executive officers, directors, principal stockholders and their respective affiliates own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Based on the beneficial ownership of our common stock as of August 1, 2024, prior to this offering, our executive officers, directors, holders of 5% or more of our capital stock and their respective affiliates beneficially owned approximately 92.8% of our voting stock and, upon the completion of this offering, that same group will hold approximately 66.0% of our outstanding voting stock (assuming no exercise of the underwriters' option to purchase additional shares, no exercise of outstanding options and no purchases of shares in this offering by any of this group), in each case assuming the conversion of all outstanding shares of our preferred stock into shares of our common stock. As a result, these stockholders, if acting together, will continue to have significant influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, amendment of our organizational documents, any merger, consolidation or sale of all or substantially all of our assets and any other significant corporate transaction. In addition, certain of our principal stockholders, including Maruho Deutschland GmbH, entities affiliated with OrbiMed, AI Upstream LLC, Decheng Capital Global Life Sciences Fund IV, L.P., entities affiliated with Enavate Sciences, and entities affiliated with Venrock Healthcare Capital Partners, have designated certain members of our board of directors. The interests of these stockholders may not be the same as or may even conflict with your interests. For example, these stockholders could delay or prevent a change of control of our company, even if such a change of control would benefit our other stockholders, which could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company or our assets and might affect the prevailing market price of our common stock. The significant concentration of stock ownership may adversely affect the trading price of our common stock due to investors' perception that conflicts of interest may exist or arise.

Future sales of our common stock in the public market could cause our common stock price to fall.

Our common stock price could decline as a result of sales of a large number of shares of common stock after this offering or the perception that these sales could occur. These sales, or the possibility that these sales may occur, might also make it more difficult for us to sell equity securities in the future at a time and price that we deem appropriate.

Upon the completion of this offering, 51,341,695 shares of common stock will be outstanding (or 53,591,695 shares if the underwriters exercise their option to purchase additional shares from us in full), based on the number of shares outstanding as of June 30, 2024.

All shares of common stock expected to be sold in this offering will be freely tradable without restriction or further registration under the Securities Act of 1933, as amended ("Securities Act") unless held by our "affiliates" as defined in Rule 144 under the Securities Act. The resale of the remaining 36,341,695 shares, or 70.8% of our outstanding shares of common stock following this offering, is currently prohibited or otherwise restricted, subject to certain limited exceptions, as a result of securities law provisions, market standoff agreements entered into by certain of our stockholders with us or lock-up agreements entered into by our stockholders with the underwriters in connection with this offering. However, subject to applicable securities law restrictions, these shares will be able to be sold in the public market beginning on the 181st day after the date of this prospectus. Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, market stand-off agreements and/or lock-up agreements, as well as Rules 144 and 701 under the Securities Act. For more information, see the section titled "Shares eligible for future sale" included elsewhere in this prospectus.

Upon the completion of this offering, the holders of approximately 34,579,952 shares, or 67.4% of our outstanding shares following this offering, of our common stock will have rights, subject to some conditions, to require us to file registration statements covering the sale of their shares or to include their shares in registration statements that we may file for ourselves or our other stockholders. We also intend to register the offer and sale of all shares of common stock that we may issue under our equity compensation plans. Once we register the offer and sale of shares for the holders of registration rights and shares that may be issued under our equity incentive plans, these shares will be able to be sold in the public market upon issuance, subject to the lock-up agreements described in the section titled "Underwriting" included elsewhere in this prospectus.

In addition, in the future, we may issue additional shares of common stock, or other equity or debt securities convertible into common stock, in connection with a financing, acquisition, employee arrangement, or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and could cause the price of our common stock to decline.

We will have broad discretion in how we use the proceeds of this offering and may not use these proceeds effectively, which could affect our results of operations and cause our stock price to decline.

We will have considerable discretion in the application of the net proceeds of this offering, including for any of the purposes described in the section of this prospectus titled "Use of proceeds," and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. As a result, investors will be relying upon management's judgment with only limited information about our specific intentions for the use of the net proceeds of this offering. We may use the net proceeds for purposes that do not yield a significant return or any return at all for our stockholders. In addition, pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

If you purchase shares of our common stock in our initial public offering, you will experience substantial and immediate dilution.

The initial public offering price of $17.00 per share is substantially higher than the pro forma as adjusted net tangible book value per share of our outstanding common stock immediately following the completion of this

offering. If you purchase shares of common stock in this offering, you will experience substantial and immediate dilution in the pro forma as adjusted net tangible book value per share of $7.90 per share as of June 30, 2024. That is because the price that you pay will be substantially greater than the pro forma as adjusted net tangible book value per share of the common stock that you acquire. This dilution is due in large part to the fact that our earlier investors paid substantially less than the initial public offering price when they purchased their shares of our capital stock. You will experience additional dilution if the underwriters exercise their option to purchase additional shares in this offering, when those holding stock options exercise their right to purchase common stock under our equity incentive plans, upon the vesting of outstanding restricted stock awards or when we otherwise issue additional shares of common stock. For additional details see the section titled “Dilution” included elsewhere in this prospectus.

Participation in this offering by our existing stockholders and/or their affiliated entities may reduce the public float for our common stock.

To the extent our existing stockholders who are our affiliates or their affiliated entities participate in this offering, such purchases would reduce the non-affiliate public float of our common stock after this offering, which is the number of shares of common stock that are not held by our officers, directors and affiliated stockholders. A reduction in the public float could reduce the number of shares of common stock that can be traded at any given time, which could adversely impact the liquidity of our common stock and depress the price at which you may be able to sell shares of common stock purchased in this offering.

Our issuance of additional capital stock in connection with financings, acquisitions, investments, our stock incentive plans or otherwise will dilute all other stockholders.

We expect to issue additional capital stock in the future that will result in dilution to all other stockholders. We expect to grant equity awards to employees, directors and consultants under our stock incentive plans. We may also raise capital through equity financings in the future. As part of our business strategy, we may acquire or make investments in complementary companies, products or technologies and issue equity securities to pay for any such acquisition or investment. Any such issuances of additional capital stock may cause stockholders to experience significant dilution of their ownership interests and the per share value of our common stock to decline.

We do not currently intend to pay dividends on our common stock and, consequently, our stockholders’ ability to achieve a return on their investment will depend on appreciation of the value of our common stock.

We have never declared or paid cash dividends on our common stock. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. We do not intend to declare or pay any cash dividends on our capital stock in the foreseeable future. As a result, any investment return on our common stock will depend upon increases in the value for our common stock, which is not certain.

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

Our third amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, and amended and restated bylaws, which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, contain provisions that may discourage, delay or prevent a merger, acquisition or other change in control of our company that stockholders

may consider favorable, including transactions in which our stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Among other things, these provisions:

- establish a classified board of directors such that only one of three classes of directors is elected each year;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from our board of directors;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a “poison pill” that would 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 not less than two-thirds of the votes that all our stockholders would be entitled to cast to amend or repeal specified provisions of our third amended and restated certificate of incorporation or amended and restated bylaws.

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

Our amended and restated bylaws that became effective upon the effectiveness of this registration statement designate certain courts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated bylaws that became effective upon the effectiveness of the registration statement of which this prospectus forms a part provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for any state law claims for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of, or a claim based on, fiduciary duty owed by any of our current or former directors, officers, and employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our third amended and restated certificate of incorporation or our amended and restated bylaws (including the interpretation, validity or enforceability thereof), or (iv) any action asserting a claim that is governed by the internal affairs doctrine (the “Delaware Forum Provision”). The Delaware Forum Provision will not apply to any causes of action arising under the Securities Act or the Exchange Act. Our amended and restated bylaws further provide that, unless we consent in writing to the selection of an alternative forum, the

federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause or causes of action arising under the Securities Act (the "Federal Forum Provision"). In addition, our amended and restated bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our common stock is deemed to have notice of and consented to the foregoing provisions; provided, however, that stockholders cannot and will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder.

The Delaware Forum Provision and the Federal Forum Provision in our bylaws may impose additional litigation costs on stockholders in pursuing any such claims. Additionally, the forum selection clauses in our bylaws 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. In addition, while the Delaware Supreme Court and others state courts have upheld the validity of federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court, there is uncertainty as to whether other courts will enforce our Federal Forum Provision. If the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid. The Court of Chancery of the State of Delaware and the federal district courts of the United States may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

We may not be able to satisfy listing requirements of Nasdaq or obtain or maintain a listing of our common stock on Nasdaq.

We must meet certain financial and liquidity criteria to maintain the listing of our common stock on Nasdaq. If we violate Nasdaq's listing requirements, our common stock may be delisted. If we fail to meet any of Nasdaq's listing standards, our common stock may be delisted. In addition, our board of directors may determine that the cost of maintaining our listing on a national securities exchange outweighs the benefits of such listing. A delisting of our common stock from Nasdaq may materially impair our stockholders' ability to buy and sell our common stock and could have an adverse effect on the market price of, and the efficiency of the trading market for, our common stock. The delisting of our common stock could significantly impair our ability to raise capital and the value of your investment.

Other general risks

Unfavorable global economic and geopolitical conditions could adversely affect our business, financial condition, stock price, and results of operations.

The global credit and financial markets have experienced extreme volatility and disruptions (including as a result of actual or perceived changes in interest rates, inflation and macroeconomic uncertainties), which has included severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, high inflation, uncertainty about economic stability, global supply chain disruptions, and increases in unemployment rates. The financial markets and the global economy may also be adversely affected by the current or anticipated impact of the 2024 presidential election in the United States, military conflict, including the ongoing conflicts between Russia and Ukraine, and Israel and Hamas, terrorism, or other geopolitical events. Sanctions imposed by the United States and other countries in response to such conflicts, including the one in Ukraine, may also continue to adversely impact the financial markets and the global economy, and any economic countermeasures by the affected countries or others could exacerbate market and economic instability. There can be no assurance that further deterioration in credit and financial markets and

confidence in economic conditions will not occur. A severe or prolonged economic downturn could result in a variety of risks to our business, including a decrease in the demand for verekitug or any other potential future product candidates and in our ability to raise additional capital when needed on acceptable terms, if at all.

There are also current geopolitical tensions with China that may affect our operations. For example, there have been Congressional legislative proposals, such as the bill titled the BIOSECURE Act, which would, among other things, prohibit U.S. federal funding in connection with biotechnology equipment or services produced or provided by certain named Chinese "biotechnology companies of concern" (which includes WuXi) and loans and grants to, and federal contracts with any entity that uses biotechnology equipment or services from one of these entities. The legislation also gives the federal government the authority to name additional "biotechnology companies of concern" that are engaged in research activities with the Chinese government and that pose a risk of U.S. national security. The most recent version of the BIOSECURE Act which would delay the application of the BIOSECURE Act's provisions (1) until January 1, 2032, with respect to biotechnology equipment and services provided or produced by WuXi and other named biotechnology companies of concern under a contract or agreement entered before the effective date of the legislation and (2) for a period of five years after the identification of new biotechnology companies of concern, with respect to biotechnology equipment and services provided or produced by an entity that the government identifies in the future as a biotechnology company of concern. Any additional executive action, legislative action or potential sanctions with China could materially impact one of our current manufacturing partners, WuXi, and our agreement with them. We continue to assess the legislation as it develops to determine the effect, if any, on our contractual relationships. Furthermore, any disruptions to our supply chain as a result of unfavorable global economic conditions, including due to geopolitical conflicts or public health crises, could negatively impact the timely execution of our ongoing and future clinical trials.

In addition, current inflationary trends in the global economy may impact salaries and wages, costs of goods and transportation expenses, among other things, and recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures may create market and economic instability. We cannot anticipate all of the ways in which the foregoing, and the current economic climate and financial market conditions generally, could adversely impact our business.

We maintain the majority of our cash and cash equivalents in accounts with major U.S. and multi-national financial institutions, and our deposits at certain of these institutions may exceed insured limits. Market conditions and changes in financial regulations and policies can impact the viability of these institutions. In the event of failure of any of the financial institutions where we maintain our cash and cash equivalents, there can be no assurance that we would be able to access uninsured funds in a timely manner or at all. Any inability to access or delay in accessing these funds could adversely affect our business and financial position. In addition, changes in regulations governing financial institutions are beyond our control and difficult to predict; consequently, the impact of such changes on our business and results of operations is difficult to predict and may have an adverse effect on us.

We, or the third parties upon whom we depend, may be adversely affected by natural disasters, public health crises or other business interruptions and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Natural disasters or public health crises could severely disrupt our operations, and have a material adverse impact on our business, financial condition, results of operations and growth prospects. If a natural disaster, power outage, public health crisis or other event occurred that prevented us from conducting our clinical trials, releasing clinical trial results or delaying our ability to obtain regulatory approval for verekitug or any other potential future product candidates, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time.

We are eligible to be treated as an "emerging growth company" and a "smaller reporting company" and our election of reduced reporting requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act ("JOBS Act"). For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports, proxy statements and registration statements;
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved;
- being permitted to provide only two years of audited financial statements in addition to any required unaudited interim financial statements and a correspondingly reduced "Management's discussion and analysis of financial condition and results of operations" disclosure in this prospectus;
- an exemption from compliance with the auditor attestation requirements of Section 404 in the assessment of our internal control over financial reporting; and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor's report on the financial statements.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenue of $1.235 billion; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1.0 billion in non-convertible debt during any three-year period before that time; or (iv) the date on which we are deemed to be a "large accelerated filer", which would occur if the aggregate market value of our equity securities held by non-affiliates exceeds $700.0 million as of the last business day of our most recently completed second fiscal quarter. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies.

In addition, the JOBS Act provides that an emerging growth company can also take advantage of an extended transition period for complying with new or revised accounting standards until such time as those standards apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards, and therefore we will not be subject to the same requirements to adopt new or revised accounting standards as other public companies that are not emerging growth companies.

Even after we no longer qualify as an emerging growth company, we could still qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements and reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our share price may be more volatile.

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

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In connection with this offering, we became subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the Securities and Exchange Commission ("SEC") annual, quarterly and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act of 2002, as amended (the "Sarbanes-Oxley Act"), as well as rules subsequently adopted by the SEC and The Nasdaq Global Select Market to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial reporting controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Recent legislation permits emerging growth companies to implement many of these requirements over a longer period and up to five years from the pricing of this offering. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have an adverse effect on our business. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

If we fail to establish and maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be reevaluated frequently. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. In connection with this offering, we intend to begin the process of documenting, reviewing and improving our internal controls and procedures for compliance with Section 404 of the Sarbanes-Oxley Act, which will require annual management assessment of the effectiveness of our internal control over financial reporting. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations. In addition, any testing by us conducted in connection with Section 404, or any subsequent testing by our independent registered public accounting firm, may reveal deficiencies in our internal controls over financial reporting that are deemed to be material weaknesses or that may require

prospective or retroactive changes to our financial statements or identify other areas for further attention or improvement. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our stock.

We will be required to disclose changes made in our internal controls and procedures on a quarterly basis and our management will be required to assess the effectiveness of these controls annually. However, for as long as we are an emerging growth company or a non-accelerated filer, our independent registered public accounting firm will not be required to attest to the effectiveness of our internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act. We could be an emerging growth company for up to five years following completion of this initial public offering. An independent assessment of the effectiveness of our internal controls over financial reporting could detect problems that our management's assessment might not. Undetected material weaknesses in our internal controls over financial reporting could lead to restatements of our financial statements and require us to incur the expense of remediation.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

In connection with this offering, we became subject to the periodic reporting requirements of the Exchange Act. We must design our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized, and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. For example, our directors or executive officers could inadvertently fail to disclose a new relationship or arrangement causing us to fail to make a required related party transaction disclosure. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

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

As of December 31, 2023, we had federal and state net operating loss ("NOLs") carryforwards of $25.0 million and $27.6 million, respectively. The federal NOLs are not subject to expiration and are limited in utilization to 80% of our taxable income and the state NOLs begin to expire in 2041. As of December 31, 2023, we had $0.8 million of federal and state research and development credits, which will begin to expire in 2043 and 2037, respectively.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change," generally defined as a greater than 50 percentage point change (by value) in its equity ownership by "5 percent shareholders" over a three-year period, the corporation's ability to use its pre-change NOLs and other pre-change tax attributes (such as research and development tax credits) to offset its post-change income or taxes may be limited. A corporation that experiences an ownership change will generally be subject to an annual limitation on the use of its pre-ownership change NOLs equal to the value of the corporation immediately before the ownership change, multiplied by the long-term tax-exempt rate (subject to certain adjustments). We may have experienced ownership changes in the past and may experience ownership changes as a result of our acquisitions of assets and as a result of this offering and/or subsequent shifts in our stock ownership (some of which are outside our control). There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs by federal or state taxing authorities or other unforeseen reasons, our existing NOLs could expire or otherwise be unavailable to reduce future income tax liabilities. As a result, our

ability to use our pre-change NOLs and tax credits to offset future taxable income, if any, could be subject to limitations. Similar provisions of state tax law may also apply. As a result, even if we attain profitability, we may be unable to use a material portion of our NOLs and tax credits.

Changes in tax law could adversely affect our business and financial condition.

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

We may become involved in securities class action litigation that could divert management's attention and harm our business, and insurance coverage may not be sufficient to cover all costs and damages.

In the past, securities class action litigation has often followed certain significant business transactions, such as the sale of a company or announcement of any other strategic transaction, or the announcement of negative events, such as negative results from clinical trials. These events may also result in or be concurrent with investigations by the SEC. We may be exposed to such litigation or investigation even if no wrongdoing occurred. Litigation and investigations are usually expensive and divert management's attention and resources, which could adversely affect our business and cash resources and our ability to consummate a potential strategic transaction or the ultimate value our stockholders receive in any such transaction.

Special note regarding forward-looking statements

This prospectus, including the sections titled “Prospectus summary,” “Risk factors,” “Management’s discussion and analysis of financial condition and results of operations,” and “Business,” contains express or implied forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. These statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the initiation, timing, progress, and results of our planned and future clinical trials for verekitug, including our ongoing Phase 2 clinical trials in severe asthma and CRSwNP and the planned initiation of an additional development program in COPD;
- our ability to replicate positive results from earlier preclinical studies or clinical trials conducted by us or third parties in current or future clinical trials;
- our ability to demonstrate that verekitug and any potential future product candidates are safe and effective for their proposed indications and our expectations around their beneficial characteristics and therapeutic effects;
- our ability to advance verekitug and any potential future product candidates through applicable regulatory approval processes, including timing of INDs and final FDA approval of verekitug or any future product candidate;
- our estimates of the number of patients that we will enroll and our ability to initiate, recruit and enroll patients in and conduct and successfully complete our clinical trials at the pace we project;
- the implementation of our business model and strategic plans;
- our ability to rely on third-party manufacturers and successfully manufacture verekitug for preclinical use, for clinical trials and on a larger scale for commercial use, if approved;
- our ability to commercialize verekitug, if approved, and obtain favorable pricing and reimbursement;
- the size and growth potential of the markets for verekitug and our ability to serve those markets;
- our ability to realize the benefits of collaborations for the development and commercialization of verekitug or any other potential future product candidates;
- our ability to maintain, expand and protect our intellectual property;
- developments relating to our competitors and our industry;
- existing regulations and regulatory developments in the United States and other jurisdictions;
- general economic, industry, and market conditions, including rising interest rates and inflation;
- our ability to attract, hire, and retain our key personnel and additional qualified personnel;
- our anticipated use of our existing cash, cash equivalents and short-term investments and the net proceeds from this offering;

- our estimates regarding expenses, future revenue, capital requirements and needs for additional financing; and
- other risks and uncertainties, including those listed under the caption “Risk factors.”

In some cases, forward-looking statements can be identified by terminology such as “may,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue,” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from those implied or projected by forward-looking statements include, among other things, those listed under the section titled “Risk factors” and elsewhere in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

While we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus. You should, however, review the factors and risks and other information we describe in the reports we will file from time to time with the Securities and Exchange Commission (“SEC”) after the date of this prospectus.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to unduly rely upon these statements.

Market, industry and other data

This prospectus contains estimates, statistical data and other information concerning our industry, market and competitive position, including data regarding the estimated size and patient populations of those and related markets, existing therapeutic options and the incidence of certain medical conditions, from our own internal estimates and research, as well as from independent market research, industry and general publications and surveys, governmental agencies and publicly available information in addition to research, surveys and studies conducted by third parties. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

While we believe the industry, market and competitive position data included in this prospectus is reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section titled “Risk factors” included elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the estimates and observations made by the independent parties or by us.

Use of proceeds

We estimate that our net proceeds from the sale of shares of our common stock in this offering will be approximately $233.1 million, or $268.7 million if the underwriters exercise their option to purchase additional shares in full, based on the initial public offering price of $17.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purposes of this offering are to create a public market for our common stock and thereby facilitate future access to the public equity markets, increase our visibility in the marketplace and obtain additional capital. We currently intend to use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, for the following:

- approximately $160.0 million to advance verekitug through the completion of our multi-national, placebo-controlled, randomized Phase 2 clinical trial in severe asthma, and to initiate subsequent Phase 3 clinical development;
- approximately $50.0 million to advance verekitug through the completion of our multi-national, placebo-controlled, randomized Phase 2 clinical trial in chronic rhinosinusitis with nasal polyps (“CRSwNP”), and to initiate subsequent Phase 3 clinical development;
- approximately $90.0 million to expand the development of verekitug for the treatment of chronic obstructive pulmonary disease (“COPD”), including for external clinical trial-related costs for the initiation and ongoing conduct of a Phase 2 clinical trial;
- approximately $60.0 million in external costs associated with verekitug drug substance, drug product, process development or other manufacturing activities to support the continued development of verekitug in severe asthma, CRSwNP, COPD and potential future additional indications; and
- the remainder for additional continued research and development efforts relating to verekitug, including expansion into potential additional indications, as well as for working capital and other general corporate purposes.

Based on our current plans, we believe that our existing cash, cash equivalents and short-term investments, together with the net proceeds from this offering, will be sufficient to enable us to fund our operating expenses and capital expenditure requirements through mid-2027. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. We do not have any committed external source of funds.

Our expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above and we expect that we will require additional funds in order to fully accomplish the specified uses of the proceeds of this offering. We may also use a portion of the net proceeds to in-license, acquire, or invest in complementary businesses or technologies to continue to build our pipeline, research and development capabilities and our intellectual property position, although we currently have no agreements, commitments, or understandings with respect to any such transaction.

Due to the many inherent uncertainties in the development of verekitug and other potential future product candidates, the amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our research and development, the timing of patient enrollment and evolving regulatory requirements, the timing and success of preclinical studies, our ongoing clinical studies or clinical

studies we may commence in the future, the timing of regulatory submissions, any strategic alliances that we may enter into with third parties for verekitug and other potential future product candidates, or strategic opportunities that become available to us, and any unforeseen cash needs.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation instruments, including direct or guaranteed obligations of the U.S. government, money market fund shares, and bank accounts that are insured by the Federal Deposit Insurance Corporation. We cannot predict whether the proceeds invested will yield a favorable return. Our management will retain broad discretion in the application of the net proceeds we receive from our initial public offering, and investors will be relying on the judgment of our management regarding the application of the net proceeds.

Dividend policy

We have never declared or paid cash dividends on our capital stock. We do not intend to pay cash dividends to our stockholders in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the growth and development of our business. Any future determination to declare dividends will be made 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, general business conditions and other factors that our board of directors may deem relevant.

In addition, our ability to pay cash dividends on our capital stock in the future may be limited by the terms of any future debt or preferred securities we issue or any credit facilities we enter into.

Capitalization

The following table sets forth our cash, cash equivalents and short-term investments and our capitalization as of June 30, 2024:

- on an actual basis;
- on a pro forma basis, to give effect to (i) the automatic conversion of all 31,764,693 outstanding shares of our Series A and Series B redeemable convertible preferred stock in the aggregate, as of June 30, 2024, into 33,321,149 shares of common stock prior to the completion of this offering and (ii) the filing and effectiveness of our third amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering; and
- on a pro forma as adjusted basis to give further effect to (i) the pro forma adjustments set forth above and (ii) the issuance and sale of 15,000,000 shares of common stock in this offering at the initial public offering price of $17.00 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

You should read the information in this table together with our consolidated financial statements and the related notes and “Management’s discussion and analysis of financial condition and results of operations” included elsewhere in this prospectus.

	As of June 30, 2024		
(in thousands, except share and per share amounts)	**Actual**	**Pro forma**	**Pro forma as adjusted**
Cash, cash equivalents and short-term investments	$ 235,804	$ 235,804	$ 469,077
Redeemable convertible preferred stock (Series A, B), $0.001 par value; 31,764,693 shares authorized, 31,764,693 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 380,874	$ —	$ —
Stockholders’ (deficit) equity:			
Preferred stock, $0.001 par value, no shares authorized, issued or outstanding, actual; 10,000,000 shares authorized and no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.001 par value, 40,684,346 shares authorized, 3,020,546 shares issued and outstanding, actual; 500,000,000 shares authorized, 36,341,695 shares issued and outstanding, pro forma; 500,000,000 shares authorized, 51,341,695 shares issued and outstanding, pro forma as adjusted	3	36	51
Additional paid-in capital	6,991	387,832	620,957
Accumulated other comprehensive loss	(55)	(55)	(55)
Accumulated deficit	(153,546)	(153,546)	(153,546)
Total stockholders’ (deficit) equity	(146,607)	234,267	467,407
Total capitalization	$ 234,267	$ 234,267	$ 467,407

The number of shares of our common stock in the table above is based on 36,341,695 shares of common stock outstanding as of June 30, 2024, after giving effect to the automatic conversion of all outstanding shares of our redeemable convertible preferred stock as of June 30, 2024 into the aggregate of 33,321,149 shares of common stock immediately prior to the completion of this offering, and excludes:

- 6,224,230 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2024 under our 2021 Stock Option and Grant Plan ("2021 Plan"), with a weighted-average exercise price of $4.96 per share;
- 74,027 shares of common stock reserved for future issuance as of June 30, 2024 under the 2021 Plan, which ceased to be available for issuance at the time that our 2024 Stock Option and Incentive Plan ("2024 Plan") became effective (which includes options to purchase an aggregate of 35,666 shares of our common stock, at a weighted-average exercise price of $10.62 per share, that were granted subsequent to June 30, 2024);
- 3,180,000 shares of our common stock reserved for future issuance under our 2024 Plan, which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2024 Plan and any shares underlying outstanding stock awards granted under the 2021 Plan that expire or are repurchased, forfeited, cancelled, or withheld; and
- 488,467 shares of common stock reserved for future issuance under our 2024 Employee Stock Purchase Plan ("ESPP"), which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP.

Dilution

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book value as of June 30, 2024 was a deficit of $148.0 million, or $(48.98) per share of our common stock. Our historical net tangible book value (deficit) is the amount of our total tangible assets less our total liabilities, excluding the deferred offering costs, and the carrying values of our redeemable convertible preferred stock, which is not included within stockholders' deficit. Our historical net tangible book value per share represents historical net tangible book value (deficit) divided by the number of shares of our common stock outstanding as of June 30, 2024.

Our pro forma net tangible book value as of June 30, 2024 was $232.9 million, or $6.41 per share of our common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities, excluding the deferred offering costs, after giving effect to the automatic conversion of all 31,764,693 outstanding shares of our Series A and Series B redeemable convertible preferred stock in the aggregate into 33,321,149 shares of common stock prior to the completion of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of June 30, 2024, after giving effect to the pro forma adjustments described above.

After giving further effect to our issuance and sale of 15,000,000 shares of our common stock in this offering at the initial public offering price of $17.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2024 would have been $467.4 million, or $9.10 per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value per share of $2.69 to our existing stockholders and immediate dilution of $7.90 in pro forma as adjusted net tangible book value per share to new investors purchasing common stock in this offering.

Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the initial public offering price per share paid by new investors. The following table illustrates this dilution (without giving effect to any exercise by the underwriters of their option to purchase additional shares):

Initial public offering price per share		$17.00
Historical net tangible book value (deficit) per share as of June 30, 2024	$(48.98)	
Pro forma increase in net tangible book value per share as of June 30, 2024 attributable to the pro forma adjustments described above	55.39	
Pro forma net tangible book value per share as of June 30, 2024	6.41	
Increase in pro forma net tangible book value per share attributable to new investors participating in this offering	2.69	
Pro forma as adjusted net tangible book value per share after this offering		9.10
Dilution per share to new investors purchasing common stock in this offering		$ 7.90

If the underwriters exercise their option to purchase up to 2,250,000 additional shares of our common stock in full, our pro forma as adjusted net tangible book value per share after this offering would be $9.38 per share, representing an immediate increase in pro forma as adjusted net tangible book value per share of $0.28 per share to existing stockholders and immediate dilution in pro forma as adjusted net tangible book value per share of $0.28 per share to new investors purchasing common stock in this offering, based on the initial public

offering price of $17.00 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

The following table summarizes on the pro forma as adjusted basis described above, as of June 30, 2024, the total number of shares of common stock purchased from us on an as converted basis to common stock, the total consideration paid or to be paid, and the average price per share paid or to be paid by existing stockholders and by new investors in this offering at the initial public offering price of $17.00 per share, before deducting underwriting discounts and commissions and estimated offering expenses payable by us. New investors purchasing shares of our common stock in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	Shares purchased		Total consideration		Weighted-average price per share
(in thousands, except share, per share and percent data)	Number	Percent	Number	Percent	
Existing stockholders	36,341,695	71%	$ 400,231,841	61%	$ 11.01
New investors	15,000,000	29%	255,000,000	39%	$ 17.00
Total	51,341,695	100%	$ 655,231,841	100%	

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' option to purchase additional shares of our common stock is exercised in full, the number of shares of our common stock held by existing stockholders would be reduced to 68% of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors purchasing common stock in this offering would be increased to 32% of the total number of shares of our common stock outstanding after this offering.

The foregoing discussion and calculations above (other than the historical net tangible book value calculations) are based on 36,341,695 shares of common stock outstanding as of June 30, 2024, after giving effect to the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into the aggregate of 33,321,149 shares of common stock immediately prior to the completion of this offering, and excludes:

- 6,224,230 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2024 under our 2021 Plan, with a weighted-average exercise price of $4.96 per share;
- 74,027 shares of common stock reserved for future issuance as of June 30, 2024 under the 2021 Plan, which ceased to be available for issuance at the time that our 2024 Plan became effective (which includes options to purchase an aggregate of 35,666 shares of our common stock, at a weighted-average exercise price of $10.62 per share, that were granted subsequent to June 30, 2024);
- 3,180,000 shares of our common stock reserved for future issuance under our 2024 Plan, which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2024 Plan and any shares underlying outstanding stock awards granted under the 2021 Plan that expire or are repurchased, forfeited, cancelled, or withheld; and
- 488,467 shares of common stock reserved for future issuance under our ESPP, which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP.

To the extent that new stock options are issued or any outstanding options are exercised, or we issue additional shares of common stock in the future, there will be further dilution to new investors. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

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, considered and evaluated together with our audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 and the related notes included elsewhere in this prospectus and our unaudited condensed consolidated financial statements as of June 30, 2024 and for the six months ended June 30, 2024 and 2023 and the related notes included elsewhere in this prospectus. This discussion and analysis as well as other parts of this prospectus contain forward-looking statements that involve risks and uncertainties, including but not limited to, information with respect to our plans and strategy for our business and related financing. As a result of many factors, including those factors set forth in the section titled "Risk factors," our actual results could differ materially from the results described in or implied by the forward-looking statements. You should carefully read, consider and evaluate the section titled "Risk factors" to gain an understanding of the factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section titled "Special note regarding forward-looking statements" included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected for any period in the future. For convenience of presentation, some of the numbers have been rounded in the text below.

Overview

We are a clinical-stage biotechnology company developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. We are developing verekitug, the only known antagonist currently in clinical development that targets the receptor for Thymic Stromal Lymphopoietin ("TSLP"), a cytokine which is a clinically validated driver of inflammatory response positioned upstream of multiple signaling cascades that affect a variety of immune mediated diseases. Preclinical and clinical data to date demonstrate verekitug's highly potent inhibition of the TSLP receptor, which we believe will translate to a differentiated product profile, including improved clinical outcomes, substantially extended dosing intervals and the potential to treat a broad spectrum of patients. We have advanced this highly potent monoclonal antibody into separate Phase 2 trials for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps ("CRSwNP") and plan to initiate development in chronic obstructive pulmonary disease ("COPD"). Our experienced team is committed to maximizing verekitug's unique attributes to address the substantial unmet needs for patients underserved by today's standard of care.

Through the date of this filing, we have historically financed our operations principally through the issuance and sale of our Series A redeemable convertible preferred stock ("Series A Preferred Stock") and Series B redeemable convertible preferred stock ("Series B Preferred Stock"), which are collectively referred to as the "Preferred Stock." As of June 30, 2024, we have received total gross proceeds of $400.0 million from the issuance and sale of our Preferred Stock and we have also received cash of $4.2 million in connection with research and development services we provided to Maruho Co., Ltd ("Maruho"), a related party.

We have incurred significant net operating losses and negative cash flows since our inception. Since our inception, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, establishing licensing, building our proprietary platform technologies, developing verekitug, establishing our intellectual property portfolio, conducting research, preclinical studies, and clinical trials, establishing arrangements with third parties for the manufacture of verekitug and related raw materials, and providing general and administrative support for these operations. Our ability to generate product revenue sufficient to achieve profitability, if ever, will depend on the successful development, regulatory approval and eventual commercialization of verekitug and any other potential future product candidates, which we expect will take a number of years. For the six months ended June 30, 2024 and 2023, we reported net losses of $25.6 million and $5.6 million, respectively. For the years ended December 31, 2023 and 2022, we reported net

losses of $20.5 million and $23.9 million, respectively. Our net losses have resulted principally from costs incurred in our research and development activities. As of June 30, 2024, we had an accumulated deficit of $153.5 million, and we had cash, cash equivalents and short-term investments of $235.8 million. We believe that the anticipated net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operating expenses and capital expenditure requirements through mid-2027. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See the subsection titled "—Liquidity and Capital Resources" below. Even if this offering is successful, we will require additional funding in order to finance operations and complete our ongoing and planned clinical trials. Access to such funding on acceptable terms cannot be assured.

We expect to continue to incur significant net operating losses for the foreseeable future. We anticipate that our expenses will increase substantially if, and as we:

- continue to conduct our ongoing clinical trials of verekitug, including advancement into global Phase 2 clinical trials, as well as initiate and complete additional clinical trials of verekitug in new indications or patient populations;
- conduct larger-scale clinical trials for verekitug or any potential future product candidates;
- manufacture, or have manufactured, clinical and commercial supplies of verekitug;
- seek regulatory approvals, prepare for and, if approved, proceed to commercialization for verekitug in current or new indications or any potential future product candidates;
- attract, hire and retain additional clinical, scientific, and management personnel;
- implement operational, financial, and management information systems;
- add quality control, quality assurance, legal, compliance, and other groups to support our operations;
- obtain, maintain, protect, expand and enforce our intellectual property portfolio, including intellectual property obtained through license agreements;
- defend against any claims by third parties that we have infringed, misappropriated or otherwise violated any intellectual property of any such third party;
- make royalty, milestone or other payments under current, and any future, license or collaboration agreements;
- establish a sales, marketing and distribution infrastructure, either ourselves or in partnership with others, to commercialize verekitug, if approved;
- potentially experience any delays, challenges, or other issues associated with the clinical development of verekitug and any potential future product candidates, including with respect to our regulatory strategies; and
- incur additional legal, accounting, investor relations and other general and administrative expenses associated with operating as a public company.

Our net operating losses may fluctuate significantly from period to period, depending upon the timing of our expenditures on research and development activities. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our accounts payable and accrued expenses and other current liabilities.

As a result, we will need additional financing to support our continuing operations. To date, we have funded our operations primarily with the proceeds from the issuance and sale of our Preferred Stock. We do not have any products approved for sale and have not generated any revenue from product sales since our inception. We do not expect to generate revenue from any product candidates that we develop until we obtain regulatory approval for one or more of such product candidates and commercialize our products or enter into collaboration arrangements with third parties. Until we can generate sufficient product revenue to finance our cash requirements, if ever, we expect to fund our operations through equity offerings or debt financings, credit or loan facilities, potentially other capital resources, or a combination of one or more of these funding sources. We may be unable to raise additional funds or enter into other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we may have to significantly delay, scale back, or discontinue the development or commercialization of verekitug and one or more potential future product candidates, which could have a material adverse effect on our business, results of operations or financial condition.

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

Asset purchase and license agreements

Below is a summary of the key terms for certain of our asset purchase and license agreements. For a more detailed description of these agreements, see the section titled “Business—Asset purchase and license agreements” included elsewhere in this prospectus.

Asset purchase agreement with Astellas and related letter agreement with Astellas and Regeneron

In October 2021, we entered into an asset purchase agreement (the “Astellas Asset Purchase Agreement”) with Astellas Pharma, Inc. (“Astellas”). Pursuant to the Astellas Asset Purchase Agreement, we purchased from Astellas the compound designated by Astellas as ASP7266 (the “Compound,” which was subsequently renamed by us as verekitug). There are no future payments owed to Astellas under the Astellas Asset Purchase Agreement.

In connection with the Astellas Asset Purchase Agreement, we concurrently entered into a letter agreement (the “Regeneron Letter Agreement”) with Astellas and Regeneron Pharmaceuticals, Inc. (“Regeneron”).

The Regeneron Letter Agreement relates to a prior Non-Exclusive License and Material Transfer Agreement (the “Terminated Regeneron License Agreement”) that Regeneron and Astellas entered into in March 2007, as amended in July 2010 and subsequently terminated in June 2018, subject to certain surviving rights and obligations of both Regeneron and Astellas. Under the Terminated Regeneron License Agreement, Astellas utilized Regeneron’s human antibody technology in its internal research programs to discover certain product candidates, including the Compound, which it sold to us under the Astellas Asset Purchase Agreement.

Under the Regeneron Letter Agreement, Astellas assigned and transferred to us and we assumed and accepted certain of Astellas’ surviving rights and obligations under the Terminated Regeneron License Agreement, including Astellas’ royalty payment, reporting and indemnification obligations in connection with activities conducted by us or on our behalf with respect to the Compound. By assuming and accepting Astellas’ surviving obligations under the Terminated Regeneron License Agreement, we are required to pay Regeneron mid-single-

digit percentage royalties on aggregate worldwide net sales of any product developed by or on behalf of us that contains the Compound as an ingredient or component of the materials sold (a "Royalty Product") during the royalty term. The royalties are determined on a product-by-product and country-by-country basis and expire on the later of (i) a specified number of years after the launch of a given Royalty Product in a given country and (ii) the expiration of the last valid claim of royalty bearing company patent rights claiming or covering such Royalty Product in such country. To date, we have not made any royalty payments to Regeneron under the Regeneron Letter Agreement.

Exclusive license agreement with Maruho

In October 2021, we entered into a license agreement with Maruho (as amended, the "Maruho License Agreement"), under which we granted Maruho an exclusive, irrevocable, perpetual, royalty-free, sublicensable (subject to our right of first negotiation) license. Under the Maruho License Agreement, Maruho is responsible for and controls, at its sole expense, (i) the preparation, filing, prosecution, obtaining and maintaining all regulatory approvals in Japan and (ii) the promotion, marketing, sale and commercialization in Japan.

Pursuant to the Maruho License Agreement, we maintain our responsibility for and control the global research and development of the Maruho license product, including in Japan. We will conduct specified clinical trial activities for Japan as part of our global research and development plan. Maruho will reimburse us for the costs of these research and development activities, including the cost of drug supply. Apart from reimbursement of qualifying research and development expenses, Maruho is not obligated to make any future payments under the Maruho License Agreement.

During the year ended December 31, 2023, we received payments from Maruho in the amount of $2.7 million which was received during the six months ended June 30, 2023. During the year ended December 31, 2022, we received payments from Maruho in the amount of $0.8 million. During the six months ended June 30, 2024, we received payments from Maruho in the amount of $0.7 million.

License agreement with Lonza

In October 2021, in connection with the Astellas Asset Purchase Agreement, we entered into a license agreement with Lonza Sales AG ("Lonza") (as amended, the "Lonza License Agreement"). Pursuant to the Lonza License Agreement, we obtained a worldwide, non-exclusive, sublicensable (subject to Lonza's right of pre-approval with respect to any sublicense of manufacturing activities) license to certain intellectual property rights owned by Lonza. Lonza was the originator of the master cell bank for the Compound developed by Astellas. As consideration for the rights and licenses granted to us under the Lonza License Agreement, we agreed to pay Lonza certain royalties and annual payments, both payable in swiss francs, in respect of the manufacturing and sale of the Compound, such amounts to be determined by the party manufacturing the Compound, and range from no annual payment to up to a mid-six figure annual payment, and a less-than-one percent to a low-single-digit percentage royalty on net sales of the Compound. In accordance with the Lonza License Agreement, we entered into a sublicense with Wuxi Biologics (Hong Kong) Limited to manufacture the Compound, requiring us to pay a mid-six-figure annual fee to Lonza pursuant to this provision. Any royalties due under the Lonza License Agreement are payable on a country-by-country basis until ten years from the first commercial sale of the Compound in that particular country. The Lonza agreement continues for an indefinite period of time unless otherwise terminated. We have the right to terminate the Lonza License Agreement at any time by providing prior written notice to Lonza. During the year ended December 31, 2023, we made an annual payment to Lonza in the amount of $0.4 million, which was paid during the six months ended June 30, 2023. During the year ended December 31, 2022, we made an annual payment to Lonza in the amount of $0.4 million. During the six months ended June 30, 2024, we made an annual payment to Lonza in the amount of $0.5 million. These payments are recognized as research and development expense in the consolidated statements of operations and comprehensive loss. To date, we have not made any royalty payments to Lonza under the Lonza License Agreement.

Components of our results of operations

Collaboration revenue—related party

To date, we have not generated any revenue from product sales and do not expect to generate any revenue from product sales in the foreseeable future. All of our collaboration revenue has been derived from the Maruho License Agreement. If our development efforts for verekitug or any potential future product candidates are successful and result in regulatory approval, or if we enter into collaboration or license agreements with third parties, we may generate revenue in the future from product sales, royalties or payments from such collaboration or license agreements, or a combination of product sales and payments from such agreements.

Operating expenses

Research and development expenses

Research and development expenses consist primarily of costs incurred for our preclinical research and clinical development of verekitug, which include:

- expenses incurred under agreements with third parties, including contract research organizations ("CROs"), contract manufacturing organizations ("CMOs"), and investigative sites that conduct clinical trials on our behalf, and costs related to the Maruho License Agreement;
- salaries, benefits and other related costs, including stock-based compensation expense, for personnel engaged in research and development functions and costs related to the Maruho License Agreement;
- costs of outside consultants, including their fees and related travel expenses; and
- costs associated with license agreements to support the development of our technology.

We expense all research and development expenses in the periods in which they are incurred. Our direct research and development expenses are tracked on an indication-by-indication basis and consist of costs that include CROs and investigative sites that conduct clinical trials on our behalf, third party vendors that conduct research and preclinical studies on our behalf and outside consulting costs directly allocable to an indication. We do not allocate costs related to CMOs that manufacture verekitug for use in our preclinical studies and clinical trials as they are not distinguishable by indication but support all current and potential indications under our verekitug program. Additionally, we do not allocate costs for employee costs, including stock-based compensation, consulting, or other indirect costs that cannot be directly allocated to a specific indication.

We expect that our research and development expenses will increase in the future as we advance verekitug through clinical trials and any potential future product candidates that we may develop through preclinical studies and clinical trials, in pursuit of regulatory approval. 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.

At this time, we cannot reasonably estimate or know the nature, timing and estimated costs of the efforts that will be necessary to complete the development of verekitug and any potential future product candidates. We are also unable to predict when, if ever, material net cash inflows will commence from sales or licensing of verekitug or any potential future product candidates. This is due to the numerous risks and uncertainties associated with drug development, including the uncertainty of:

- the scope, timing, progress, costs and results of the ongoing development of verekitug as well as for potential discovery, preclinical development and clinical trials for other potential future product candidates;

- the number of clinical trials required for regulatory approval of verekitug or our potential future product candidates;
- the costs, timing and outcome of regulatory review of verekitug or our potential future product candidates;
- the costs associated with acquiring or licensing additional product candidates, technologies or assets, including the timing and amount of any milestones, royalties or other payments due in connection with our acquisitions and licenses;
- the cost of manufacturing clinical supplies of verekitug or our potential future product candidates;
- the costs associated with hiring additional clinical, quality control, medical, scientific and other technical personnel to support the ongoing development of verekitug;
- the costs associated with increasing our headcount as we expand our research and development organization and market development and pre-commercial planning activities;
- the effectiveness of our approach to identifying target patient populations;
- our ability to maintain existing, and establish new, strategic collaborations or other arrangements and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement prior to regulatory approval;
- the effect of macroeconomic trends including inflation and rising interest rates; and
- addressing any potential supply chain interruptions or delays.

A change in the outcome of any of these factors or underlying variables with respect to the development of a product candidate could significantly change the costs and timing associated with the development of that product candidate.

General and administrative expenses

General and administrative expenses consist primarily of salaries and benefits, including stock-based compensation expense, for personnel in executive, finance, accounting, legal, human resources, business development, information technology, and other administrative functions. General and administrative expenses also include legal fees relating to patents and corporate matters; professional fees for accounting, auditing, tax, and consulting services; insurance costs; travel expenses; and facility-related expenses, which include depreciation costs and expenses for rent and maintenance of facilities and other operating costs.

We expect that our general and administrative expenses will increase in the future as we increase our headcount and expand our infrastructure to support the continued research and development of our programs and the growth of our business. We also expect to incur increased expenses associated with operating as a public company, including costs of accounting, audit, legal, regulatory, tax-related services, compliance with Securities and Exchange Commission rules and regulations and listing requirements, director and officer insurance premiums and investor relations costs.

Other income (expense)

Change in fair value of preferred stock tranche right liability

In connection with our Preferred Stock financings, we issued shares under stock purchase agreements that provided an obligation for us to issue additional Preferred Stock in subsequent closings upon the satisfaction of

certain conditions. The Series A and Series B tranche right liabilities were settled in February 2023 and April 2024, respectively, upon the satisfaction of relevant conditions. We classified the preferred stock tranche rights as liabilities on our consolidated balance sheets and initially recorded them at fair value upon the issuance date of the rights. We remeasured the tranche right liabilities to fair value at each reporting date and immediately prior to being settled, and recognized changes in the fair value of the preferred stock tranche right liability as a component of other income (expense) in our consolidated statements of operations and comprehensive loss. Upon settlement of the tranche rights, we derecognized the related liability, and stopped recognizing changes in the fair value of the preferred stock tranche right liability.

Interest income

Interest income consists of interest earned on money market funds, U.S. treasury bills and U.S. government agency bond investments.

Other income (expense), net

Other income (expense), net consists of miscellaneous income and expense unrelated to our core operations.

Income taxes

We recorded a full valuation allowance of our deferred tax asset position as of June 30, 2024 and December 31, 2023 and 2022 as we believe it was more likely than not that we would not be able to utilize our deferred tax assets.

As of December 31, 2023, we had federal and state net operating losses ("NOLs") carryforwards of $25.0 million and $27.6 million, respectively. The federal NOLs are not subject to expiration and are limited in utilization to 80% of taxable income and the state NOLs begin to expire in 2041. As of December 31, 2023, we had federal and state research and development credits of $0.8 million which will begin to expire in 2043 and 2037, respectively.

Results of operations

Comparison of the six months ended June 30, 2024 and 2023

The following table summarizes our results of operations for the six months ended June 30, 2024 and 2023:

	Six Months Ended June 30,		
(in thousands)	**2024**	**2023**	**Change**
Collaboration revenue—related party	$ 1,150	$ 1,309	$ (159)
Operating expenses:			
Research and development	25,760	12,457	13,303
General and administrative	7,943	5,250	2,693
Total operating expenses	33,703	17,707	15,996
Loss from operations	(32,553)	(16,398)	(16,155)
Other income (expense):			
Change in fair value of preferred stock tranche right liabilities	2,859	9,769	(6,910)
Interest income	4,143	1,119	3,024
Other expense, net	(21)	(92)	71
Total other income, net	6,981	10,796	(3,815)
Net loss	$(25,572)	$ (5,602)	$(19,970)

Collaboration revenue—related party

Related party collaboration revenue was $1.2 million for the six months ended June 30, 2024 compared to $1.3 million for the six months ended June 30, 2023. Revenue during the six months ended June 30, 2024 was primarily related to the work performed associated with our Phase 2 clinical trial in patients with severe asthma and the revenue during the six months ended June 30, 2023 was related to the work performed associated with our Phase 1 clinical trial in patients with severe asthma under the Maruho License Agreement.

Research and development expenses

	Six Months Ended June 30,		
(in thousands)	**2024**	**2023**	**Change**
Direct research and development expenses by program:			
Verekitug program:			
Asthma indication	$13,102	$ 4,503	$ 8,599
CRSwNP indication	3,636	287	3,349
Unallocated research and development expense:			
Personnel expenses (including stock-based compensation)	4,839	3,464	1,375
Manufacturing costs	1,641	2,792	(1,151)
Professional fees	1,020	739	281
Other unallocated expenses	1,522	672	850
Total research and development expense	$25,760	$12,457	$13,303

Research and development expenses were $25.8 million for the six months ended June 30, 2024 compared to $12.5 million for the six months ended June 30, 2023. The increase of $13.3 million was primarily driven by an increase of $11.9 million in expenses directly related to our verekitug program and $1.4 million of unallocated research and development expenses.

The increase in direct costs of $8.6 million and $3.3 million related to the asthma indication and CRSwNP indication, respectively, were primarily due to continued progress associated with our Phase 2 clinical trials during the six months ended June 30, 2024 compared to the same period in 2023.

The increase in personnel expenses of $1.4 million was primarily due to increased headcount in our research and development function. Personnel expenses for the six months ended June 30, 2024 and 2023 included stock-based compensation expense of $0.5 million and $0.6 million, respectively. The increase of $0.3 million in professional fees was related to quality and manufacturing services to support our verekitug program. The increase in other unallocated expenses of $0.9 million was primarily driven by an increase in preclinical studies to support our verekitug clinical trials. The decrease in manufacturing costs of $1.2 million was attributable to a decrease of $2.1 million in CMO costs for the development of Phase 2 clinical trial material during the six months ended June 30, 2024 compared to the same period in 2023, offset by an increase of $0.9 million in CMO costs for the development of Phase 3 clinical material during the six months ended June 30, 2024 for which there was no comparable expense during the same period in 2023.

We begin to separately track program expenses at development candidate nomination. Through June 30, 2024, we have incurred approximately $36.0 million and $7.0 million in direct external expenses for the development of verekitug for severe asthma and CRSwNP, respectively, since their development candidate nominations.

General and administrative expenses

(in thousands)	Six Months Ended June 30, 2024	2023	Change
Personnel expenses (including stock-based compensation)	$4,689	$3,303	$ 1,386
Professional fees	2,461	1,454	1,007
Other	793	493	300
Total general and administrative expense	$7,943	$5,250	$ 2,693

General and administrative expenses were $7.9 million for the six months ended June 30, 2024 compared to $5.3 million for the six months ended June 30, 2023. The increase of $2.7 million was primarily driven by an increase in personnel expenses of $1.4 million due to increased headcount in our general and administrative functions. Personnel expenses for the six months ended June 30, 2024 and 2023 included stock-based compensation expense of $1.5 million and $1.4 million, respectively. Additionally, there was an increase of $1.0 million of professional fees including increased consulting and audit fees. Facility-related and other expenses increased by $0.3 million primarily due to an increase in franchise taxes.

Other income (expense)

Change in fair value of preferred stock tranche right liabilities

We recorded other income for the change in the fair value of the preferred stock tranche right liabilities of $2.9 million for the six months ended June 30, 2024, related to the Series B preferred stock tranche right liability, as compared to other income of $9.8 million for the six months ended June 30, 2023, including $6.6 million related to the Series A preferred stock tranche right liability and $3.1 million related to the Series B preferred stock tranche right liability. The change in the fair value of the Series A preferred stock tranche right liability was due to changes in the assumptions used in the valuation model during the periods, including the expected fair value of the Series A Preferred Stock and the probability and expected timing of achieving certain milestone events. The change in fair value of the Series B preferred stock tranche right liability was due to changes in the assumptions used in the valuation model during the periods, including the estimated fair value of the Series B Preferred Stock, volatility and estimated time to the tranche closing.

Interest income

Interest income was $4.1 million and $1.1 million for the six months ended June 30, 2024 and 2023, respectively, representing an increase of $3.0 million. The increase in interest income was due to increased balances in our money market funds, U.S. treasury bills and U.S. government agency bonds held during the six months ended June 30, 2024, as compared to the six months ended June 30, 2023.

Comparison of the years ended December 31, 2023 and 2022

The following table summarizes our results of operations for the years ended December 31, 2023 and 2022:

(in thousands)	Year ended December 31, 2023	2022	Change
Collaboration revenue—related party	$ 2,380	$ 1,212	$ 1,168
Operating expenses:			
Research and development	31,799	18,657	13,142
General and administrative	10,695	6,464	4,231
Total operating expenses	42,494	25,121	17,373
Loss from operations	(40,114)	(23,909)	(16,205)
Other income (expense):			
Change in fair value of preferred stock tranche right liabilities	15,527	(77)	15,604
Interest income	4,165	205	3,960
Other expense, net	(115)	(87)	(28)
Total other income, net	19,577	41	19,536
Net loss	$(20,537)	$(23,868)	$ 3,331

Collaboration revenue—related party

Related party collaboration revenue was $2.4 million for the year ended December 31, 2023 compared to $1.2 million for the year ended December 31, 2022. The increase of $1.2 million was due to the continued progress under the Maruho License Agreement. This progress is primarily related to the work performed associated with our Phase 2 clinical trial in patients with severe asthma.

Research and development expenses

(in thousands)	Year ended December 31, 2023	2022	Change
Direct research and development expenses by program:			
Verekitug program:			
Asthma indication	$14,537	$ 7,673	$ 6,864
CRSwNP indication	3,330	79	3,251
Unallocated research and development expense:			
Personnel expenses (including stock-based compensation)	7,588	2,243	5,345
Manufacturing costs	3,373	7,166	(3,793)
Professional fees	1,495	1,063	432
Other unallocated expenses	1,476	433	1,043
Total research and development expense	$31,799	$18,657	$13,142

Research and development expenses were $31.8 million for the year ended December 31, 2023 compared to $18.7 million for the year ended December 31, 2022. The increase of $13.1 million was primarily driven by an increase of $10.1 million in expenses directly related to our verekitug program and $3.0 million of unallocated research and development expenses.

The increase in direct costs of $6.9 million related to the asthma indication are primarily due to costs associated with our Phase 1 clinical trial and preparing for our Phase 2 clinical trial during the year ended December 31, 2023 compared to only incurring Phase 1 clinical trial costs during the same period in 2022. The increase in direct costs related to the CRSwNP indication are primarily due to a $3.2 million increase in costs associated with preparing for our CRSwNP Phase 2 clinical trial at the end of 2023 for which there were no comparable expenses during the same period of 2022.

The increase in personnel expenses of $5.3 million was primarily due to increased headcount in our research and development function. Personnel expenses for the year ended December 31, 2023 and 2022 included stock-based compensation expense of $1.1 million and $0.4 million, respectively. The increase of $0.4 million in professional fees was related to quality and manufacturing services to support our verekitug program. The increase in other unallocated expenses was primarily driven by a $0.7 million increase in preclinical studies to support our verekitug clinical trials and a $0.2 million increase in clinical trial insurance. The decrease in manufacturing costs of $3.8 million was attributable to a decrease in CMO costs for the development of Phase 2 clinical trial material during the year ended December 31, 2023 compared to the same period in 2022.

We begin to separately track program expenses at development candidate nomination. Through December 31, 2023, we have incurred approximately $22.9 million and $3.4 million in direct external expenses for the development of verekitug for severe asthma and CRSwNP, respectively, since their development candidate nominations.

General and administrative expenses

	Year ended December 31,		
(in thousands)	**2023**	**2022**	**Change**
Personnel expenses (including stock-based compensation)	$ 6,352	$3,736	$ 2,616
Professional fees	3,347	2,211	1,136
Facility-related and other	996	517	479
Total general and administrative expense	$10,695	$6,464	$ 4,231

General and administrative expenses were $10.7 million for the year ended December 31, 2023 compared to $6.5 million for the year ended December 31, 2022. The increase of $4.2 million was primarily driven by an increase in personnel expenses of $2.6 million due to increased headcount in our general and administrative functions. Personnel expenses for the year ended December 31, 2023 and 2022 included stock-based compensation expense of $2.4 million and $0.9 million, respectively. Additionally, there was an increase of $1.1 million of professional fees including increased legal and audit fees. Facility-related and other expenses increased by $0.5 million primarily due to an increase in rent in connection with additional leased office space at the same location on a month-to-month basis during the year ended December 31, 2023.

Other income (expense)

Change in fair value of preferred stock tranche right liabilities

We recorded other income for the change in the fair value of the preferred stock tranche right liabilities of $15.5 million for the year ended December 31, 2023, including $6.6 million related to the Series A preferred stock tranche right liability and $8.9 million related to the Series B preferred stock tranche right liability, as compared to other expense of $0.1 million for the year ended December 31, 2022 related to the Series A preferred stock tranche right liability. The change in the fair value of the Series A preferred stock tranche right

liability was due to changes in the assumptions used in the valuation model during the periods, including the expected fair value of the Series A Preferred Stock and the probability and expected timing of achieving certain milestone events. The change in fair value of the Series B preferred stock tranche right liability was due to changes in the assumptions used in the valuation model from its issuance date in June 2023 through December 31, 2023, including the estimated fair value of the Series B Preferred Stock, volatility and estimated time to the tranche closing.

Interest income

Interest income was $4.2 million and $0.2 million for the years ended December 31, 2023 and 2022, respectively, representing an increase of $4.0 million. The increase in interest income was due to the increased balances in our money market funds, U.S. treasury bills and U.S. government agency bonds held during 2023, as compared to 2022.

Liquidity and capital resources

Since our inception, we have incurred significant operating losses. We have not yet commercialized verekitug and we do not expect to generate revenue from product sales of verekitug for the next several years, if at all. We have financed our operations primarily through the issuance and sale of our Preferred Stock. As of June 30, 2024, we have received gross proceeds of $400.0 million from sales of our Preferred Stock and received $4.2 million in connection with our research and development arrangement with Maruho. As of June 30, 2024, we had cash, cash equivalents and short-term investments of $235.8 million.

Cash flows

The following table summarizes our sources and uses of cash for each of the periods presented:

	Year Ended December 31,		Six Months Ended June 30,	
(in thousands)	**2023**	**2022**	**2024**	**2023**
Net cash used in operating activities	$ (37,926)	$ (19,021)	$ (25,598)	$ (16,997)
Net cash used in investing activities	(82,842)	(82)	(102,802)	(89,849)
Net cash provided by financing activities	129,550	9,963	149,903	129,633
Net increase (decrease) in cash and cash equivalents	$ 8,782	$ (9,140)	$ 21,503	$ 22,787

Operating activities

During the six months ended June 30, 2024, operating activities used $25.6 million of cash, resulting primarily from our net loss of $25.6 million, non-cash changes in fair value of the preferred stock tranche right liability of $2.9 million, and non-cash amortization of premiums and accretion of discounts on short-term investments of $1.8 million, partially offset by changes in operating assets and liabilities of $2.5 million and non-cash stock-based compensation expense of $2.1 million. Net cash provided by changes in operating assets and liabilities was primarily driven by a $3.1 million increase in accounts payable and a $0.4 million decrease in prepaid expenses and other current assets, partially offset by a $0.5 million decrease in accrued expenses and other current liabilities and a $0.4 million increase in related party accounts receivable. The increase in related party accounts receivable resulted primarily from the timing of revenue recognition compared to the timing of payments from Maruho for qualifying reimbursable expenses related to the Maruho License Agreement.

During the six months ended June 30, 2023, operating activities used $17.0 million of cash, resulting primarily from our net loss of $5.6 million, non-cash changes in fair value of the preferred stock tranche right liability of $9.8 million, changes in operating assets and liabilities of $3.3 million and non-cash amortization of premiums and accretion of discounts on short-term investments of $0.3 million, partially offset by non-cash stock-based compensation expense of $1.9 million. Net cash used by changes in operating assets and liabilities was driven by a $3.2 million increase in prepaid expenses and other current assets and a $1.5 million decrease in accrued expenses and other current liabilities, partially offset by a $1.1 million increase in related party deferred revenue and a $0.3 million decrease in related party accounts receivable. The increase in related party deferred revenue and decrease in related party accounts receivable resulted primarily from the timing of revenue recognition compared to the timing of payments from Maruho for qualifying reimbursable expenses related to the Maruho License Agreement.

During the year ended December 31, 2023, operating activities used $37.9 million of cash, primarily resulting from our net loss of $20.5 million, net non-cash gains of $13.1 million and net cash used by changes in our operating assets and liabilities of $4.3 million. Net non-cash gains included a gain related to the change in fair value of preferred stock tranche right liabilities of $15.5 million, stock-based compensation expense of $3.4 million, a gain of $1.3 million related to amortization of premiums and accretion of discounts on short-term investments, issuance costs allocated to the Series B preferred stock tranche right liability of $0.1 million, depreciation and amortization expense of $0.1 million and $0.1 million of non-cash lease expense. Net cash used by changes in operating assets and liabilities was primarily driven by a $6.2 million increase in prepaid expenses and other current assets due to payments made to a CRO for start-up costs related to our Phase 2 clinical trials, partially offset by a $1.3 million increase in accounts payable, a $0.4 million increase in accrued expenses and other current liabilities and a $0.3 million decrease in related party accounts receivable. The decrease in related party accounts receivable resulted primarily from the timing of revenue recognition compared to the timing of payments from Maruho for qualifying reimbursable expenses related to the Maruho License Agreement.

During the year ended December 31, 2022, operating activities used $19.0 million of cash, primarily resulting from our net loss of $23.9 million, partially offset by changes in our operating assets and liabilities of $3.4 million and non-cash charges of $1.4 million. Net non-cash charges included stock-based compensation expense of $1.3 million, a charge related to the change in fair value of preferred stock tranche rights liabilities of $0.1 million and non-cash lease expense of $0.1 million. Net cash provided by changes in operating assets and liabilities was driven by a $4.0 million increase in accrued expenses and other current liabilities primarily related to manufacturing and clinical costs and a $0.5 million increase in accounts payable, partially offset by a $0.6 million increase in prepaid expenses and other current assets and a $0.4 million increase in related party accounts receivable. The increase in related party accounts receivable resulted primarily from the timing of revenue recognition compared to the timing of payments from Maruho for qualifying reimbursable expenses related to the Maruho License Agreement.

For all periods presented, changes in prepaid expenses and other assets, accounts payable and accrued expenses and other current liabilities not described above were generally due to the growth in our business, the advancement of our clinical programs, and the timing of vendor invoicing and payments.

Investing activities

During the six months ended June 30, 2024, net cash used in investing activities was $102.8 million, consisting primarily of purchases of short-term investments of $175.0 million, net of maturities of short-term investments of $72.2 million.

During the six months ended June 30, 2023, net cash used in investing activities was $89.8 million, consisting primarily of purchases of short-term investments of $89.7 million and purchases of property and equipment of $0.1 million.

During the year ended December 31, 2023, net cash used in investing activities was $82.8 million, consisting primarily of purchases of short-term investments of $129.0 million, net of maturities of short-term investments of $46.3 million and purchases of property and equipment of $0.1 million.

During the year ended December 31, 2022, net cash used in investing activities was not significant.

Financing activities

During the six months ended June 30, 2024, net cash provided by financing activities was $149.9 million, consisting of $149.9 million in net proceeds from the issuance of Series B Preferred Stock and $0.1 million in net proceeds from the exercise of stock options, partially offset by $0.1 million in payments of deferred offering costs.

During the six months ended June 30, 2023, net cash provided by financing activities was $129.6 million, consisting of $80.0 million in proceeds from the issuance of Series A Preferred Stock and $49.6 million in net proceeds from the issuance of Series B Preferred Stock, including the Series B preferred stock tranche right liability.

During the year ended December 31, 2023, net cash provided by financing activities was $129.6 million, consisting of $80.0 million in proceeds from the issuance of Series A Preferred Stock, $49.4 million in net proceeds from the issuance of Series B Preferred Stock, including the Series B preferred stock tranche right liability, and $0.1 million in net proceeds from the exercise of stock options.

During the year ended December 31, 2022, net cash provided by financing activities was $10.0 million, all of which consisted of net proceeds from the issuance of Series A Preferred Stock.

Funding requirements

We expect our research and development and general and administrative expenses and our operating losses will increase in the future as we advance verekitug through clinical trials and any potential future product candidates that we may develop through preclinical studies and clinical trials, in pursuit of regulatory approval. Due to the numerous risks and uncertainties associated with research, development and commercialization of product candidates, changes in the outcome of any factors 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. In addition, upon the completion of this offering, we expect to incur increased expenses associated with operating as a public company. Our future capital requirements, both short- and long-term, will depend on a variety of factors, including, but not limited to:

- the rate of progress in the development of verekitug and our potential future product candidates, if any;
- the scope, progress, results and costs of non-clinical studies, preclinical development, laboratory testing and clinical trials for verekitug and any potential future product candidates and associated development programs;
- the number and scope of preclinical studies and clinical trials that we pursue;
- the costs, timing, and outcomes of seeking and obtaining approvals by the FDA and comparable foreign regulatory authorities, including the potential for such authorities to require that we perform more preclinical studies or clinical trials than those that we currently expect or for such authorities to change their requirements on studies that had previously been agreed to;

- our ability to establish licensing or collaboration agreements or other strategic agreements;
- the achievement of milestones or other developments under any licensing or collaboration agreements;
- the extent to which we are obligated to reimburse, or entitled to reimbursement of, clinical trial costs under any license or collaboration agreements;
- the costs to establish, maintain, expand, enforce, and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with licensing, preparing, filing, prosecuting, defending and enforcing any patents or other intellectual property rights;
- the costs associated with successfully defending against any claims by third parties that we have infringed, misappropriated or otherwise violated any intellectual property of any such third party;
- the costs of acquiring, licensing, or investing in additional businesses, products, product candidates, and technologies that we may identify;
- the costs to manufacture or to have manufactured sufficient, reliable, timely, and affordable supply of materials including commercial-grade product formulations that can be used in clinical trials and for commercial launch;
- the costs of commercializing product candidates, if approved, whether alone or in collaboration with others;
- the amount of revenue, if any, received from commercial sales of our product candidates, should any of our product candidates receive marketing approval;
- the costs of building or contracting sales, marketing, and/or distribution capabilities, systems, and internal infrastructure for any product candidate that receives marketing approval;
- the impact of competitors' product candidates and technological advances and other market developments;
- the expenses needed to attract and retain skilled personnel; and
- the size of the markets and degree of market acceptance of any product candidates in territories in which we receive regulatory approval, including product pricing, product coverage, and the adequacy of reimbursement by third-party payors.

Our business plans may change in the future and we will continue to require additional capital to meet the needs of our operating expenses. See the section titled "Risk factors—Risks related to our limited operating history, financial condition and need for additional capital" included elsewhere in this prospectus.

We believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operating expenses and capital expenditure requirements through mid-2027. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions or

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

Contractual obligations and other commitments

Asset acquisition from Astellas and related letter agreement with Astellas and Regeneron

In October 2021, we entered into the Astellas Asset Purchase Agreement with Astellas, and concurrently entered into the Regeneron Letter Agreement with Astellas and Regeneron.

Under the Regeneron Letter Agreement, Astellas assigned and transferred to us and we assumed and accepted certain of Astellas' surviving rights and obligations under the Terminated Regeneron License Agreement. By assuming and accepting Astellas' surviving obligations under the Terminated Regeneron License Agreement, we are required to pay Regeneron mid-single-digit percentage royalties on aggregate worldwide net sales of a Royalty Product during the royalty term.

The royalties are determined on a product-by-product and country-by-country basis and expire on the later of (i) a specified number of years after the launch of a given Royalty Product in a given country and (ii) the expiration of the last valid claim of royalty bearing company patent rights claiming or covering such Royalty Product in such country.

To date, we have not made any royalty payments to Regeneron under the Regeneron Letter Agreement.

License agreement with Lonza

As consideration for the rights and licenses granted to us under the Lonza License Agreement, we agreed to pay Lonza certain royalties and annual payments, both payable in swiss francs, in respect of the manufacturing and sale of the Compound, such amounts to be determined by the party manufacturing the Compound, and range from no annual payment to up to a mid-six figure annual payment, and a less-than-one percent to a low-single-digit percentage royalty on net sales of the Compound. In accordance with the Lonza License Agreement, we entered into a sublicense with Wuxi Biologics (Hong Kong) Limited to manufacture the Compound, requiring us to pay a mid-six-figure annual fee to Lonza pursuant to this provision.

Any royalties due under the Lonza License Agreement are payable on a country-by-country basis until ten years from the first commercial sale of the Compound in that particular country.

During the year ended December 31, 2023, we made an annual payment to Lonza in the amount of $0.4 million, which was paid during the six months ended June 30, 2023. During the year ended December 31, 2022, we made an annual payment to Lonza in the amount of $0.4 million. During the six months ended June 30, 2024, we made an annual payment to Lonza in the amount of $0.5 million. These payments were recognized as research and development expense in the condensed consolidated statements of operations and comprehensive loss. To date, we have not made any royalty payments to Lonza under the Lonza License Agreement.

Lease agreement

On July 3, 2024, we entered into a three-year agreement for office space located at 890 Winter Street in Waltham, Massachusetts. We began paying monthly rent starting one month after lease commencement.

Initial base rent is approximately $0.7 million for the first year and approximately $0.8 million for the second and third year. The lease commenced in September 2024.

On July 8, 2024, we provided notice of termination of our current operating lease and sublease of office space at 460 Totten Pond Road, Waltham, Massachusetts. This notice became effective on October 9, 2024, after which our rights and obligations under this lease and sublease ceased.

Research and development

We enter into contracts in the normal course of business with CROs and investigator sites that conduct clinical trials on our behalf, CMOs that manufacture product candidates for use in our preclinical studies and clinical trials, and third-party vendors, including CROs, that conduct research and preclinical studies on our behalf. Prepayments under these arrangements can generally be repurposed or the services themselves cancelable upon prior written notice, though cancellation fees are likely. Payments due upon cancellation consist only of payments for services provided and expenses incurred up to the date of cancellation.

Critical accounting estimates and significant judgments

Our management's discussion and analysis of financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with U.S. Generally Accepted Accounting Principles ("U.S. GAAP"). The preparation of our financial statements and related disclosures requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses, and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements. We base our estimates on historical experience, known trends and events, and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities and revenues and expenses that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our consolidated financial statements included elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Prepaid and accrued research and development expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf, and estimating the level of service performed and the associated costs incurred for the services when we have not yet been invoiced or otherwise notified of the actual costs. The majority of our service providers invoice us in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advanced payments. We make estimates of our accrued expenses as of each balance sheet date in our consolidated financial statements based on facts and circumstances known to us at that time. Examples of estimated accrued research and development expenses include:

- expenses incurred under agreements with third parties, including CROs and investigative sites that conduct research, preclinical studies and clinical trials on our behalf, and in connection with the Maruho License Agreement;

- expenses incurred under agreements with third parties, including CMOs, that develop and manufacture our product candidate for use in our preclinical studies and clinical trials; and
- other providers and vendors in connection with research and development activities.

We base our expenses related to preclinical studies and clinical trials on our estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CROs, investigative sites, CMOs, and third-party vendors that conduct research, preclinical studies, and conduct clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense.

Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing fees, we estimate the time period over which services will be performed, enrollment of patients, number of sites activated, and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or amount of prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in us reporting amounts that are too high or too low in any particular period. To date, we have not made any material adjustments to our prior estimates of accrued research and development expenses.

We also record advance payments to service providers as prepaid expenses and other current assets, which are expensed as the contracted services are performed. If the actual timing of the performance of services varies from the estimate, then we adjust the amount of the accrued expense or the prepaid expense accordingly.

Stock-based compensation

We measure stock-based awards granted to employees, directors, and non-employee service providers based on their fair value on the date of the grant and recognize compensation expense for those awards over the requisite service period, which is generally the vesting period of the respective award. Generally, we issue stock option awards with service-based vesting conditions and record the expense for these awards using the straight-line method such that the aggregate amount of expense recognized is at least the fair value of what was legally vested. Certain personnel (including our former Chief Executive Officer, current Chief Executive Officer, current Chief Financial Officer, current Chief Medical Officer, current Chief Business Officer and former Chief Operating Officer) were issued stock option awards with performance-based vesting conditions, in addition to continued service, that are monitored for when it is considered probable that the performance condition will be achieved and we recognize stock-based compensation expense using graded vesting. After the achievement of the performance condition in February 2023, the stock-based compensation for our performance-based stock options was solely subject to continued service until the fourth anniversary of the second closing of our Series A Preferred Stock. In March and April 2024, we granted awards with performance-based conditions to our current Chief Executive Officer and current Chief Financial Officer. Upon achievement of the performance condition, in April 2024, the stock-based compensation for our performance-based stock options was solely subject to continued service until the fourth anniversary of the issuance of Series B Preferred Stock to settle the Series B tranche right. The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model, which requires inputs based on certain subjective assumptions. These assumptions include:

- *Fair value of common stock*. See the subsection titled “—Determination of fair value of common stock” below.

- *Expected term*. The expected term represents the period that our stock option awards granted are expected to be outstanding and is determined using the simplified method (based on the mid-point between the vesting date and the end of the contractual term).
- *Expected volatility*. Because we do not have any trading history for our common stock, the expected volatility is estimated using averages of the historical volatility of our peer group of companies for a period equal to the expected term of the stock options granted. Our peer group of publicly traded companies was chosen based on their similar size, stage in the life cycle or area of specialty. We intend to continue to consistently apply this process using the same or a similar peer group of public companies, until a sufficient amount of historical information regarding the volatility of our own common stock price becomes available.
- *Risk-free interest rate*. The risk-free interest rate is based on the interest rates paid on securities issued by the U.S. Treasury with a term approximating the expected term of stock options granted.
- *Expected dividend*. We have never paid, and do not anticipate paying, cash dividends on our common stock. Therefore, the expected dividend yield was assumed to be zero.

Changes in the foregoing assumptions can materially affect the estimate of fair value and ultimately how much share-based compensation expense is recognized; and the resulting change in fair value, if any, is recognized in our statements of operations during the period the related services are rendered. These inputs are subjective and generally require significant analysis and judgment to develop.

On the effective date of the registration statement of which this prospectus forms a part, we issued to certain directors and an employee stock options to purchase an aggregate of 124,161 shares of our common stock under the 2024 Plan. Based on the initial public offering price of $17.00 per share, we estimate that the aggregate grant-date fair value of these options is $1.4 million, which is expected to be recognized as stock-based compensation expense over a period of one to four years.

See the sections titled “Executive compensation—Employee benefit and equity compensation plans—Equity grant to employee” and “Director compensation—2023 director compensation table” included elsewhere in this prospectus for additional information.

Determination of fair value of common stock

As a privately held company, there has been no public market for our common stock to date. The estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering the most recently available third-party valuations of our common stock and our board of directors’ assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants’ Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

Our third-party valuations of common stock were prepared using either the option-pricing method, or OPM, or the hybrid method, both of which used a market approach to estimate our enterprise value. For valuations performed after March 2, 2024, in accordance with the Practice Aid, we determined the hybrid method was the most appropriate method for determining the fair value of our common unit based on our stage of development and other relevant factors. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company’s securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation

preferences at the time of the liquidity event, such as a strategic sale or a merger. The hybrid method is a probability-weighted expected return method ("PWERM") where the equity value in one or more of the scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for us, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock.

These third-party valuations resulted in a valuation of our common stock of $3.32, $4.27, $4.87, $5.69, $6.59, $9.15, and $10.62 per share as of October 31, 2022, February 17, 2023, June 6, 2023, March 1, 2024, April 22, 2024, May 20, 2024 and July 19, 2024, respectively.

In addition to considering the results of these third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the lack of an active public market, for our common stock and preferred stock;
- the progress of our research and development programs, including the status and results of preclinical studies and clinical trials for our product candidates;
- our stage of development and commercialization and our business strategy, and material risks to our business;
- external market conditions affecting the pharmaceutical and biopharmaceutical industry and trends within each industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the likelihood of achieving a liquidity event, such as an initial public offering or sale of our company in light of prevailing market conditions; and
- the analysis of initial public offerings and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different. For the year ended December 31, 2023 and the six months ended June 30, 2024, if there was a 10% increase in the valuation of our common stock at each of the valuation dates listed above and to the underlying exercise price of stock options granted during the year assuming that such options were granted with an exercise price equal to the fair value of common stock, the impact to our stock-based compensation expense would have been an increase of $3.8 million and $0.2 million, respectively. If there was a 10% decrease in the valuation of our common stock at each of the valuation dates listed above and

to the underlying exercise price of stock options granted during the year assuming that such options were granted with an exercise price equal to the fair value of common stock, the impact to our stock-based compensation expense would have been a decrease of $3.1 million and $0.2 million for the year ended December 31, 2023 and the six months ended June 30, 2024, respectively. Our estimate of fair value is reviewed and approved by our board of directors.

Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for our board of directors to estimate the fair value of our common stock in connection with our accounting for stock options and other such awards we may grant, as the fair value of our common stock will be determined based on the quoted market price of our common stock.

Options granted

The following table summarizes by grant date the number of shares subject to options granted between January 1, 2023 and June 30, 2024, the per share exercise price of the options, the per share fair value of common stock underlying the options on each grant date, and the per share estimated fair value of the options:

Grant Date	Number of shares subject to options granted	Per share exercise price of options	Per share fair value of common stock	Per share estimated fair value of options
January 6, 2023	14,686	$ 3.32	$ 3.32	$ 2.34
March 2, 2023	47,817	$ 4.27	$ 4.27	$ 3.03
March 3, 2023	580,532	$ 4.27	$ 4.27	$ 3.03
March 14, 2023	36,577	$ 4.27	$ 4.27	$ 3.03
April 8, 2023	45,020	$ 4.27	$ 4.27	$ 2.85
June 12, 2023	42,206	$ 4.87	$ 4.87	$ 3.27
July 18, 2023	84,414	$ 4.87	$ 4.87	$ 3.22
August 9, 2023	25,323	$ 4.87	$ 4.87	$ 3.16
August 10, 2023	35,559	$ 4.87	$ 4.87	$ 3.16
August 14, 2023	301,587	$ 4.87	$ 4.87	$ 3.16
August 15, 2023	11,254	$ 4.87	$ 4.87	$ 3.16
September 6, 2023	50,646	$ 4.87	$ 4.87	$ 3.24
March 27, 2024	778,967	$ 5.69	$ 5.69	$ 3.26
April 4, 2024	866,704	$ 5.69	$ 5.69	$ 4.01
April 25, 2024	1,053,799	$ 6.59	$ 6.59	$ 4.65
May 2, 2024	325,813	$ 6.59	$ 6.59	$ 4.57
May 5, 2024	113,554	$ 6.59	$ 6.59	$ 4.57
May 7, 2024	12,588	$ 6.59	$ 6.59	$ 4.57
June 11, 2024	9,441	$ 9.15	$ 9.15	$ 6.49
June 19, 2024	12,588	$ 9.15	$ 9.15	$ 6.49
July 31, 2024	35,666	$ 10.62	$ 10.62	$ 8.20

Valuation of preferred stock tranche right liabilities

In connection with our Preferred Stock financings, we issued shares under stock purchase agreements that provided an obligation for us to issue additional Preferred Stock in subsequent closings upon the satisfaction of certain conditions. We classified each of the Series A and Series B preferred stock tranche rights as a liability on our consolidated balance sheets and initially recorded them at fair value upon the issuance date of the rights.

We remeasured the preferred stock tranche right liabilities to fair value at each reporting date and recognized changes in the fair values as a component of other income, net in our consolidated statements of operations and comprehensive loss. We continued to recognize changes in the fair value of the preferred stock tranche right liabilities at each reporting date until settled.

Upon the satisfaction of relevant conditions in February 2023 and April 2024, respectively, the Series A and Series B preferred stock tranche right liabilities were remeasured to fair value for the last time and the change in fair value was recognized as a component of other income, net in our consolidated statements of operations and comprehensive loss. The balance of the respective preferred stock tranche right liability was derecognized upon settlement and the shares of the respective Preferred Stock issued were recorded at fair value.

The fair value of the Series A preferred stock tranche right liability was determined using a probability-weighted expected return method, which considered as inputs the fair value of the Series A Preferred Stock as of each measurement date, the fair value per share of the Series A Preferred Stock if the milestone is not met, probability of meeting certain milestone events, the expecting time until certain milestone events would be met, and the discount rate. The most significant assumptions in the valuation model impacting the fair value of the Series A preferred stock tranche right liability were the fair value of our Series A Preferred Stock and the probably and timing of achieving certain milestone events as of each measurement date. Changes in these inputs could have a significant impact on the fair value of the Series A preferred stock tranche right liability.

The fair value of the Series B preferred stock tranche right liability was determined using an option pricing model, which considered as inputs the estimated fair value of the Series B Preferred Stock as of each valuation date, the risk-free interest rate, volatility, expected dividends, and estimated time to the tranche closing. The most significant assumption in the valuation model impacting the fair value of the Series B preferred stock tranche right liability is the fair value of our Series B Preferred Stock as of each measurement date. The risk-free interest rate was determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining estimated time period of achievement of the specified milestones underlying the preferred stock tranche rights. The volatility was based on the historical volatility of publicly traded peer companies adjusted for the seniority of the Series B Preferred Stock. The expected dividend yield is based on the fact that we have never paid cash dividends and do not expect to pay any cash dividends in the foreseeable future. Changes in these inputs could have a significant impact on the fair value of the Series B preferred stock tranche right liability.

We determined the fair value per share of the underlying Preferred Stock by taking into consideration the most recent sales of our Preferred Stock, results obtained from third-party valuations and additional factors we deemed relevant.

Recently issued and adopted accounting pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 2 to our consolidated financial statements included elsewhere in this prospectus.

Quantitative and qualitative disclosures about market risks

Market risk represents the risk of loss that may impact our financial position because of adverse changes in financial market prices and rates. Our market risk exposure is primarily a result of exposure resulting from potential changes in interest rates, exchange rates or inflation. We do not hold financial instruments for trading purposes.

Interest rate risk

As of June 30, 2024 and December 31, 2023, we had $235.8 million and $109.8 million, respectively, in cash, cash equivalents and short-term investments, which consisted of cash, money market funds, U.S. treasury bills and U.S. government agency bonds. Our cash and cash equivalents are primarily maintained in accounts with multiple financial institutions in the United States. We may maintain cash and cash equivalent balances in excess of Federal Deposit Insurance Corporation (FDIC) limits. We do not believe that we are subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, we believe an immediate 10% change in interest rates would not have a material effect on the fair market value of our investment portfolio. We have the ability to hold our investments until maturity, and therefore, we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a change in market interest rates on our investment portfolio.

Foreign currency exchange risk

All of our employees and our operations are currently located in the United States and our expenses are generally denominated in U.S. dollars. However, we do utilize certain vendors outside of the United States in connection with our research and development activities. As such, our expenses are denominated in both U.S. dollars and foreign currencies. Therefore, our operations are and will continue to be subject to fluctuations in foreign currency exchange rates. To date, foreign currency transaction gains and losses have not been material to our consolidated financial statements, and we have not had a formal hedging program with respect to foreign currency. We do not believe that a hypothetical 10% increase or decrease in exchange rates during any of the periods presented would have had a material effect on our consolidated financial statements included elsewhere in this prospectus.

Effects of inflation

Inflation generally affects us by increasing our labor and research and development expenses. We do not believe that inflation had a material effect on our business, financial condition, or results of operations during the years ended December 31, 2023 and 2022 or the six months ended June 30, 2024 and 2023.

Emerging growth company and smaller reporting company status

The Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”), permits an “emerging growth company” such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have elected not to “opt out” of such extended transition period, which means that when a standard is issued or revised and it has different effective dates for public and private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until the earlier of the date that we (i) are no longer an emerging growth company or (ii) irrevocably elect to “opt out” of the extended transition period provided in the JOBS Act. As a result, our consolidated financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for non-public companies.

We are also a “smaller reporting company,” meaning that the market value of our common stock and non-voting common stock held by non-affiliates plus the aggregate amount of gross proceeds to us as a result

of this offering is less than $700.0 million and our annual revenue is less than $100.0 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our common stock and non-voting common 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 common stock and non-voting common stock held by non-affiliates is less than $700.0 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, 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, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Business

Overview

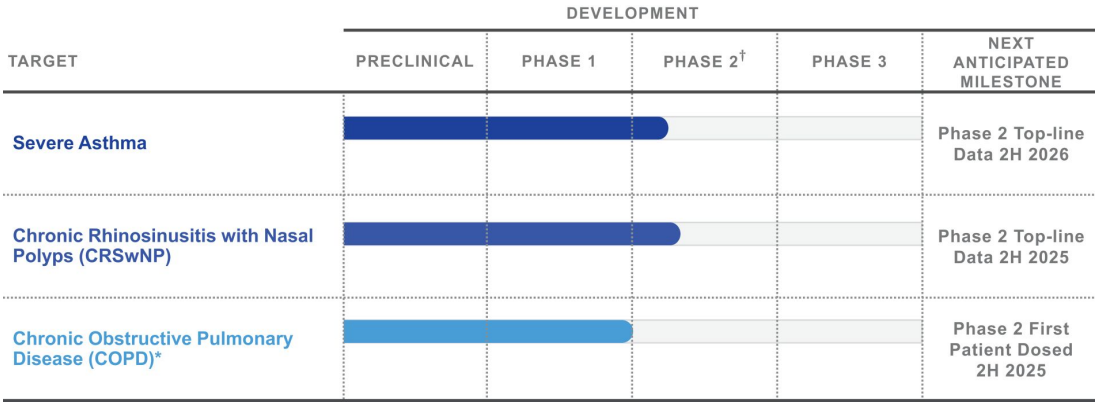
We are a clinical-stage biotechnology company developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. We are developing verekitug, the only known antagonist currently in clinical development that targets the receptor for Thymic Stromal Lymphopoietin ("TSLP"), a cytokine which is a clinically validated driver of inflammatory response positioned upstream of multiple signaling cascades that affect a variety of immune mediated diseases. Preclinical and clinical data to date demonstrate verekitug's highly potent inhibition of the TSLP receptor, which we believe will translate to a differentiated product profile, including improved clinical outcomes, substantially extended dosing intervals and the potential to treat a broad spectrum of patients. We have advanced this highly potent monoclonal antibody into separate Phase 2 trials for the treatment of severe asthma and chronic rhinosinusitis with nasal polyps ("CRSwNP") and plan to initiate development in chronic obstructive pulmonary disease ("COPD"). Our experienced team is committed to maximizing verekitug's unique attributes to address the substantial unmet needs for patients underserved by today's standard of care.

There are six biologics approved for the treatment of severe asthma; three of these are also approved for CRSwNP. One biologic was recently approved for the treatment of COPD. Total estimated biologics sales in 2023 for asthma in the United States, Europe and Japan markets were approximately $7.5 billion. In December 2021, tezepelumab (marketed as Tezspire by Amgen Inc. ("Amgen") and AstraZeneca PLC ("AstraZeneca")), a monoclonal antibody targeting the TSLP ligand, not the receptor, was approved by the U.S. Food and Drug Administration ("FDA") as an add-on maintenance treatment for patients with severe asthma. Tezepelumab is the first and only treatment for severe asthma without any phenotype or biomarker limitation, highlighting the benefit of blocking TSLP signaling early in the inflammatory cascade as compared to other biologics' mechanisms of action which are further downstream. Tezepelumab is projected to reach peak global annual sales of over $3.0 billion for severe asthma alone in 2032 and, according to Amgen, achieved more than 20% of new to brand share of prescriptions in the United States in its first commercial year. In May 2024, Amgen and AstraZeneca reported Phase 2a proof-of-concept data for tezepelumab for the treatment of moderate to very severe COPD at the American Thoracic Society ("ATS") International Conference. This trial reported a reduction in the frequency of COPD exacerbations that has supported advancement of tezepelumab into Phase 3 development for COPD. These clinical data further demonstrate the potential for a TSLP targeted therapy to treat a variety of inflammatory diseases. Based on these recent COPD data, tezepelumab is projected to achieve peak sales in the United States of approximately $6.0 billion to $10.0 billion according to third-party research analyst reports. The projections for tezepelumab's peak sales are not indicative of the potential market opportunity for verekitug and are subject to a number of assumptions, risks and uncertainties that could cause them to be smaller than currently estimated. Despite the availability of existing biologics for severe respiratory disease, there remains a high unmet need that limits the utilization of these therapies, including suboptimal symptom control and frequent dosing intervals.

Verekitug is, to our knowledge, the only monoclonal antibody currently in clinical development that targets and inhibits the TSLP receptor. In May 2024, we presented full proof-of-concept data from our multicenter, randomized, double-blind, placebo-controlled Phase 1b multiple ascending dose ("MAD") clinical trial in asthma patients demonstrating that dosing with verekitug led to rapid and complete TSLP receptor occupancy, and reductions in fractional exhaled nitric oxide ("FeNO," a disease-related biomarker) and blood eosinophil levels ("eos," a disease-related biomarker) that were rapid, substantial and sustained for up to 24 weeks after the last dose. This study also demonstrated that verekitug is approximately 300-fold more potent than tezepelumab (based on published tezepelumab data), which, combined with verekitug's pharmacokinetic ("PK") profile, enables an extended dosing interval of up to 24 weeks, compared to tezepelumab (four week dosing interval). Furthermore, clinical data from our MAD trial indicate an approximately 50% greater effect on FeNO than has previously been reported for tezepelumab. We have not conducted head-to-head clinical studies of verekitug against tezepelumab, and note that ongoing and future clinical trials for verekitug may produce differing clinical activity and tolerability results. Three Phase 1 clinical trials have been completed for verekitug across a

total of 120 participants, including 32 patients with asthma. In these trials, which were not designed to support formal statistical comparisons, verekitug was well tolerated, demonstrated no evidence of clinically meaningful anti-drug antibodies ("ADAs"), and showed a predictable and consistent PK profile with high subcutaneous bioavailability. Based on its extended dosing interval and effect on broadly accepted disease-associated biomarkers, we believe verekitug, if approved, will be the preferred biologic for the treatment of severe asthma, CRSwNP and COPD.

Our current clinical development plan for verekitug is summarized in the pipeline chart below. Having established clinical proof-of-concept in asthma, we are currently conducting two separate multi-national, placebo-controlled, randomized Phase 2 clinical trials to investigate the efficacy of two extended dosing intervals of 12 and 24 weeks for patients with severe asthma and 12 weeks for patients with CRSwNP. These trials have been designed using endpoints that, pending interactions with regulatory authorities, could allow data from these trials to support submissions for product approval. Data from these trials are expected in the second half of 2026 for severe asthma and the second half of 2025 for CRSwNP. Based on available data from Phase 1 trials with verekitug, we plan to initiate our first clinical trial in COPD and have commenced planning activities for a Phase 2 clinical trial, including development of a clinical trial protocol and regulatory approval strategy, and expect to dose the first COPD patient in the second half of 2025. Beyond these indications, we believe verekitug has broad potential, and we intend to leverage its unique attributes to develop it as a potential therapy for numerous TSLP-driven diseases.



† Phase 2 clinical trials in CRSwNP and severe asthma were initiated in January 2024 and March 2024, respectively, and enrollment is currently ongoing.

* Planning activities for a Phase 2 clinical trial in COPD have commenced, including development of a clinical trial protocol and regulatory approval strategy.

Leveraging TSLP biology to address unmet needs in severe asthma, CRSwNP and COPD

TSLP overview

Verekitug is a monoclonal antibody that targets and inhibits the TSLP receptor. TSLP is a member of a class of epithelial cytokines, also including IL-25 and IL-33, commonly referred to as alarmins. TSLP is primarily produced by epithelial cells, especially in the lung, gastrointestinal tract and skin. Dendritic cells, basophils, mast cells, keratinocytes and fibroblasts also produce TSLP with appropriate stimulation. In response to various environmental triggers, including viruses, bacteria, allergens, chemical irritants and physical injury, TSLP can initiate and amplify a wide range of innate and adaptive immune responses, including supporting epithelial barrier function, dendritic cell activation, type 2 innate lymphoid cell activation and survival, immune cell recruitment, induction of type 2 responses and regulation of B cell function. Beyond type 2 inflammation, data

also support a role for TSLP in propagating non-type 2 inflammatory processes, including IL-17 production, modulation of airway structural cells and the promotion of fibrosis. As such, TSLP signaling is a central instigator of multiple downstream biologic pathways relevant to human diseases that are characterized by epithelial inflammation, including asthma, CRSwNP and COPD.

The TSLP signaling pathway is well-understood as a contributor to disease-driving proinflammatory pathways and is a clinically and commercially validated target for therapeutic development. Historically, development of biologics for severe asthma and related conditions has focused on type 2 inflammatory cytokines that are activated downstream in the TSLP signaling pathway, for instance IL-4, IL-5 and IL-13. However, in addition to its effect on type 2 inflammation, emerging evidence indicates that TSLP also impacts non-type 2 inflammation, which may result in broader downregulation of pathways relevant to the pathogenesis of multiple inflammatory diseases. We believe verekitug has the potential, if approved, to address unmet needs in multiple diseases characterized by TSLP-driven pathobiology due to the high potency and potential for extended dosing intervals that we have observed in our preclinical and clinical development to date.

Only one drug targeting the TSLP pathway has been approved for the treatment of severe asthma. In December 2021, tezepelumab (marketed as Tezspire by Amgen and AztraZeneca), a monoclonal antibody targeting the TSLP ligand, was approved by the FDA as an add-on maintenance treatment for patients with severe asthma. Tezepelumab is the first and only treatment for severe asthma without any phenotype or biomarker limitation, highlighting the benefit of blocking TSLP signaling early in the inflammatory cascade as compared to other biologics' mechanisms of action which are further downstream. In the Phase 3 clinical trial of tezepelumab in adults and adolescents with severe, uncontrolled asthma, patients who received tezepelumab had fewer exacerbations and better lung function, asthma control and health-related quality of life than those who received placebo. Based on pooled safety data from the clinical trials of tezepelumab, Tezspire's FDA approved label identifies hypersensitivity reactions following administration as a clinically significant adverse reaction, as well as pharyngitis, arthralgia and back pain as additional adverse reactions that occurred at an incidence of greater than or equal to 3% and more common than the placebo group. Furthermore, a Phase 2a clinical trial for tezepelumab in COPD patients, which demonstrated a clinically-significant reduction of COPD exacerbations, the most frequently reported adverse events for tezepelumab were worsening of COPD (12.1%) and incidents of COVID-19 infections (14.5%, trial commenced in July 2019), demonstrating a safety and tolerability profile consistent with that observed for tezepelumab in severe asthma. These clinical data further demonstrate the potential for a TSLP targeted therapy to treat a variety of inflammatory diseases.

Severe asthma

Asthma is a common respiratory disease characterized by chronic airway inflammation that is often underdiagnosed and under-treated. For some people, asthma can simply be a nuisance, for others it can interfere with daily life and potentially even be life-threatening. Of the more than 25 million Americans living with asthma, it is estimated that 5% to 10% suffer from severe asthma. Severe asthma is defined as asthma that remains uncontrolled despite optimized treatment with high-dose inhaled corticosteroids or that requires high-dosed inhaled corticosteroids to prevent symptoms from becoming uncontrolled. It is estimated that approximately 90% of people with severe asthma are eligible for biologics, but only 440,000 patients are currently treated with biologics, suggesting more than 80% of eligible patients are not being optimally treated. U.S. sales in 2023 of biologics for the treatment of severe asthma is estimated to be approximately $6.0 billion.

These statistics show there is a large population of people living with uncontrolled symptoms of severe asthma. Key areas of unmet need for people living with severe asthma include improved control of exacerbations and symptoms and reduced treatment burden (e.g., need for frequent injections).

Chronic rhinosinusitis with nasal polyps (CRSwNP)

CRSwNP is an inflammatory disease of the upper airway, marked by chronic sinonasal inflammation and the presence of inflammatory polyps in the nasal passages and paranasal sinuses. It is estimated by Sanofi that approximately 900,000 patients in the United States and Europe suffer from CRSwNP. Nasal polyps are associated with significant morbidity and debilitating symptoms; it is estimated that 40% to 45% of people with severe asthma also have CRSwNP and that up to 65% of people with CRSwNP also have asthma, demonstrating a strong association between the two conditions.

The current treatment options for patients with CRSwNP are corticosteroids, surgery and, more recently, biologics. Although a treatment option, surgery does not guarantee symptom relief. Even with surgery, many people with CRSwNP remain symptomatic, with the recurrence rate of CRSwNP ranging from 20% to 60% within 18 months to four years and increasing to 79% after 12 years. Recurrence is particularly common for people with severe disease, including those also living with asthma or who have undergone prior surgeries. The recent FDA approvals of biologic treatments for CRSwNP have established a well-understood regulatory pathway and route to commercialization. It is estimated that approximately 200,000 adult patients in the United States, major European markets and Japan with CRSwNP are eligible for biologics.

Despite these available treatments, the quality of life (“QoL”) studies and post-surgical recurrence rates clearly show that many people with CRSwNP have uncontrolled symptoms that are impacting their daily life and current treatments are not meeting their needs.

Chronic obstructive pulmonary disease (COPD)

Similar to asthma, COPD is a chronic inflammatory disease that obstructs airflow from the lungs. Chronic inflammation causes structural changes within the lungs, narrowing already small airways and damaging lung parenchyma which causes air sacs to lose functionality and decreases lung elasticity. It is typically caused by long-term exposure to irritants, most often cigarette smoke. People with a history of asthma are also more likely to have COPD. Historically, COPD has been considered to have elements of both type 2 and non-type 2 immune responses.

COPD is the third leading cause of death worldwide, causing approximately 3.2 million deaths in 2019. Almost 14.2 million Americans, or 6.5% of the adult population, reported in one study that they have been diagnosed with COPD, yet the actual number is likely higher given that more than half of adults with low pulmonary function in another study reported that they were not aware that they had COPD.

Treatments for COPD are similar to those for asthma and CRSwNP, including inhaled steroids to reduce inflammation in the airways as well as bronchodilator inhalers to relax airways and improve airflow. Oxygen and surgery may also be used for people with severe COPD. Dupilumab (marketed as Dupixent by Sanofi and Regeneron Pharmaceuticals, Inc. (“Regeneron”)), an interleukin (“IL”)-4 receptor alpha antagonist (“IL-4Rα”), is the only biologic approved for the treatment of COPD.

Despite available treatments, 60% of all COPD patients report some limitations in their daily activity, with 45% being unable to work and 75% complaining of difficulty climbing stairs. Given the high levels of morbidity and mortality associated with COPD, the currently available medicines are not sufficient to control symptoms or disease progression.

Verekitug: Inhibiting TSLP signaling in severe asthma, CRSwNP and COPD

Verekitug is a novel recombinant fully human immunoglobulin G1 (“IgG1”) monoclonal antibody that binds to the TSLP receptor and inhibits its signaling. In 2021, we acquired verekitug from Astellas Pharma Inc. (“Astellas”). Astellas discovered the compound and completed preclinical studies and a Phase 1 single ascending dose (“SAD”)

trial, providing the early foundational work for our Phase 1b MAD trial. In those preclinical studies, which were not designed to support formal statistical comparisons, verekitug potently inhibited TSLP signaling. Additionally, verekitug inhibited cytokine production from CD4+ T cells, suggesting that it may be effective against type 2 and non-type 2 inflammation. In the Phase 1 SAD trial in healthy volunteers, verekitug demonstrated a favorable safety profile with no drug-related serious treatment-emergent adverse events, dose proportional pharmacokinetics and a pharmacodynamic effect consistent with TSLP antagonism.

We have conducted two additional clinical trials of verekitug: a Phase 1b MAD trial in patients with asthma and a Japanese ethnobridging study in healthy volunteers. Across the three clinical trials, we have data from 120 total participants, including 32 patients with asthma. In these trials, verekitug was well tolerated, had no clinically meaningful immunogenicity, and showed a predictable and consistent PK profile with high subcutaneous bioavailability.

Our Phase 1b MAD clinical trial established clinical proof-of-concept for verekitug in asthma. In the trial, which was not designed to support formal statistical comparisons, verekitug demonstrated rapid, substantial and sustained target engagement and maintained maximal inhibition of disease-related biomarkers in patients with asthma for up to 24 weeks after the last study dose. Results of the Phase 1b study also demonstrated that verekitug is a potent inhibitor of the TSLP receptor and has the potential for an extending dosing interval compared to currently available treatments. Importantly, the PK/pharmacodynamic (“PD”) modeling that was done based on the preclinical data aligned very closely with these early clinical results, strengthening our understanding of verekitug’s attributes and behavior in humans.

We are currently conducting two separate multi-national, placebo-controlled, randomized Phase 2 clinical trials to investigate the efficacy of two extended dosing intervals of 12 and 24 weeks for patients with severe asthma and 12 weeks for patients with CRSwNP. These trials have been designed using endpoints that, pending interactions with regulatory authorities, could allow data from these trials to support submissions for product approval. Data from these trials are expected in the second half of 2026 for severe asthma and the second half of 2025 for CRSwNP. Based on available data from Phase 1 trials with verekitug, we plan to initiate our first clinical trial in COPD and have commenced planning activities for a Phase 2 clinical trial, including development of a clinical trial protocol and regulatory approval strategy, and expect to dose the first COPD patient in the second half of 2025. Beyond these indications, we believe verekitug has broad potential, and we intend to leverage its unique attributes to develop it as a potential therapy for other TSLP-driven diseases.

Our team and investors

We have built a team with deep experience and a strong track record of execution that has allowed us to move from company inception to Phase 2 in less than three years. Our leadership team and board of directors have significant experience developing and commercializing innovative medicines, with deep expertise in severe asthma and other respiratory diseases. E. Rand Sutherland, M.D., M.P.H., our Chief Executive Officer (“CEO”), has more than 25 years of business and clinical experience, having most recently served as CEO of Seeker Biologics Inc., before that as President of Translate Bio, Inc. prior to its $3.2 billion acquisition by Sanofi, and before that in research and development and business unit roles at Sanofi developing and launching innovative medicines in immunology and rare diseases, including dupilumab. Before joining the biopharma industry, Dr. Sutherland was a Professor of Medicine at the University of Colorado and Chief of Pulmonary and Critical Care Medicine at National Jewish Health in Denver. Our Chief Medical Officer and Head of Research and Development, Aaron Deykin, M.D., leads our clinical development activities and strategy. Prior to joining us, Dr. Deykin was Senior Vice President of Clinical Sciences at Biogen, Inc. (“Biogen”) overseeing biostatistics, statistical programming, biomarkers, clinical pharmacology, epidemiology and clinical operations for Biogen’s pipeline globally. Dr. Deykin was previously Assistant Professor of Medicine at Harvard Medical School and a member of the Pulmonary and Critical Care faculty at Brigham and Women’s Hospital, where he treated

patients with asthma and other advanced respiratory diseases. Michael Paul Gray, M.B.A., our Chief Financial and Operating Officer, brings over 20 years of public and private leadership experience, including broad strategic, financial and operating experience in global life science companies. Mr. Gray previously held the same roles at Carmot Therapeutics, Inc. prior to its $2.7 billion acquisition by Roche Group. Our board of directors consists of highly experienced biotechnology executives and investors, including Ronald C. Renaud, Jr., M.B.A., CEO of Kailera Therapeutics, Inc., and Marcella Kuhlman Ruddy, M.D., M.S. of Tectonic Therapeutic, Inc. and formerly Regeneron, as our independent directors. We have also assembled a team of well-known and respected advisors and investigators to provide perspective on our data and participate in our clinical program.

Since our inception, we have raised approximately $400 million from premier biotechnology investors. Prospective investors should not rely on the past investment decisions of our investors, as our investors may have different risk tolerances and have received their shares in prior offerings at prices lower than the price offered to the public in this offering. Please see the section titled “Certain relationships and related party transactions” included elsewhere in this prospectus for a description of the financings we have conducted to date.

Our strategy

Our mission is to develop verekitug to be the first approved antagonist of the TSLP receptor to benefit patients suffering from severe inflammatory diseases that are underserved by today’s standard of care. The key components of our strategy to achieve this mission are:

- **Leverage verekitug’s unique mechanism of action to improve the treatment options for millions of patients living with severe inflammatory diseases.** Preclinical and early clinical data demonstrate that verekitug is a highly potent inhibitor of the TSLP receptor. Verekitug is, to our knowledge, the only monoclonal antibody currently in clinical development that targets the TSLP receptor. We believe these characteristics will translate into a differentiated profile, including improved clinical outcomes, substantially extended dosing intervals, and the potential to treat for a broad spectrum of TSLP-driven inflammatory diseases. For example, our data support evaluating two extended dosing intervals of 12 and 24 weeks as compared to the current standard of care, including tezepelumab (four week dosing interval).
- **Advance our ongoing Phase 2 clinical trials for verekitug in severe asthma and CRSwNP.** We are currently conducting two separate multi-national, placebo-controlled, randomized Phase 2 clinical trials for verekitug in severe asthma and CRSwNP. We have designed our trials to leverage established biomarkers, clinical trial paradigms and validated regulatory pathways to rapidly generate data to further establish the unique therapeutic profile of verekitug. In addition, these trials have been designed using endpoints that, pending interactions with regulatory authorities, could allow data from these trials to support submissions for product approval. Data from these trials are expected in the second half of 2026 for severe asthma and the second half of 2025 for CRSwNP.
- **Expand the impact of verekitug through initiation of an additional development program in COPD.** Dupilumab was recently approved by the FDA as an add-on maintenance treatment of patients with inadequately controlled COPD and an eosinophilic phenotype. Based on this and recent Phase 2a proof-of-concept data from tezepelumab validating the role of TSLP in COPD, we plan to evaluate verekitug for the treatment of COPD. Similar to severe asthma and CRSwNP, we are designing a robust clinical development plan that will allow us to extend verekitug’s unique attributes and impact into COPD. Based on available data from Phase 1 trials with verekitug, we plan to initiate our first clinical trial in COPD and expect to dose the first COPD patient in the second half of 2025.
- **Maximize the potential of verekitug by identifying additional TSLP-driven diseases with high unmet needs that could be addressed by our product candidate.** The TSLP signaling pathway is well understood to be

either a risk factor for or a key driver of inflammatory diseases across multiple therapeutic areas, including respiratory, dermatology, gastroenterology, nephrology and allergy/immunology. Thus, we believe there is a significant opportunity to expand the impact of verekitug beyond our initial indications of focus in respiratory disease.

Overview of TSLP

TSLP is a member of a class of epithelial cytokines, also including IL-25 and IL-33, commonly referred to as alarmins. In response to various environmental triggers, including viruses, bacteria, allergens, chemical irritants and physical injury, TSLP is produced by the epithelium and can initiate and amplify a wide range of innate and adaptive immune responses including supporting epithelial barrier function, dendritic cell activation, type 2 innate lymphoid cell activation and survival, immune cell recruitment, induction of type 2 responses and regulation of B cell function. Beyond type 2 inflammation, data also support a role for TSLP in propagating non-type 2 inflammatory processes including IL-17 production, modulation of airway structural cells and the promotion of fibrosis. As such, TSLP signaling is a central instigator of multiple downstream biologic pathways relevant to human diseases that are characterized by epithelial inflammation, including asthma, CRSwNP and potentially COPD.

TSLP is primarily produced by epithelial cells, especially in the lung, gastrointestinal tract and skin. Dendritic cells, basophils, mast cells keratinocytes and fibroblasts also produce TSLP with appropriate stimulation. Relevant stimuli include mechanical injury, pro-inflammatory cytokines, allergen proteases and viral infections, among others. The breadth of TSLP effects suggests it is involved in tissue homeostasis and host defense and acts as an early alarm signal for the immune system. TSLP plays a critical role in many diseases, including asthma, allergic diseases and chronic inflammatory diseases.

In addition to type 2 mediators, TSLP has been shown to drive T helper (“Th”) 17 cell polarization of naive CD4 helper cells. As severe asthma phenotypes have been associated with increased Th17 cells and neutrophilic inflammation, in addition to eosinophilic inflammation, interruption of TSLP signaling has the potential to provide benefit to patients whose disease is driven by both type 2 and non-type 2 inflammatory processes. Tezepelumab, an approved antibody against TSLP without restriction to patients with only type 2 inflammation, has been shown to have clinical benefits in patients with severe asthma who do not have elevated type 2 biomarkers as with all other approved therapies.

Beyond its role in inflammation, TSLP also acts on airway structural cells. Airway smooth muscle cells express TSLP receptor and when stimulated by TSLP, they increase production of IL-6 and IL-8. Bronchial fibroblasts also produce TSLP and express TSLP receptor. With TSLP receptor signaling, the bronchial fibroblasts produce collagen, a smooth muscle actin, arginase 1 and transforming growth factor b1. Taken together, this indicates

that TSLP plays a pivotal role in promoting structural changes in asthmatic airways. A summary of the TSLP signaling pathway is illustrated in Figure 1 below.

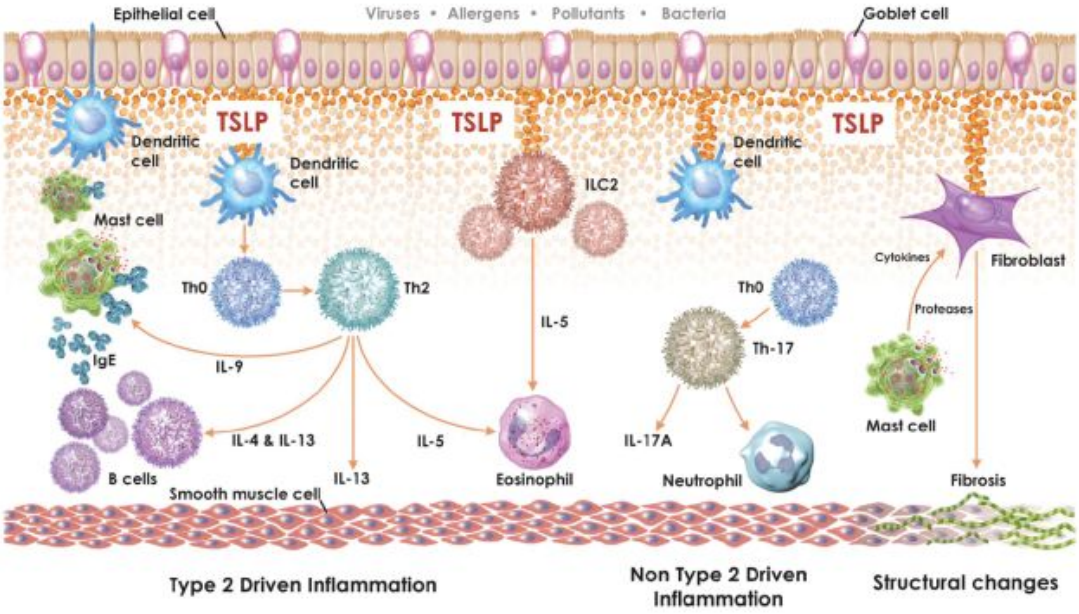


Figure 1: TSLP signaling pathway

TSLP initiates intracellular signaling through the binding of its TSLP receptor and the recruitment of the IL-7 receptor alpha-chain ("IL-7Ra"). TSLP receptor is expressed on many different cell types, including dendritic cells, T and B cells, natural killer T cells, eosinophils, basophils and epithelial cells. Once activated, the TSLP receptor complex then activates a signaling cascade that results in the production of type 2 pro-inflammatory cytokines, including IL-5, IL-9, IL-4 and IL-13. IL-5 is a key cytokine in eosinophilic inflammation. IL-9 is important in allergic inflammation, while IL-4 and IL-13 are both critical to type 2 inflammation.

The role of TSLP in severe asthma, CRSwNP, COPD and related inflammatory diseases

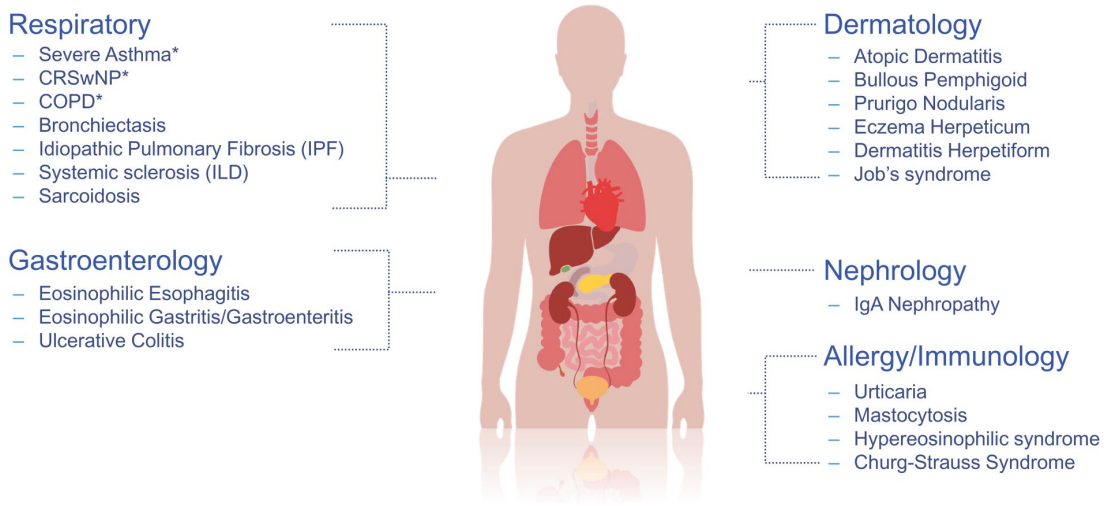
Airway biopsies of people with asthma have shown overexpression of TSLP and type 2 cytokines, particularly in those with severe disease. Type 2 cytokines have enhanced release in the presence of TSLP and therefore are an additional indicator of TSLP expression. Blocking TSLP is expected to reduce type 2 cytokine production by Th2 memory cells, innate lymphoid type 2 cells and mast cells, all of which are involved in inflammation. Additionally, several single nucleotide polymorphisms at the TSLP genomic locus were associated with increased asthma susceptibility or protection.

TSLP may also play a role in the efficacy of corticosteroid treatments for people with asthma. In an animal model, the absence of TSLP signaling results in a significant increase in the anti-inflammatory effects of corticosteroids. These results appear to be relevant for people with asthma as well given that TSLP concentration in the bronchoalveolar lavage ("BAL") fluid from people with severe asthma were inversely correlated with corticosteroid-mediated inhibition of IL-5 production.

The therapeutic potential of inhibiting TSLP in people with asthma is supported by significant clinical data, including a Phase 3 trial of tezepelumab in adults and adolescents with severe, uncontrolled asthma. Tezepelumab is a fully human monoclonal antibody that binds to the TSLP ligand and prevents its interaction

with the TSLP receptor. The study met its primary endpoint of reduction in rate of asthma exacerbations, including for those participants with low blood eos at baseline. The study also met several secondary endpoints showing improvements across multiple measures of disease, including lung function, asthma control and health-related quality of life.

TSLP has been implicated in many diseases beyond asthma as well, as shown in Figure 2 below. While the cause of CRSwNP is not fully understood, the role played by the immune system in the condition has been well studied. CRSwNP is predominantly a type 2 inflammatory response with elevated levels of TSLP. Lung epithelium and submucosa samples from people with COPD also contained a greater number of TSLP mRNA-positive cells and BAL samples from these patients had higher concentration of TSLP compared to healthy samples. TSLP has also been indicated as a driver of atopic dermatitis ("AD"), a chronic inflammatory disease of the skin. TSLP was found to be highly expressed in acute and chronic AD lesions but was undetectable in nonlesional skin. Figure 2 below shows many of the diseases in which TSLP has been implicated, including the three indications we are targeting, severe asthma, CRSwNP and COPD.



* Target indications for verekitug based on our current development strategy

Figure 2: Selected diseases in which TSLP has been shown to play a role

Overview of severe asthma

Disease overview

Asthma is a common disease of the lungs characterized by chronic airway inflammation that is often underdiagnosed and under-treated. With the narrowing of the bronchioles, people with asthma can experience edema or swelling due to fluid accumulation, hyperresponsiveness of the airway resulting in muscle contraction and excess mucus production. People living with asthma experience respiratory symptoms, such as wheeze, shortness of breath, chest tightness and cough, that vary over time and in intensity and also experience airflow limitations mostly with expiration. Asthma attacks can be triggered by infections or environmental irritants.

Approximately 350 million people live with asthma around the world, including more than 25 million Americans. For some people, asthma can simply be a nuisance, for others it can interfere with daily life and potentially even be life-threatening. Of the more than 25 million Americans living with asthma, it is estimated that 5% to 10% suffer from severe asthma.

Severe asthma is defined as someone diagnosed with asthma who requires high-dose inhaled corticosteroids in order to control symptoms. Asthma is also considered severe when it is uncontrolled despite proper use of these medications. Individuals who suffer from severe uncontrolled asthma may experience symptoms throughout most days and every night. Their symptoms are also more intense and last for longer periods than with regular asthma. Severe asthma attacks can result in confusion or agitation, being unable to speak in full sentences, a bluish tint to the lips, face or fingernails, rapid breathing and having symptoms that don't improve after using a rescue inhaler. These attacks can last from hours to days, compared to mild asthma attacks which typically last only a few minutes. In rare instances, severe asthma attacks can result in death.

There are two main categories of severe asthma, type-2 inflammation and non-type-2 inflammation. Both types of asthma are assessed using eos and FeNO as common biomarkers. Type 2 inflammation refers to a specific type of immune response pattern where Th cells release cytokines such as IL-4, IL-5, IL-9 and IL-13 and also promote the formation of anti-immunoglobin E ("IgE") antibodies. Additionally, certain immune cells, specifically mast cells, basophils and eosinophils, become activated. Collectively, these cells help to secrete mucus, promote swelling and contract smooth muscle cells, all of which are symptoms of asthma. A high eosinophil blood count is characteristic of type 2 inflammation and an important measure as eosinophils play a vital role in sustaining and enhancing chronic inflammatory asthmatic response. Elevated FeNO levels act as another important measure, as IL-13, mainly secreted by eosinophils, activates the expression of inducible nitric oxide synthase and increases the production of nitric oxide. It is estimated that 55% to 70% of people with severe asthma have type 2 inflammation as a major contributing cause. Understanding of the type 2 inflammation pathway has allowed for the development of targeted therapies for the treatment.

Non-type 2 inflammation asthma is assessed by a lower blood eosinophil count and lower exhaled nitric oxide. It is characterized by Th1 and/or Th17-cell mediated inflammation rather than the Th2-cell mediated inflammation seen in type 2 inflammation. People with non-type 2 asthma typically have poor steroid response and have historically not been candidates for biologic treatments. Recently tezepelumab was approved by the FDA for people with severe asthma irrespective of their blood eosinophil count given the results of the Phase 3 trial showed improvement in asthma symptoms for both type 2 and non-type 2 patient populations.

Overview of current asthma treatments

Asthma cannot be cured, but for many people it can be controlled. The long-term goals of asthma management from a clinical perspective are to achieve good control of symptoms to allow for normal daily activities and to minimize the risk of asthma-related deaths, exacerbations, persistent airflow limitations and side effects.

The standard of care for asthma includes three main categories of treatment:

- Controller medications, which contain inhaled corticosteroids ("ICS"), are used to reduce airway inflammation, control symptoms and reduce future risks of exacerbations and related decline in lung function. Patients with mild asthma can typically control symptoms as they occur with low-dose ICS. Patients with severe asthma require high doses of ICS and may not be able to control their symptoms even with proper use of inhaler. Importantly, people with non-type 2 inflammation asthma are not responsive to steroid treatment.
- Reliever medications are provided to all patients for as-needed relief of breakthrough symptoms. These treatments could be ICS-formoterol, ICS-long-acting beta-agonist ("LABA") or as-needed short-acting beta2 agonist ("SABA"). Over-use of SABA can lead to an increased risk of asthma exacerbations and therefore reducing the need for reliever medications is an important goal in asthma treatment.
- Biologic therapies for patients with severe asthma whose persistent symptoms and exacerbations are not controlled with high dose controller medications. Add on therapies include biologics such as IgE, anti-IL-4,

anti-IL5, anti-IL-13 and anti-TSLP; bronchodilators, such as long-acting muscarinic antagonists ("LAMA"); antibiotics, such as azithromycin; bronchial thermoplasty; and low dose oral corticosteroids. Similar to ICS, people with non-type 2 inflammation asthma do not respond well to most biologic therapies, with the exception of the only currently approved TSLP signaling inhibitor, tezepelumab.

Biologic therapies for severe asthma

In the past few years, several new biologics have been approved by the FDA for the treatment of severe asthma. Most of these therapies work by targeting specific cells or proteins in the body involved in the type 2 inflammatory response triggered with asthma, including eosinophils, IgE and several ILs or their receptors. In clinical trials, biologics have shown to reduce airway hyperactivity and the number of asthma attacks. They may allow for the reduction or even discontinuation of long-term oral steroid use.

Biologics are administered either subcutaneously or intravenously on a bi-weekly, monthly, or bi-monthly basis, depending on the specific product. Table 1 below identifies FDA-approved biologic treatments for asthma and each product's mechanism of action, specific asthma indication and dosing interval. Despite the efficacy shown in clinical trials, it is estimated that less than 20% of people with severe asthma receive biologic treatment.

FDA approved biologic treatments	**Mechanism of action**	**Type of asthma**	**Dosing interval**
Omalizumab / Xolair	Anti-IgE	Moderate to severe persistent allergic asthma	2 or 4 weeks
Dupilumab / Dupixent	Blocks IL-4 and IL-13	Moderate to severe eosinophilic asthma	2 weeks
Mepolizumab / NUCALA	Blocks IL-5	Severe eosinophilic asthma	4 weeks
Reslizumab / Cinqair			4 weeks (IV)
Benralizumab / Fasenra			8 weeks
Tezepelumab / Tezspire	Blocks TSLP	Severe asthma (without restriction to type 2 patients only)	4 weeks

Table 1: Overview of FDA approved biologic treatments for asthma

Tezepelumab is a human monoclonal antibody that binds to the TSLP ligand and prevents its interaction with the TSLP receptor. While tezepelumab has a different mechanism of action compared to verekitug, which inhibits the TSLP receptor itself, both antibodies work at the same point in the TSLP signaling pathway which is upstream of other competitor biologics currently approved for the treatment of asthma, CRSwNP and COPD. We believe the biologic validation for efficacy in patients with severe asthma without elevated type 2 markers as well as the clinical and regulatory progress of tezepelumab provide a strong rationale for our own development program.

In 2021, the results of a Phase 3 trial of tezepelumab in participants with severe, uncontrolled asthma were published in the *New England Journal of Medicine*. Participants were dosed every four weeks ("Q4W") with tezepelumab or placebo. The trial met its primary endpoint of reduction in annualized asthma exacerbation rate ("AAER") with a 56% reduction in AAER over 52 weeks compared to placebo. Tezepelumab also achieved a statistically significant reduction in AAER in participants with low baseline eosinophil counts. In addition, the study included biomarker endpoints that have been found to be clinically relevant in asthma: change from baseline in eosinophil count and change in baseline in FeNO. Both endpoints showed a significant improvement in the biomarkers with a decrease of 150 cells/µl from baseline for the eosinophil count and a decrease of 17 parts per billion ("ppb") for baseline for FeNO. There were no clinically meaningful differences in safety results

between the tezepelumab and placebo groups. The most frequently reported adverse events were nasopharyngitis, upper respiratory tract infection and headache. As reported in the *New England Journal of Medicine*, patients who received tezepelumab had fewer exacerbations and better lung function, asthma control and health-related quality of life than those who received placebo. Based on pooled safety data from the clinical trials of tezepelumab, the resulting FDA approved label for Tezspire identifies hypersensitivity reactions following administration as a clinically significant adverse reaction, as well as pharyngitis, arthralgia and back pain as additional adverse reactions that occurred at an incidence of greater than or equal to 3% and more common than the placebo group.

Dupilumab (Q2W), mepolizumab (Q4W), reslizumab (Q4W) and benralizumab (Q8W) are biologics that target cytokines acting downstream of the TSLP receptor. These treatments, which produce a 48% to 81% reduction in asthma exacerbation rates, have all been approved by the FDA for the treatment of asthma, but all have labels that are restricted to people with high eosinophilic levels, thereby limiting their use in a substantial portion of severe asthma patients. We believe this is due to their downstream mechanism which is restricted to the type 2 inflammation pathway.

The clinical program for tezepelumab and other biologics have established clinical endpoints that were found to be acceptable for approval by the FDA, providing a strong rationale for our own development program.

Unmet need for people living with severe asthma

While there are many approved asthma treatments, there remains a significant unmet need for people living with severe asthma. Despite the use of high dose medicines, avoiding triggers and following treatment plans, many people with severe asthma continue to have uncontrolled symptoms.

Severe asthma may impact normal daily activities, resulting in missing work or school and can directly impact a person's quality of life. People with severe asthma often demonstrate significant reduction of their lung function when tested by spirometry or a pulmonary function test. Despite the fact that severe asthma accounts for a small percentage of people with asthma, half of all asthma-related healthcare costs are attributed to their treatment. In the United States, asthma is responsible for $80 billion in annual costs due to care, absenteeism and mortality. Asthma also results in over 1.0 million emergency department visits each year and over 3,500 deaths per year in the United States alone.

People living with uncontrolled symptoms despite compliance with their treatment plan are in need of options with greater efficacy than those that are currently available. This has the potential to not only better control symptoms and improve quality of life but to also reduce the burden on our healthcare system.

Even though increased medicine adherence leads to better symptoms control and health outcomes, complying with a treatment plan can be challenging for severe asthma patients. A recent study looked at compliance with biologic treatments using proportion days covered ("PDC") as a surrogate measure for adherence. The study authors set 0.75 as the mark of good adherence. In the first six months of being prescribed a biologic treatment for asthma, only 61% of people achieved a PDC of $\geq$0.75.

Our internal market research shows that the dosing intervals for currently available biologics do not match the desired dosing interval of the majority of patients. In fact, the current dosing of every 2, 4 or 8 weeks only satisfies approximately one-third of patients according to physician-reported "ideal" dosing interval. Our research shows that approximately 90% of asthma treaters would be highly willing to use verekitug across both Q12W and Q24W dosing intervals, approximately 90% of asthma patients would consider switching to a product with a less-frequent dosing interval and more than 95% of asthma patients are moderately or highly likely to ask their provider about a treatment option with a longer dosing interval. Approximately 85% of asthma treaters believe that the TSLP mechanism of action has high clinical utility and that less-frequent dosing is considered more attractive than all other biologic therapeutics brands.

We believe that by reducing the frequency of dosing we can increase patient compliance with biologic treatments for severe asthma. Additionally, a less frequent dose interval may appeal to patients that are not satisfied with their current treatment plan or are unwilling to take current biologics due to the treatment burden that comes with frequent dosing.

There is also a subpopulation of patients that live with uncontrolled symptoms due to the limitation of currently available treatments. These patients often have an absence of biomarkers associated with type 2 inflammation and, perhaps unsurprisingly, do not respond to treatments that target molecules downstream in the type 2 inflammation pathway. These patients are in need of a highly effective treatment which has a broad impact on the inflammation pathway.

Market opportunity for severe asthma

Asthma is a large and growing market as new treatments become available and diagnoses continue to increase. In 2018, 13% of Americans had been diagnosed with asthma at one point in their lives, which is a 43% increase in total asthma diagnoses compared to 9.1% of Americans in 1999.

The major asthma markets, including the United States, France, Spain, Germany, Italy, the United Kingdom ("UK") and Japan, have estimated annual sales of approximately $7.5 billion for 2023 with a compound annual growth rate ("CAGR") of approximately 5.9% through 2032. The United States alone is estimated to have approximately $6.0 billion in asthma market sales for 2023.

Of the more than 50 million people diagnosed with asthma in these major markets, it is estimated that only 440,000 patients are treated with biologics currently, or less than 20% of eligible patients. This creates a significant opportunity for a biologic that meets patients' needs in terms of efficacy and the reduced burden of a longer dosing interval. We believe the longer dosing interval will increase adherence and potentially provide a treatment option for asthma sufferers who were unwilling to take treatments with more frequent dosing. Additionally, because severe asthma is typically treated by specialty care providers rather than primary care physicians, we believe that commercialization can be successfully executed with a focused strategy and sale force.

In the past several years, six biologic treatments for asthma have been approved by the FDA and five of these have achieved or are projected to achieve greater than $1.0 billion in annual sales by 2025, underscoring the need for new treatments and the large size of the market. Tezepelumab, the most recent of the FDA approvals in asthma, is projected to reach peak global annual sales of over $3.0 billion for severe asthma alone in 2032, and had achieved more than 20% of new to brand share of prescriptions in the United States in its first commercial year.

Taken together, we believe the strength of the biologic market has demonstrated there is room for multiple entrants into the market and the opportunity for rapid acceleration for market share. The opportunity in asthma is shown in Figure 3, which summarizes 2023 estimates of biologics eligible patients and patients treated with biologics. We believe the potency and safety clinical data that we have generated for verekitug to

date, along with the expected extended dosing interval, means we are well positioned to capitalize on this market opportunity.

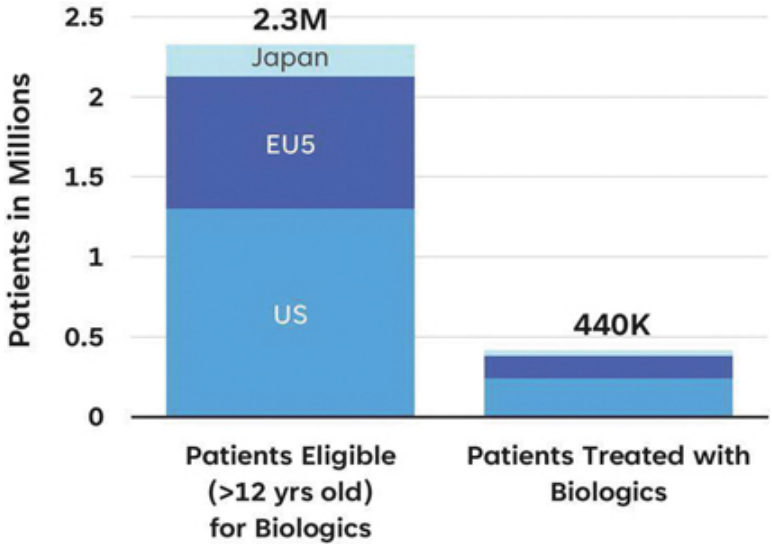


Figure 3: Biologics-eligible vs. currently-treated severe asthma patients

By acting upstream in the signaling pathway, we believe verekitug, similar to tezepelumab, has the potential to treat a broader asthma population than other available biologics. This would address a population that is refractory to existing treatments and in need of new therapies. We believe verekitug has a potency advantage over tezepelumab and will also have an extended dosing interval. Given this, we are confident in the ability of verekitug to gain market share if approved by regulatory agencies.

Overview of CRSwNP

Disease overview

CRSwNP is an inflammatory disease of the upper airway, marked by chronic sinonasal inflammation and the presence of inflammatory polyps in the nasal passages and paranasal sinuses. CRSwNP is associated with significant morbidity and debilitating symptoms, and it is estimated that approximately 900,000 patients in the United States and Europe suffer from this disease.

CRSwNP has four main symptoms: runny nose or postnasal drip, nasal congestion, facial pressure and/or pain and loss of smell and/or taste. Patients may also experience ear pain, sneezing, severe difficulty breathing through the nose and sleep disturbances. These symptoms can have a significant impact on quality of life. It is estimated that 40% to 45% of people with severe asthma also have CRSwNP and that up to 65% of people with CRSwNP also have asthma, demonstrating a strong association between the two conditions and an increase in comorbid asthma severity.

The cause of CRSwNP is not fully understood although the role of the immune system in the condition has been well studied. CRSwNP is predominantly a type 2 inflammatory response with elevated levels of TSLP as well as IL-5, IL-13, eosinophilic granule proteins, eosinophil chemotactic proteins, basophils, innate type 2 lymphoid cells and mast cells. Additional studies have shown that certain populations lack increased eosinophils and have lower levels of IL-5, indicating a non-type 2 inflammatory response as well.

Overview of current CRSwNP treatments

Treatment for CRSwNP often begins with medical management, primarily involving topical corticosteroids and nasal saline irrigations. Intranasal corticosteroids have been shown to decrease nasal polyp size, lessen

sinonasal symptoms and improve quality of life. Patients who are unable to manage their symptoms with medical management may undergo sinus surgery; however, polyps and symptoms can recur post-surgery. People with both asthma and CRSwNP are more likely to undergo sinus surgery than those with only CRSwNP.

Recently, biologics targeting the type 2 inflammation pathway have been approved by the FDA as treatments for CRSwNP. Similar to asthma, biologic treatments targeting IgE, IL-5 and IL-4Rα have been approved for CRSwNP. Omalizumab, an anti-IgE monoclonal antibody, was shown to reduce nasal polyp size and improve symptoms compared to placebo in CRSwNP. Mepolizumab, a humanized anti-IL5 antibody, was shown to reduce nasal polyps and improve sense of smell, post-nasal drip and nasal congestion compared to placebo for CRSwNP patients with severe nasal polyposis refractory to corticosteroid therapy. Dupilumab, a human monoclonal antibody that binds IL-4Rα and inhibits IL-4 and IL-13 signaling, reduced nasal polyp burden and improved nasal symptoms when used in conjunction with intranasal steroids in patients with refractory CRSwNP.

These FDA approvals have established a well-understood regulatory pathway and route to commercialization. The primary endpoints of the trials were similar as well, including reduction in nasal polyp score and nasal congestion/obstruction. The trials recruited a significant proportion of patients with comorbid asthma (58% to 71%) and with prior surgery (58% to 100%), highlighting the benefit that biologics can provide to a broad population of people with CRSwNP.

Unmet need for people living with CRSwNP

While there are several treatments available, there remains a significant disease and treatment burden for people living with CRSwNP. QoL studies show that the burden of living with CRSwNP is comparable to other chronic diseases such as COPD, asthma and diabetes. People with CRSwNP even had significantly worse social functioning scores than those with congestive heart failure. One of the most troublesome symptoms in terms of QoL for people with CRSwNP is loss of smell, which correlates with disease severity.

Beyond the burden of the disease, there are significant risks associated with current standard of care treatments for CRSwNP as well. Corticosteroid use, even in the short term, is associated with an increased risk of acute complications such as sepsis, venous thromboembolism and fracture.

People with serious CRSwNP requiring sinus surgery face an additional burden. While endoscopic sinonasal surgery is generally safe, risk exists with any surgical procedure. Minor complications are reported in 5% of routine endoscopic surgeries and major complications are reported in 0.5% to 1%. Even with a successful surgery, the recurrence rate of CRSwNP ranges from 20% to 60% within 18 months to four years and increases to 79% after 12 years. 37% of patients are found to have revision surgery over a 12-year period, and it is not uncommon for patients to have multiple surgeries. Recurrence is particularly common for people with severe disease, including those also living with asthma or who have undergone prior surgeries. Even with surgery, many people with CRSwNP remain symptomatic. One study reported that 23% of patients continued to have persistent symptoms post-surgery.

The recurrence of symptoms and need for multiple surgeries demonstrates that people living with CRSwNP do not have access to treatments that effectively manage their disease. A therapy with strong efficacy that provides better symptom control is a significant need for this patient population.

Similarly to asthma, our internal market research shows that the less frequent dosing regimen for verekitug would be attractive to both patients and physicians with approximately 75% to 80% of CRSwNP treaters highly willing to use verekitug across Q12W and Q24W dosing intervals, respectively, and approximately 90% of patients would consider switching to a product with a less-frequent dosing interval and more than 95% of CRSwNP patients are moderately or highly likely to ask their provider about a treatment option with a longer dosing interval.

Market opportunity for CRSwNP

In the major markets for CRSwNP, which include the United States, the five major European markets (France, Spain, Germany, Italy and the UK) and Japan, there are an estimated 900,000 people diagnosed with CRSwNP. Sales in these markets are expected to exceed $4.0 billion by 2030. Dupilumab alone has an annual global sales estimate for the treatment of CRSwNP of up to $1.5 billion by 2030 according to third-party research analyst reports.

Of the 900,000 people diagnosed with CRSwNP in the United States, major European markets and Japan, it is estimated that approximately 200,000 adults are eligible for biologics.

We believe there is a significant opportunity for additional biologic entrants into this market given the large unmet medical need that remains as many people with CRSwNP continue to live with uncontrolled symptoms despite surgery, as shown in Figure 4, and corticosteroid treatment.

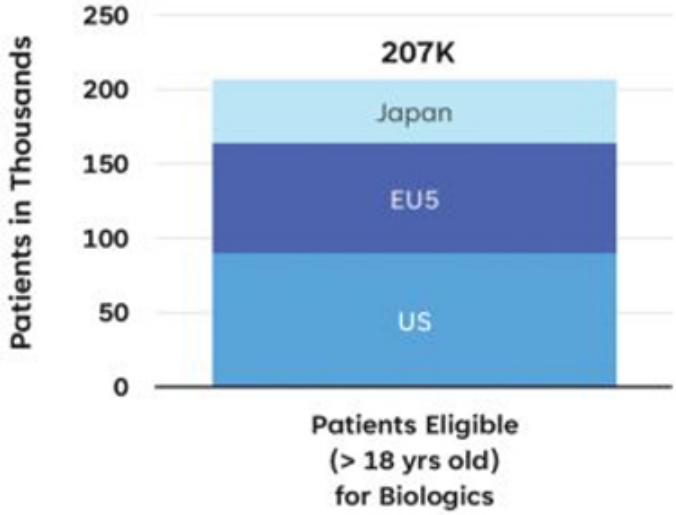


Figure 4: Number of CRSwNP patients eligible for biologics

Overview of COPD

Disease overview

Like asthma, COPD is a chronic inflammatory disease of the airways, associated with airflow worsening and episodic exacerbations that drive morbidity, mortality, and health care utilization. Chronic inflammation causes structural changes within the lungs, narrowing already small airways and damaging lung parenchyma which causes air sacs to lose functionality and decrease lung elasticity. It is typically caused by long-term exposure to irritants, most often cigarette smoke. Air pollution is also a major risk factor, primarily in lower and middle-income countries.

COPD is the third leading cause of death worldwide, causing approximately 3.2 million deaths in 2019. Almost 14.2 million Americans, or 6.5% of the adult population, reported in one study that they have been diagnosed with COPD, however, the true prevalence is likely higher given that more than half of adults with low pulmonary function in another study reported that they were not aware that they had COPD.

People living with COPD may experience daily cough, difficulty breathing, mucus production, chest tightness, wheezing, lack of energy and frequent respiratory infections. Symptoms often don't appear until significant lung damage has already occurred and will worsen over time. Despite the progressive nature of COPD, good symptom control can be achieved with proper treatment.

With moderate to severe COPD (stages 2 and 3) everyday activities may result in shortness of breath and frequent exacerbations, including increased and discolored phlegm. With very severe, or stage 4, COPD almost any activity results in shortness of breath, which limits mobility and may require supplemental oxygen. People with moderate to very severe COPD are also more likely to acquire lung infections like bronchitis and pneumonia.

Historically, COPD has been considered a disease driven by non-type 2 immune responses. Recently it has been shown that 20% to 40% of COPD patients also exhibit type 2 inflammation. Published research has shown that IL-4 and IL-13, cytokines in the type 2 inflammation pathway, may play a role in COPD pathogenesis. Elevated levels of TSLP have been found in the airways of people with COPD. In bronchial biopsies, TSLP receptor expression was highest in patients with severe COPD compared to healthy controls. Viral infection can also increase TSLP expression in epithelial cells, suggesting the potential role of TSLP in COPD exacerbations.

Overview of current COPD treatments

Currently available treatments for COPD include inhaled steroids to reduce airway inflammation and bronchodilator inhalers to improve airflow. Oxygen and surgery may also be used for some patients with severe COPD. Similar to asthma and CRSwNP, biologics are also being developed as new and potentially transformative treatments, and recently, dupilumab became the first biologic approved for the treatment of COPD.

In May 2023, Phase 3 clinical trial results in the *New England Journal of Medicine* showed that dupilumab, an anti-IL4Rα antibody, was the first biologic to demonstrate a significant reduction in moderate or severe acute exacerbations of COPD by 30%, when compared to placebo. Additionally, dupilumab also significantly improved lung function at 12 and 52 weeks. On the basis of these data, dupilumab was recently approved by the FDA as an add-on maintenance treatment of patients with inadequately controlled COPD and an eosinophilic phenotype. In May 2024, Phase 2a proof-of-concept data for tezepelumab for the treatment of moderate to very severe COPD were presented at the ATS International Conference. This trial reported a reduction in the frequency of COPD exacerbations that has supported advancement of tezepelumab into Phase 3 development in COPD. The most frequently reported adverse events for tezepelumab were worsening of COPD (12.1%) and incidents of COVID-19 infections (14.5%, trial commenced in July 2019), demonstrating a safety and tolerability profile consistent with that observed for tezepelumab in severe asthma. By contrast, previous trials of biologic agents targeting IL-5 or its receptors have shown mixed results with respect to clinical activity and adverse events. Taken together, these clinical trial data reinforce our plan to develop verekitug for the treatment of COPD.

Unmet need for people living with COPD

COPD is the third leading cause of death worldwide and is also associated with significant morbidity. Population studies have shown among patients hospitalized with COPD, 50% are readmitted in the future and approximately 13% will be hospitalized in a three-year period. In total, 60% of all COPD patients will report some limitations in their daily activity, with 45% being unable to work and 75% complaining of difficulty climbing stairs. These increases in hospitalizations and limitations to daily life are reported despite the currently available treatments. The CDC estimates that approximately 2.0 million to 2.5 million Americans live with moderate-to-severe COPD that is not adequately controlled with current therapeutics.

With the emerging data that type 2 inflammation plays a role in COPD, particularly exacerbations, for a portion of patients, there is a need to develop therapies that can address this patient population whose symptoms are inadequately managed with currently available therapies.

Market opportunity for COPD

Millions of people worldwide continue to suffer from COPD despite currently available treatments, underscoring the large need for more effective treatments for this patient population. Dupilumab, is currently the only biologic approved for the treatment of COPD and others are in late-stage clinical development.

Dupilumab is projected to reach peak sales of approximately $4.0 billion in COPD, while only penetrating 20% of the market, according to third-party research analyst reports. Tezepelumab, which recently shared positive Phase 2a data indicating it may be effective in patients with eosinophil counts at 150 or greater, is projected to have annual peak sales in the United States of $6.0 billion to $10.0 billion according to third-party research analyst reports, given the broader patient population it may be able to address.

Given the size of the COPD patient population, high rates of morbidity and mortality despite currently available treatments, we believe COPD represents one of the largest unmet needs worldwide.

Verekitug, the only known antagonist of the TSLP receptor currently in clinical development

Our product candidate, verekitug, is a novel recombinant fully human IgG1 monoclonal antibody that we are developing as a potential treatment for multiple inflammation-related diseases across a broad spectrum of patients. Verekitug binds to the TSLP receptor and inhibits its signaling, and to our knowledge, it is the only monoclonal antibody that targets and inhibits the TSLP receptor currently in clinical development. TSLP is a cytokine which is a clinically validated driver of inflammatory response positioned upstream of multiple signaling cascades that affect a variety of immune mediated diseases. In preclinical studies, which were not designed to support formal statistical comparisons, verekitug demonstrated very high occupancy of the TSLP receptor and potent inhibition of TSLP signaling. Additionally, verekitug inhibited cytokine production from CD4+ T cells, suggesting that it may be effective against both type 2 and non-type 2 inflammation. Currently available biologics that target cytokines downstream of TSLP appear to only be effective against type 2 inflammation.

In May 2024, we presented full proof-of-concept data from our randomized, double-blind, placebo-controlled Phase 1b MAD clinical trial in asthma patients demonstrating that dosing with verekitug led to rapid and complete TSLP receptor occupancy, and reductions in disease-related biomarkers, FeNO and blood eos, that were rapid, substantial and sustained for up to 24 weeks after the last dose. This study also demonstrated that verekitug is significantly more potent than tezepelumab (based on published tezepelumab data), which, combined with verekitug's PK profile, enables an extended dosing interval of up to 24 weeks, compared to tezepelumab (four week dosing interval). Furthermore, clinical data from our MAD trial indicate an approximately 50% greater effect on FeNO than has previously been reported for tezepelumab. We have not conducted head-to-head clinical studies of verekitug against tezepelumab, and note that ongoing and future clinical trials for verekitug may produce differing clinical activity and tolerability results. Three Phase 1 clinical trials have been completed for verekitug across a total of 120 participants, including 32 patients with asthma. In the Phase 1 SAD trial in healthy volunteers, verekitug demonstrated a favorable tolerability profile with no drug-related serious treatment-emergent adverse events, dose proportional pharmacokinetics and a pharmacodynamic effect consistent with TSLP antagonism.

Verekitug's preclinical and clinical data suggest:

1. Verekitug is an extremely potent inhibitor of TSLP signaling.
2. Verekitug's potency translates to a significant impact on biomarkers of severe asthma which are correlated with both disease severity and treatment response. Based on these clinical data verekitug's potency is more than 300-fold greater than that reported for tezepelumab.
3. Verekitug's potency enables an extended dosing interval of up to 24 weeks, currently being investigated in our Phase 2 clinical trial in people with severe asthma.

Based on the consistency from preclinical to clinical results as well as the potent inhibition of TSLP signaling, we believe verekitug has the potential to be a best-in-class treatment for severe asthma, CRSwNP, COPD and other inflammatory diseases.

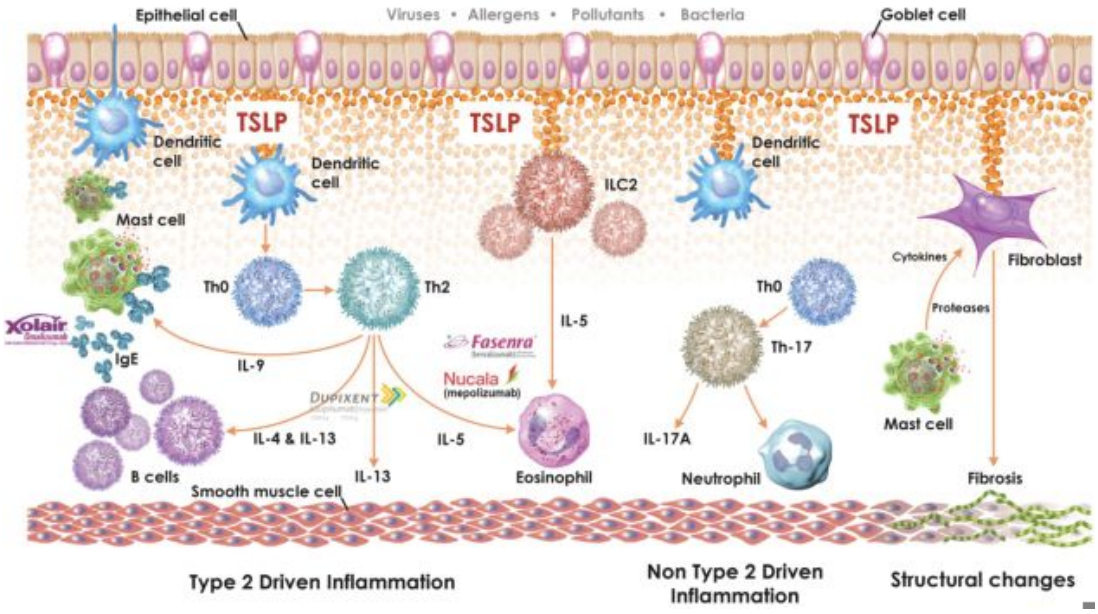


Figure 5: Verekitug neutralizes TSLP, a cytokine upstream of those targeted by existing biologics

Preclinical data

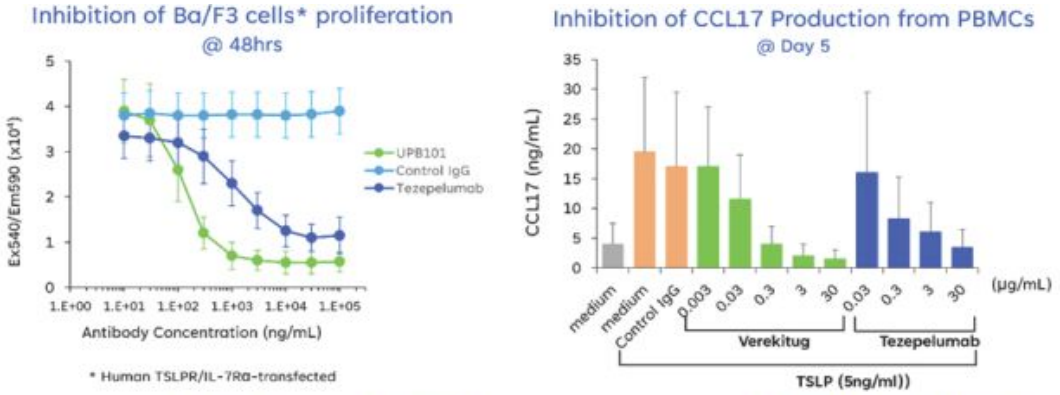
Target engagement and inhibition

In preclinical studies conducted by Astellas, which were not designed to support formal statistical comparisons, verekitug was able to efficiently bind and inhibit the TSLP receptor.

Verekitug inhibited the interaction between TSLP and TSLP receptor in a dose-dependent manner with a 50% inhibitory concentration ("IC_{50}") of 208 ng/mL and a 90% inhibitory concentration (IC_{90}) of 462 ng/mL. Verekitug also inhibited TSLP-induced proliferation of Ba/F3 cells (IC_{50} = 90.7 ng/mL, IC_{90} = 200 ng/mL). Studies also showed that verekitug inhibited TSLP-induced production of CCL-17 in a human cell line in a dose dependent manner.

These studies were conducted using tezepelumab as an active comparator. Across multiple experiments, verekitug was found to be at least more than four times more potent based on the IC_{50} and IC_{90} values for both the Ba/F3 cell proliferation and CCL17 production assays.

The IC_{90} values from the *in vitro* assays suggest a target trough concentration of approximately 0.3 µg/mL as an effective dose for verekitug. These results, as shown in Figure 6 below, underscore the potency of verekitug and the potential for sufficient efficacy even at low drug concentrations.



	IC50 (ng/mL)	IC90 (ng/mL)
Verekitug	90.7	200
Tezepelumab	518	15300

	IC50 (ng/mL)	IC90 (ng/mL)
Verekitug	16.1	163
Tezepelumab	67.0	855

Figure 6: Left panel: In a competitive ELISA study, verekitug was shown to inhibit the interaction between TSLP and TSLP receptor in a dose-dependent manner. Right panel: Ba/F3 cells were co-transfected with human IL-7Rα and TSLP receptor. When treated with verekitug, inhibition of TSLP-induced proliferation was seen.

Toxicology

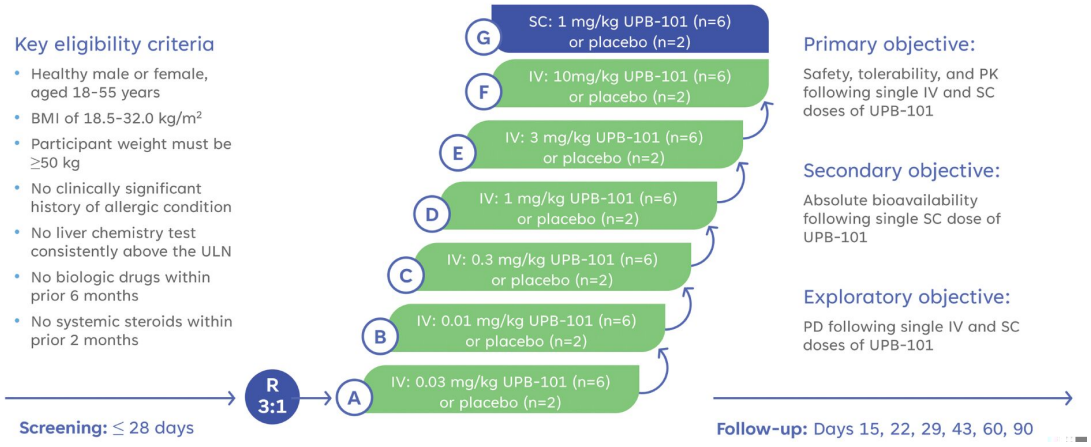
The safety of verekitug has been evaluated in multiple *in vitro* and *in vivo* studies conducted by Astellas. In single-dose toxicity studies, doses up to 50 mg/kg were not associated with system toxicity findings and verekitug showed no discernible subcutaneous irritation at the injection site in cynomolgus monkeys. Repeat-dose toxicology studies of 4-, 13- and 26-weeks duration were conducted in cynomolgus monkeys. In the 26-week study, dose levels of 25, 50 and 100 mg/kg once weekly were evaluated with no treatment-related findings seen for: clinical signs, body weight, food consumption, ophthalmology, electrocardiography, urinalysis, hematology, blood chemistry, gross pathology, organ weights or histopathology.

Clinical data

Phase 1 SAD clinical trial design

Verekitug was investigated in a Phase 1 SAD clinical trial conducted by Astellas, which enrolled 56 healthy volunteers aged 18 to 55. The primary objective of the study was safety, tolerability and PK following single intravenous (“IV”) and subcutaneous (“SC”) doses of verekitug. Secondary and exploratory objectives were absolute bioavailability following a single SC dose and PD following single IV and SC doses.

Participants were randomized three to one to verekitug or placebo. In the first six cohorts, verekitug was delivered via IV in ascending doses beginning at 0.03 mg/kg and ending at 10 mg/kg. The final cohort was a 1 mg/kg SC dose. Figure 7 below summarizes the Phase 1 SAD trial design.



BMI, body mass index; IV, intravenous; PD, pharmacodynamics; PK, pharmacokinetics; R, randomization; SC, subcutaneous; ULN, upper limit of normal.

Figure 7: Trial design schematic for Phase 1 SAD trial

Phase 1 SAD clinical trial safety and tolerability data

We presented the results from the Phase 1 SAD clinical trial of verekitug at the ATS International Conference in May 2023. The data showed a favorable tolerability profile at all dose levels in healthy participants.

As summarized in Figure 8 below, treatment-emergent adverse events ("TEAEs") were reported by 21 of 42 participants receiving verekitug (50%) and 3 of 14 (21%) participants receiving placebo. The majority of TEAEs were mild in severity and less than half of all reported TEAEs were considered to be related to the study drug. There was no clinically relevant increase in the frequency of TEAEs with the increase of dose. No drug-related serious TEAEs occurred during the study. One participant experienced a serious TEAE of nephrolithiasis which was deemed not related to the study drug by the investigator. The most frequently reported TEAEs were headache and dysmenorrhea (menstrual cramps).

No clinically relevant trends in clinical laboratory analyses, including hematology, biochemistry and urinalysis, were seen. Additionally, there were no clinically relevant trends in vital signs, physical assessments or electrocardiograms ("ECGs") detected. No injection site reactions were reported at the SC dose given in the final cohort.

ADAs were detected in 13 participants dosed with verekitug. Titers were low, less than 129, and the presence of ADAs did not significantly impact the serum PK profile in these individuals.

Parameter	Placebo IV (n=12)	verekitug, IV (each n=6) Cohort A 0.03 mg/kg	Cohort B 0.1 mg/kg	Cohort C 0.3 mg/kg	Cohort D 1 mg/kg	Cohort E 3 mg/kg	Cohort F 10 mg/kg	Total (n=36)	Cohort G Placebo, SC (n=2)	Cohort G verekitug, SC 1 mg/kg (n=6)
Any TEAE[a], n(%)	3 (25.0)	3 (50.0)	4 (66.7)	2 (33.33)	3 (50.0)	3 (50.0)	1 (16.7)	16 (44.4)	0	5 (83.3)
Mild event (% of TEAEs)	15 (94.0)	5 (100)	2 (33.0)	1 (50.0)	2 (50.0)	4 (57.0)	1 (100)	15 (60.0)	0	6 (86.0)
Moderate event (% of TEAEs)	1 (6.0)	0	4 (67.0)	1 (50.0)	0	3 (43.0)	0	8 (32.0)	0	1 (14.0)
Severe event (% of TEAEs)	0	0	0	0	2 (50.0)	0	0	2 (8.0)	0	0
Drug-related TEAE[b], n(%)	2 (16.7)	2 (16.7)	3 (50.0)	0	0	1 (16.7)	0	5 (13.9)	0	3 (50.0)
Serious TEAE[c], n (%)	0	0	0	0	1 (16.7)	0	0	1 (2.8)	0	0
Nephrolithiasis, n (%)	0	0	0	0	1 (16.7)	0	0	1 (2.8)	0	0

Data indicated are number and percentage of subjects with specific TEAEs. Multiple occurrences of the same AE in the same subject are not reflected.

[a] Defined as any adverse event that started or worsened in severity after dose of study drug through end of study.

[b] Possible or probable, as assessed by the investigator or records where relationship was missing.

[c] Included serious adverse events upgraded by the sponsor based on review of the sponsor's list of Always Serious terms, if any upgrade was done.

IV, intravenous; SC, subcutaneous; SOC, System Organ Class (per MedDRA v18.1); TEAE, treatment-emergent adverse event.

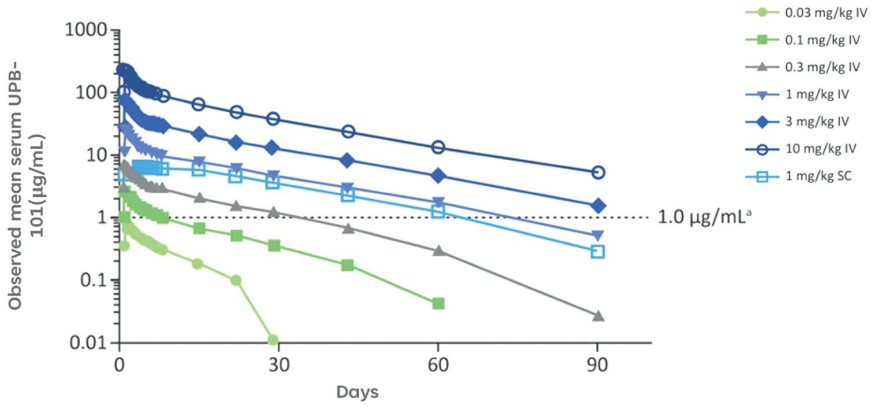
Figure 8: Incidence of treatment-emergent adverse events by cohort

Phase 1 SAD clinical trial PK data

In the six IV cohorts, there was a linear and dose-proportional increase in maximum serum concentration ("C_{max}") and total drug exposure over time (area under the curve) over the 0.1-10 mg/kg dose range. The mean terminal half-life was approximately 20 days for the 1, 3 and 10 mg/kg IV dose groups.

There was evidence of more rapid elimination of verekitug at serum concentrations below approximately 1.0 µg/mL, which may be attributed to target mediated drug disposition. Target-mediated drug disposition occurs when a drug binds with such high affinity to its pharmacological target site, in this case TSLP receptor, that it affects its PK characteristics. The PK profile of verekitug was linear and dose-proportional at

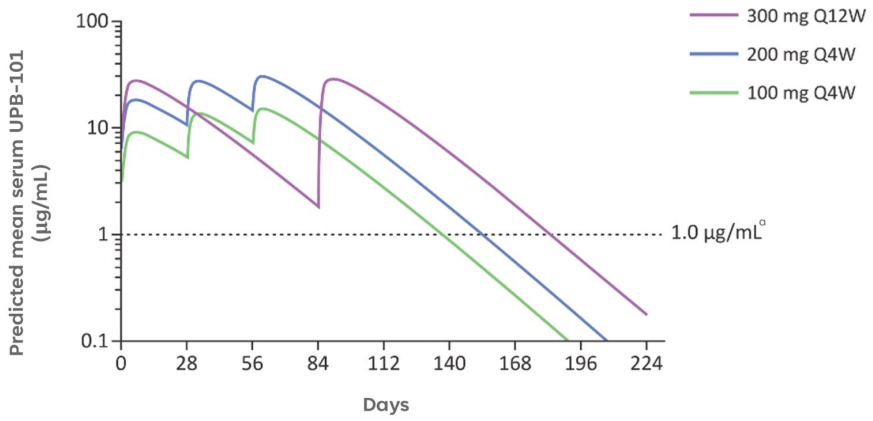
concentrations exceeding the conservatively estimated therapeutic threshold (1.0 µg/mL). Figure 9 below illustrates the PK profiles for the six IV cohorts and one SC cohort in our Phase 1 SAD trial.



[a] Projected conservative therapeutic threshold at time of study

Figure 9: Single dose PK profiles for six IV cohorts and one SC cohort

Data from the SC cohort showed the absolute bioavailability after a dose of 1 mg/kg of verekitug was approximately 70%. A PK model fitted to the single dose SC PK data was used to predict the PK profiles after repeat SC administration at different dose levels and dose intervals, as illustrated in Figure 10 below. The then-anticipated therapeutic threshold concentration (1.0 µg/mL), conservatively estimated as a ½-log escalation from the 0.3 µg/mL concentration derived from *in vitro* pharmacology assays, was predicted to be maintained with a 12-week dosing interval.



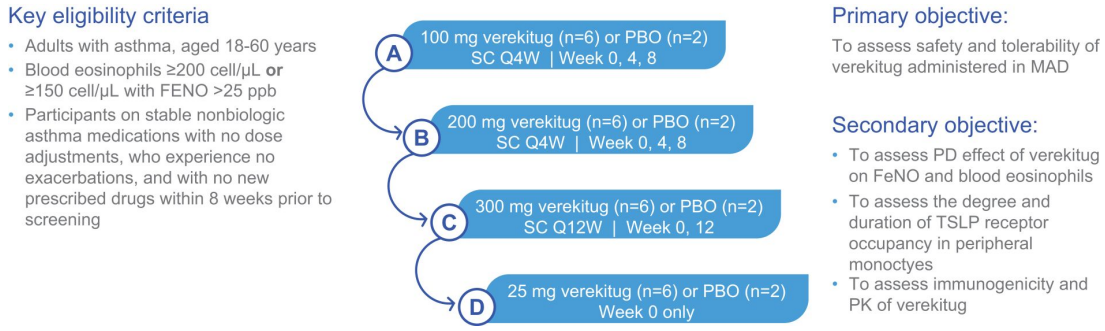
[a] Projected conservative therapeutic threshold at time of study

Figure 10: Simulated PK profiles for repeated SC administration based on Phase 1 SAD clinical trial data

Phase 1b MAD clinical trial design

We conducted a multicenter, randomized, double-blind, placebo-controlled Phase 1b MAD clinical trial of verekitug in asthma patients. The trial enrolled 32 adult participants aged 18 to 60 with mild to moderate asthma across four dosing cohorts. The primary objective of the study was to assess the safety and tolerability of verekitug. Secondary objectives included assessments of TSLP receptor occupancy, immunogenicity and PK, and exploratory objectives included assessments of PD.

Participants were randomized three to one verekitug to placebo. In the first two cohorts, participants were dosed subcutaneously every four weeks (Q4W, three total doses) with 100 mg and 200 mg of verekitug, respectively. Participants in the third cohort were dosed subcutaneously with 300 mg every 12 weeks (Q12W, two total doses). The final cohort was a single low dose of 25 mg subcutaneously. The 32-week trial included an observation period of up to 24 weeks after the last dose in the multi-dose cohorts. Figure 11 below summarizes this trial design.



PD, pharmacodynamics; PK, pharmacokinetics; SC, subcutaneous; PBO, placebo

Figure 11: Trial design schematic for Phase 1b MAD trial

Phase 1b MAD safety and tolerability data

Similar to the Phase 1 SAD clinical trial, the data from the Phase 1b MAD clinical trial showed a favorable tolerability profile for verekitug at all dose levels.

As summarized in Figure 12 below, TEAEs were reported by 21 of 24 (87.5%) participants receiving verekitug and 7 of 8 (87.5%) patients receiving placebo. TEAEs were mild to moderate in severity with no severe TEAEs reported. Over 90% of the TEAEs were deemed unrelated to study drug. There were no reported serious TEAEs and there were no withdrawals from the trial or treatment discontinuations due to TEAEs. The most frequently reported TEAE was headache. Several participants had mild, short-lived and self-limited injection site reactions; none were reported as an adverse event.

There were no clinically relevant trends observed in clinical laboratory analyses, including hematology, biochemistry and urinalysis. Additionally, there were no clinically relevant trends in vital signs, physical assessments or ECGs were observed. There was no clinically relevant immunogenicity observed in the trial.

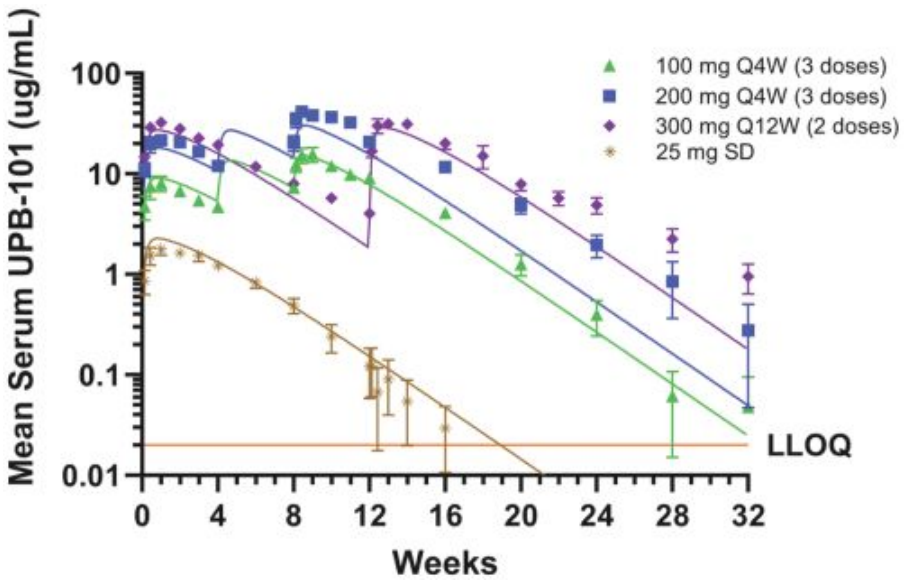
	100 mg Q4W (N=6)	200 mg Q4W (N=6)	300 mg Q12W (N=6)	25 mg X 1 (N=6)	Placebo (N=8)	Overall (N=32)
Number of TEAE	19	17	12	9	25	82
Number of Related TEAE	2	1	3	0	1	7
Subjects with any TEAE, n (%)	5 (83.3)	6 (100)	6 (100)	4 (66.7)	7 (87.5)	28 (87.5)
Mild, n (%)	1 (16.7)	4 (66.7)	5 (83.3)	0	3 (37.5)	13 (40.6)
Moderate, n (%)	4 (66.7)	2 (33.3)	1 (16.7)	4 (66.7)	4 (50.0)	15 (46.9)
Severe, n (%)	0	0	0	0	0	0
Subjects with any Related TEAE, n (%)	1 (16.7)	1 (16.7)	2 (33.3)	0	1 (12.5)	5 (15.6)
Subjects with any Serious TEAE, n	0	0	0	0	0	0
Subjects with any TEAE Leading to Withdrawal, n	0	0	0	0	0	0
Subjects with any TEAE Leading to Discontinuation of IMP, n	0	0	0	0	0	0

Figure 12: Treatment emergent adverse events observed in Phase 1b MAD clinical trial

PK/PD data demonstrated substantial and sustained receptor occupancy and biomarker suppression, supporting dosing intervals of up to Q24W

We observed a desirable pharmacokinetics profile for verekitug that is supportive of extended dosing intervals up to every 24 weeks. In the first three cohorts, there was a dose-dependent increase in verekitug exposure with increasing dose levels across 100 mg Q4W (three total doses), 200 mg dosed Q4W (three total doses) and 300 mg dosed Q12W (two total doses). However, given serum concentrations for the first three cohorts remained above the projected therapeutic threshold, a single dose administration (25 mg) cohort was included to generate data in support of PK/PD.

As shown in Figure 13, observed mean serum concentrations from the Phase 1b MAD study replicated the modeled PK from the Phase 1 SAD clinical trial in healthy volunteers.



Symbols: observed mean values from Phase 1b MAD study; Solid lines: predicted PK from Phase 1 SAD clinical trial in healthy volunteers; LLOQ: lower limit of PK quantification

Figure 13: Post-dose serum concentration of verekitug for each Phase 1b MAD cohort, overlayed with PK model based on Phase 1 SAD trial data

We demonstrated that dosing with verekitug led to rapid and complete TSLP receptor occupancy and reductions in FeNO and eos that were rapid, substantial and sustained for up to 24 weeks after last dose.

The pharmacodynamics of verekitug were assessed over the 32-week observation period by measuring TSLP receptor occupancy in CD14+ monocytes. As summarized in Figure 14 below, the first three cohorts (verekitug doses ≥100 mg) had substantial occupancy through the end of the observation period. The fourth single low dose cohort, added to interrogate the minimal concentration required to maintain full receptor saturation, produced substantial occupancy for 12 to 16 weeks supporting the high potency of verekitug at low doses. All cohorts demonstrated 100% TSLP receptor occupancy by verekitug within two weeks after first dose.

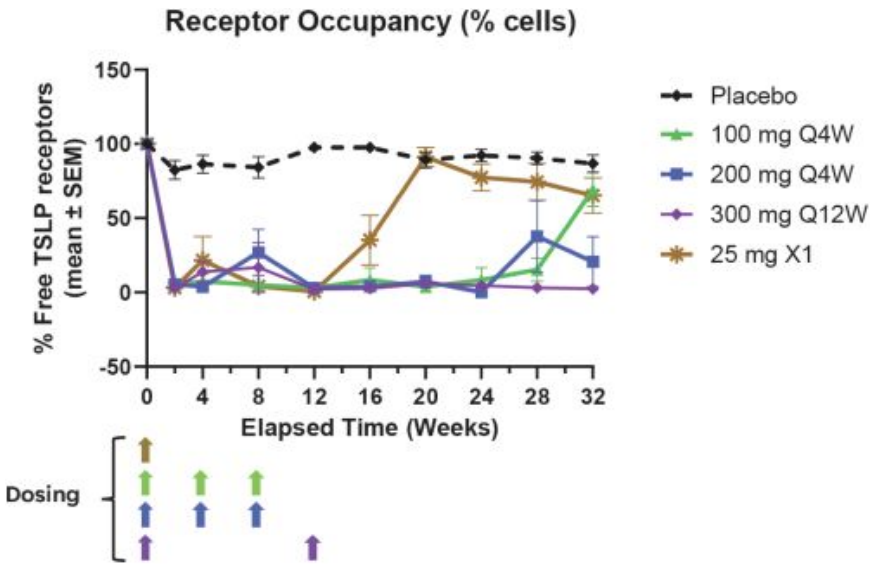


Figure 14: Percent of free TSLP receptors for each Phase 1b MAD cohort compared to placebo over 32 weeks

As shown in Figures 15A and 15B below, reductions in blood eos and FeNO levels were rapid, substantial and sustained. Additionally, these key disease-related biomarkers remained below baseline in all cohorts receiving ≥100 mg of verekitug through the 32-week observation period, up to 24 weeks past the last dose. In the single low dose cohort, blood eos and FeNO levels remained below baseline for 18 and 20 weeks of observation, respectively. The loss of the suppression of biomarkers in this cohort, which occurred shortly after the loss of receptor saturation, allowed determination of the minimal concentration required for the efficacy of verekitug.

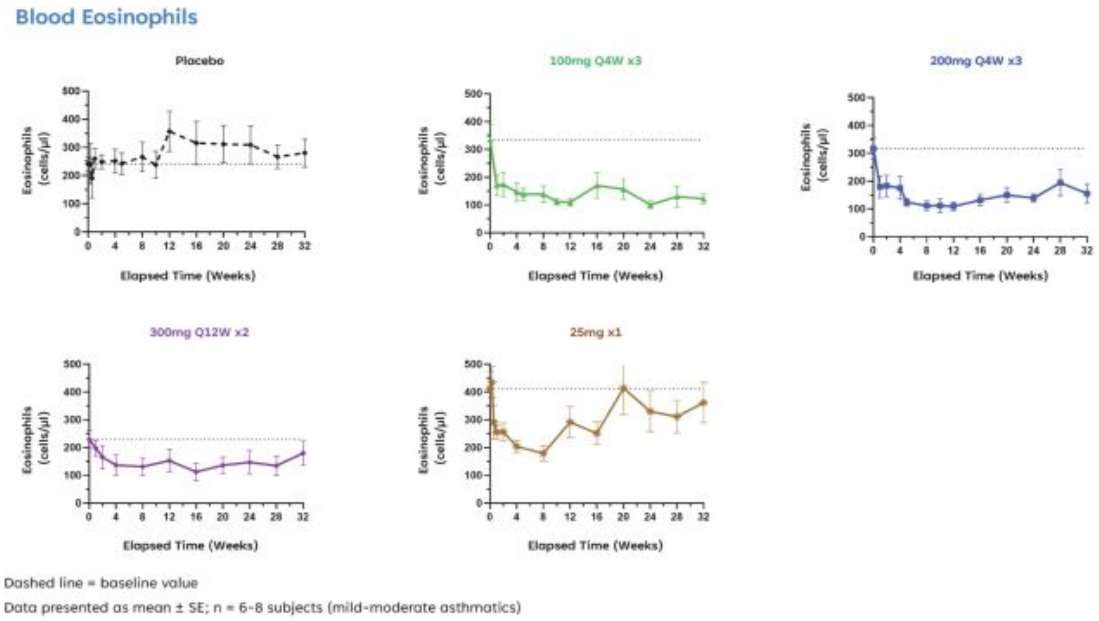


Figure 15A: Levels of blood eosinophils compared to baseline for each cohort in Phase 1b MAD trial over 32 weeks

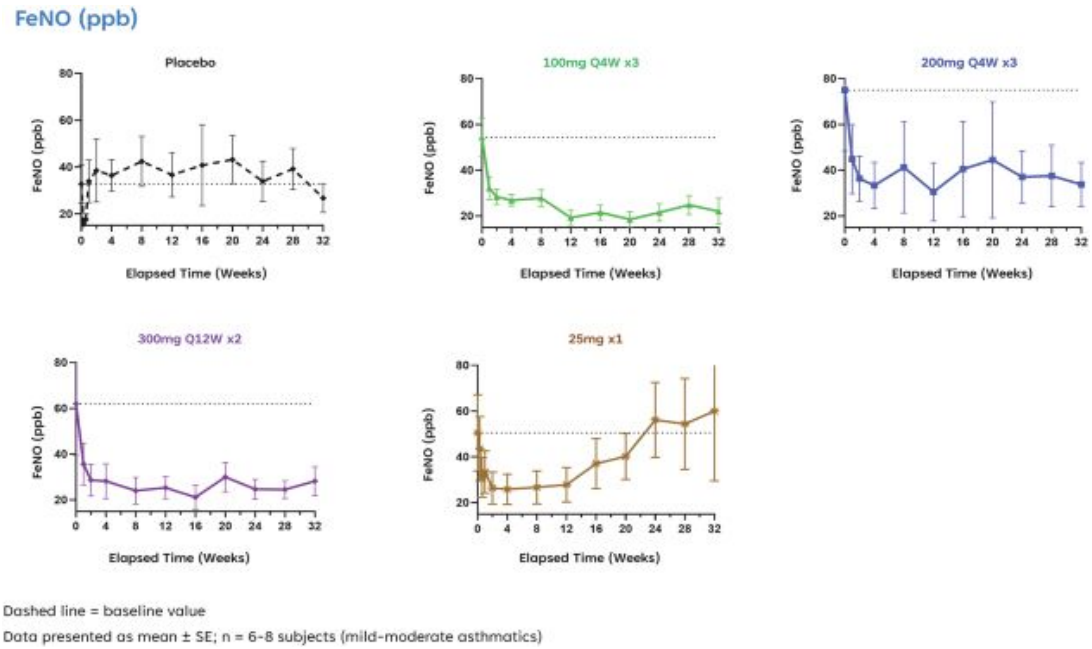
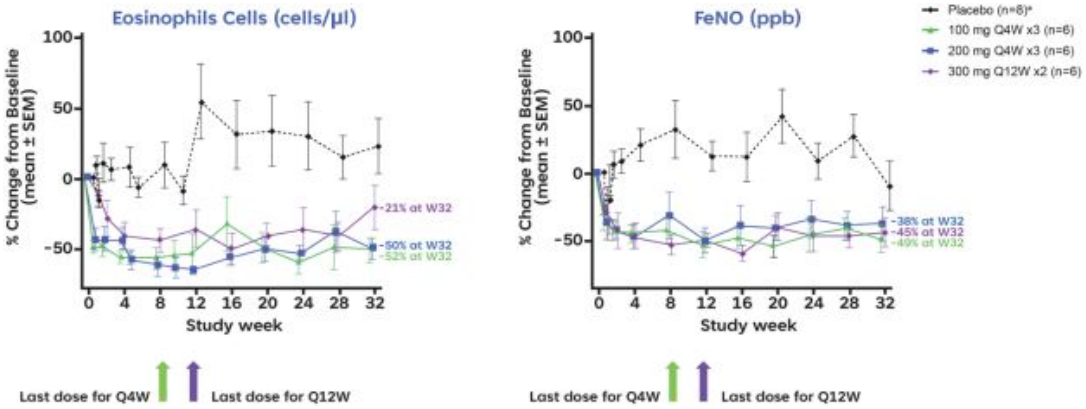


Figure 15B: Levels of fraction of exhaled nitric oxide (right column) compared to baseline for each cohort in the Phase 1b MAD trial over 32 weeks

Patients receiving verekitug doses of 100 mg or greater experienced reductions in blood eos of up to 52% and FeNO reductions of up to 49% at 32 weeks. As seen in Figure 16 below, at week 12, the change from baseline in blood eos was -164 cells/µl for cohort 1, -204 cells/µl for cohort 2, and -77 cells/µl for cohort 3. Of note, cohort 3 had a lower baseline value for blood eos which may affect the absolute value change from baseline. For context, dupilumab has been observed to increase blood eos by approximately 30%, whereas mepolizumab (an eosinophil depleter) has been observed to reduce blood eos by 84%. In these same patients, the change from baseline in FeNO at week 12 was -28 ppb (a -54% change from baseline) for cohort 1, -47 ppb (a -51% change from baseline) for cohort 2 and -37 ppb (a -51% change from baseline) for cohort 3. The Phase 2 and 3 trials of tezepelumab in severe asthma reported a less substantial effect on FeNO, with a change from baseline in FeNO at week 12 of -17 ppb (a -25% change from baseline). Dupilumab's effect on FeNO has been observed to be similar to that of tezepelumab, at an approximately -27% change from baseline, whereas mepolizumab has been observed to have no effect on FeNO. These data are presented for reference purposes only and do not represent results of head-to-head comparative studies among these product candidates or relative to verekitug. Differences exist between trial designs, subject characteristics and timing of data, and caution should be exercised when comparing data across studies.



For the pharmacodynamic population, data collected after the dosing pause were excluded (n=2 in 100 mg cohort after Week 8 and n=2 mg cohort after Week 4).
[a] Data from the placebo groups in all cohorts were pooled for analysis.
FeNo, fractional exhaled nitric oxide; Q4W, every 4 weeks; Q12, every 12 weeks; SEM, standard error of mean.

Figure 16: Percent change from baseline through 32 weeks in eosinophils (left) and fraction of exhaled nitric oxide (right)

Our PK/PD modeling of the data generated in the Phase 1b MAD trial, as summarized in Figure 17 below, provides clinical proof-of-concept that verekitug has high potency in asthma patients. In particular, the potency of verekitug as assessed by suppression of FeNO is substantially greater than that reported for tezepelumab. Indeed, the half-maximal effective concentration ("EC_{50}") of verekitug, 0.008 µg/ml is 300-fold lower than that of tezepelumab, an anti-TSLP ligand antibody approved for use in severe asthma.

Verekitug			Tezepelumab[a]		
E_{MAX} (reduction from BL)	EC_{50} (µg/ml)	EC_{90} (µg/ml)	E_{MAX} (reduction from BL)	EC_{50} (µg/ml)	EC_{90} (µg/ml)
43.4 %; 95% CI [36.6-50.4]	0.008	0.07	27.8 %; 95% CI (23.1-32.2)	2.5	22.5

- >300-fold lower EC_{50} /EC_{90} compared to Tezepelumab
- ~1.5 times greater maximal reduction in PD (FeNO)

[a] No head-to-head clinical studies have been conducted. Differences exist between modeled data and trial design, and caution should be exercised when comparing data across studies.

Figure 17: Maximal, 50% and 90% effective concentrations of verekitug

Data from the Phase 1 SAD and Phase 1b MAD clinical trials enabled for further PK simulations of verekitug to determine the doses for a Phase 2 clinical trial, as shown in Figure 18 below. Doses of 100 mg Q12W SC and 400 mg SC every 24 weeks (Q24W) were projected to sustain serum concentrations of verekitug above the MAD-derived FeNO EC_{90} of 0.07 mg/L that was established in the MAD study for the entirely of the dosing interval, including at trough. For this reason, these doses are being tested in our Phase 2 trial in severe asthma.

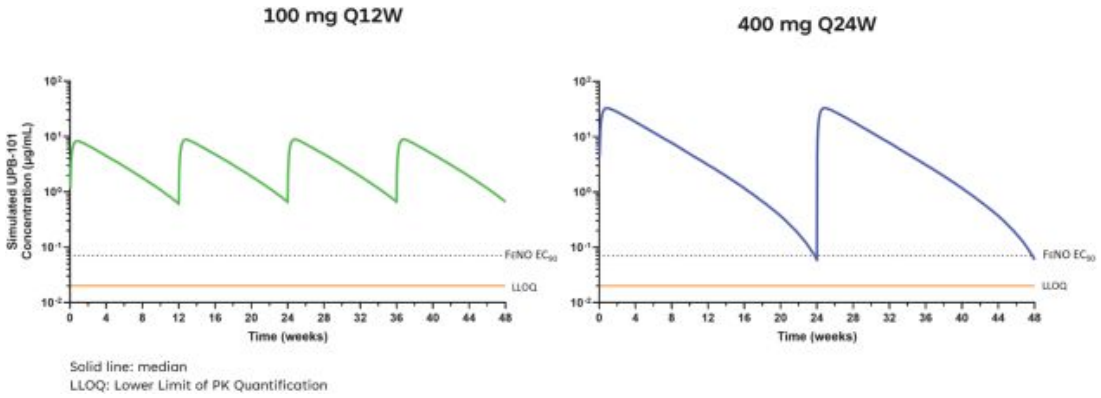


Figure 18: PK simulations of verekitug. Solid line = median, Shadow = 5-95 percentile prediction range

Japan PK trial

We also completed a third Phase 1 clinical trial of verekitug to support clinical development in Japan and other Asian countries. This study was an open-label, single dose, randomized PK and safety study to enable a comparison of verekitug's profile in Japanese vs. non-Japanese/non-East Asian participants. The study enrolled 32 healthy adult volunteers with eight participants in each of four treatment groups. Three cohorts (100 mg, 200 mg, 300 mg dose) were enrolled with Japanese participants and the fourth cohort enrolled solely non-Japanese/non-East Asian participants. The study showed a comparable verekitug PK profile between the two groups.

Summary of clinical results

To date, verekitug has demonstrated a favorable tolerability profile and unique pharmacology that is consistent across preclinical and clinical studies. The high potency seen in preclinical studies, which were not designed to

support formal statistical comparisons, has accompanied clinical evidence of rapid and complete TSLP receptor occupancy, and reductions in disease-associated biomarkers, including FeNO and eos, that were rapid, substantial and sustained for up to 24 weeks after the last dose. These data underpin our clinical development strategy for verekitug in severe asthma and CRSwNP and support our Phase 2 trial designs investigating 12- and 24-week dosing.

Ongoing and planned clinical trials

We are currently enrolling two Phase 2 clinical trials of verekitug.

Severe asthma

VALIANT is a Phase 2 multicenter, randomized, placebo-controlled, parallel group clinical trial to assess the efficacy and safety of verekitug in participants with severe asthma. We expect to enroll an estimated 436 adults, aged 18 to 75 years, that will be randomized 1:1:1:1 to receive verekitug at doses of 100 mg Q12W, 400 mg Q24W and 100 mg Q24W and placebo administered SC.

The primary endpoint of the trial is annual AAER measured up to week 60. This primary endpoint has been used in several registrational trials for other biologic treatments for asthma. The trial's secondary endpoints include the following changes from baseline to week 60: forced expiratory volume in one second of pre-bronchodilator, change in FeNO, change in asthma control questionnaire-6, and characterization of safety. We have designed this trial using endpoints that, pending interactions with regulatory authorities, could allow data from this trial to support submissions for product approval.

We previously announced initiation of this trial in March 2024 and, based on the current rate of enrollment, expect to announce top-line data in the second half of 2026.

CRSwNP

VIBRANT is a Phase 2 multicenter, randomized, placebo-controlled, parallel group clinical trial designed to assess the efficacy and safety of verekitug in participants with CRSwNP. We expect to enroll approximately 70 adults, aged 18 to 75 years, that will be randomized to receive either 100 mg Q12W of verekitug or placebo administered SC over a 24-week treatment period.

The primary endpoint of the trial is change from baseline in nasal polyp score ("NPS") at week 24. This primary endpoint has been used in several registrational trials for other biologic treatments for CRSwNP. The secondary endpoints include the following changes from baseline to week 24: nasal congestion score evaluated by the nasal polyposis symptom diary ("NPSD"), opacification of sinuses measured by Lund Mackay Score, difficulty with sense of smell evaluated by the NPSD, percentage of participants requiring systemic corticosteroids or NP surgery, time to NP surgery and/or time to systemic corticosteroids for NP, NPSD – Total Symptom Score, and characterization of safety. We have designed this trial using endpoints that, pending interactions with regulatory authorities, could allow data from this trial to support submissions for product approval.

We previously announced initiation of this trial in January 2024 and, based on the current rate of enrollment, expect to announce top-line data in the second half of 2025.

COPD

Based on available data from Phase 1 trials with verekitug, we plan to initiate a clinical development program in COPD. We are currently planning a Phase 2 multicenter, randomized, placebo-controlled, parallel group clinical trial designed to assess the efficacy and safety of verekitug in participants with uncontrolled COPD. The primary

analysis population will include patients with elevated eos. Subjects will be randomized 1:1:1 to receive verekitug at doses of 100 mg Q12W, 400 mg Q24W and placebo administered SC. Given verekitug's potency, we also plan to enroll a subset of patients without elevated eos at baseline to explore the potential for efficacy in this expanded population. Aligned with recent registrational trials of biologics in this condition, the primary endpoint will be the annualized COPD exacerbation rate, which we plan to assess over at least 60 weeks. Additional planned secondary endpoints will capture elements of COPD that are important to patients and have been used in previous phase 3 studies, including lung function, patient symptoms and quality of life as reflected by the St. George's Respiratory Questionnaire, and characterization of safety. We have designed this trial using endpoints that, pending interactions with regulatory authorities, could allow data from this trial to support submissions for product approval.

We expect to dose the first COPD patient in the second half of 2025.

Future opportunities

Research has shown TSLP to be either a risk factor for or a key driver of inflammatory diseases across several therapeutic areas, including respiratory, gastroenterology, dermatology, nephrology and allergy/immunology. Thus, we believe there is a significant opportunity to expand the impact of verekitug beyond severe respiratory diseases, including dermatology (e.g., atopic dermatitis) and gastroenterology. For example, other TSLP pathway-directed biologics are pursuing indications such as chronic urticaria, bullous pemphigoid, chronic pruritis and eosinophilic esophagitis. In parallel to conducting our own preclinical work in target indications, we will carefully monitor the results of these trials which have the potential to inform our selection of future indications for verekitug.

Manufacturing and supply

Our current strategy is to outsource all manufacturing of verekitug or any other potential future product candidates to third parties. We leverage third-party manufacturers to support the manufacturing of verekitug for clinical trials and, if we receive regulatory approval, we intend to rely on such third parties for commercial manufacture. We have manufactured sufficient supply for our two ongoing Phase 2 trials as well as our planned COPD trial. We do not own or operate any manufacturing facilities for the production of clinical or commercial quantities of verekitug or any other potential future product candidates. We believe this strategy will enable us to maintain a nimble, efficient and effective working model without making significant internal capital investments. We currently obtain our supplies from these manufacturers on a purchase order basis and do not have any long-term supply agreements in place. In order to de-risk our supply chain, and as we advance toward potential commercialization, we intend to enter into long-term supply agreements as well as evaluate additional product manufacturing sources.

We rely, and expect to continue to rely, on third-party manufacturers to provide all of the active pharmaceutical ingredients and the final drug product formulation of verekitug that is being used in our clinical trials and preclinical studies in compliance with FDA and other foreign regulatory requirements, and on contract development and manufacturing organizations ("CDMOs") to manufacture and supply our preclinical and clinical materials. We have made technical development a major focus of our efforts and have worked to improve the formulation and manufacturing process in place at the time of our acquisition of verekitug in 2021. This effort has resulted in a greater than 6-fold improvement in the concentration of the formulation of verekitug, from 30 mg/mL to 200 mg/mL, which has enabled the ability to employ both a 0.5mL (100 mg) and a 2.0mL (400 mg) SC injection in our severe asthma Phase 2 clinical trial. These 0.5mL and 2.0mL injection volumes are comparable to or smaller than those of other biologics approved for the treatment of severe asthma, including tezepelumab (1.91mL), dupilumab (2.0mL) and mepolizumab (1.0mL). These process improvements have led to an approximately 35% increase in yield as well, while maintaining comparable product quality.

We have personnel with significant technical, manufacturing, analytical, quality, regulatory, including current Good Manufacturing Practices ("cGMP"), and project management experience to oversee our third-party manufacturers and to manage manufacturing and quality data and information for regulatory compliance purposes. At the appropriate time, we will determine whether to establish in-house manufacturing capabilities or continue to rely on third parties to manufacture commercial quantities for verekitug or any future products for which we may successfully develop and obtain regulatory approval.

Competition

The biopharmaceutical industry is characterized by rapid advancing technologies, intense competition and a strong emphasis on proprietary and novel products and product candidates. Our competitors have developed, are developing or may develop products, product candidates and processes competitive with verekitug. Verekitug and any future product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. Our competitors include larger and better-funded pharmaceutical, biopharmaceutical, biotechnological and therapeutics companies. Moreover, we may also compete with universities, governmental agencies and other public and private research institutions who may be active in research in our target indications and could be in direct competition with us. We also compete with these organizations to recruit management, scientists and clinical development personnel, and our inability to compete successfully could negatively affect our level of expertise and our ability to execute our business plan. We will also face competition in establishing clinical trial sites, enrolling subjects for clinical trials and in identifying and in-licensing intellectual property related to new product candidates, as well as entering into collaborations, joint ventures, license agreements and other similar arrangements. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

Existing therapeutics for asthma include controller medications, reliever medications and more recently, biologics from Genentech, Inc. ("Genentech") and Novartis Pharmaceuticals Corporation ("Novartis") (Xolair), Sanofi and Regeneron (Dupixent), GlaxoSmithKline ("GSK") (Nucala), AstraZeneca (Fasenra), and Amgen and AstraZeneca (Tezspire). Existing therapeutics for CRSwNP include topical corticosteroids, nasal saline irrigations and more recently, biologics from Genentech and Novartis (Xolair), Sanofi and Regeneron (Dupixent) and GSK (Nucala). Existing therapeutics for COPD include inhaled steroids and bronchodilator inhalers and more recently, a biologic from Sanofi and Regeneron (Dupixent). A biologic targeting the TSLP ligand is also in development by Amgen and AstraZeneca (Tezspire).

While there are numerous biologics approved for the treatment of severe asthma, tezepelumab, a monoclonal antibody targeting the TSLP ligand, is the first and only treatment for severe asthma without any biomarker limitation. To our knowledge, verekitug is the only monoclonal antibody currently in clinical development that targets and inhibits the TSLP receptor.

If we successfully obtain approval for verekitug and any future product candidates, we believe that the key competitive factors that will affect the success of these candidates will be efficacy, safety, tolerability, convenience, price, the level of generic competition and the availability of reimbursement from commercial, government and other third-party payors relative to such competing products. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are superior in one or more of these categories. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we do, which could result in our competitors establishing a strong market position before we are able to enter the market.

Intellectual property

We strive to protect and enhance the proprietary technology, inventions and improvements that are commercially important to the development of our business, including seeking, maintaining and defending patent rights, whether developed internally or licensed from third parties. We may also rely on trademarks, copyrights and trade secrets relating to our proprietary technology platform and on know-how, continuing technological innovation and in-licensing opportunities to develop, strengthen and maintain our proprietary and intellectual property position. We additionally may rely on regulatory and other protections afforded through data exclusivity, market exclusivity and patent term extensions, where available.

Our commercial success depends in part upon our ability to obtain and maintain patent and other proprietary protection for commercially important technologies, inventions and trade secrets related to our business, defend and enforce our intellectual property rights, particularly our patent rights, preserve the confidentiality of our trade secrets and operate without infringing valid and enforceable intellectual property rights of others.

The patent positions for biotechnology and pharmaceutical companies like us are generally uncertain and can involve complex legal, scientific and factual issues. In addition, the coverage claimed in a patent application can be significantly reduced before a patent is issued, and its scope can be reinterpreted and even challenged after issuance. As a result, we cannot guarantee that any of our product candidates will be protectable or remain protected by enforceable patents. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection from competitors. Any patents that we hold may be challenged, circumvented or invalidated by third parties.

Verekitug program

We own 12 patent families directed to verekitug. A first patent family is directed to compositions of matter of verekitug and methods of using the same for treating asthma and expire in 2034, without taking a potential patent term extension into account. As of August 1, 2024, this first patent family has two issued U.S. patents, 20 issued patents in foreign jurisdictions, including Argentina, Australia, Brazil, Canada, a European patent (validated in Albania, Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Great Britain, Greece, Hungary, Croatia, Ireland, Iceland, Italy, Liechtenstein, Latvia, Lithuania, Luxembourg, Monaco, Malta, Macedonia, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Sweden, Slovenia, Slovakia, and Turkey), Hong Kong, Indonesia, Israel, India, Japan, South Korea, Malaysia, Mexico, Philippines, Russia, Singapore, Taiwan, Ukraine, Vietnam and South Africa, and one pending application in a foreign jurisdiction in Thailand. A second patent family is directed to certain pharmaceutical formulations comprising verekitug and methods of treating humans with asthma with such formulations, which expire in 2037, without taking a potential patent term extension into account. As of August 1, 2024, this second family includes 2 issued U.S. patents, one pending U.S. non-provisional application, 11 issued patents in foreign jurisdictions, including China, Hong Kong, two in Japan, Macao, Mexico, Philippines, Russia, Singapore, and two in Taiwan, and 7 pending applications in foreign jurisdictions, including in Canada, Europe, Indonesia, South Korea, Singapore, Thailand, and Vietnam, of which Canada, Europe and Vietnam have been allowed. The third patent family is directed to certain formulations that could be used with verekitug and methods of using the same and, if the patents were to issue from this third patent family they would expire in 2042. As of August 1, 2024, this third family has one pending U.S. non-provisional application, two applications pending in foreign jurisdictions, Taiwan and Argentina, and one pending PCT application. The other nine patent families are directed to methods of using verekitug and comprise 9 pending U.S. provisional patent applications. Should any patents issue based on these other nine patent families they would expire in 2044, without taking a potential patent term extension into account.

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

In the United States, the term of a patent covering an FDA-approved drug may be eligible for a patent term extension under the Hatch-Waxman Act as compensation for the loss of patent term during the FDA regulatory review process. The period of extension may be up to five years beyond the expiration of the patent, but cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval. Only one patent among those eligible for an extension may be extended, and a given patent may only be extended once. Similar provisions are available in Europe and in certain other jurisdictions to extend the term of a patent that covers an approved drug. If our product candidates receive FDA approval, we intend to apply for patent term extensions, if available, to extend the term of patents that cover the approved product candidates. We also intend to seek patent term extensions in any jurisdictions where they are available, however, there is no guarantee that the applicable authorities, including the FDA, will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions.

In addition to patent protection, we also rely on know-how and trade secret protection for our proprietary information to develop and maintain our proprietary position. However, trade secrets can be difficult to protect. Although we take steps to protect our proprietary information, including restricting access to our premises and our confidential information, as well as entering into agreements with our employees, consultants, advisors and potential collaborators, third parties may independently develop the same or similar proprietary information or may otherwise gain access to our proprietary information. As a result, we may be unable to meaningfully protect our know-how, trade secrets, and other proprietary information.

In addition, we plan to rely on regulatory protection based on orphan drug exclusivities, data exclusivities, and market exclusivities. See the section titled “—Government regulation” below for additional information.

Asset purchase and license agreements

Asset acquisition from Astellas

In October 2021, we entered into an asset purchase agreement with Astellas Pharma, Inc. (“Astellas”), which we refer to as the “Astellas Asset Purchase Agreement.” Pursuant to the Astellas Asset Purchase Agreement, we purchased from Astellas the compound designated by Astellas as ASP7266 (the “Compound”), the corresponding patent rights and any unregistered intellectual property rights, inventory related to the Compound, documents, data and copies of all filings and material correspondence with regulatory agencies (and the data included therein), and obtained an exclusive license under certain processes and methods of manufacture, testing, qualifying and use of the Compound to manufacture the Compound, with an upfront cash payment of $81.1 million. The Compound was renamed by us as verekitug (UPB-101). There are no future payments owed to Astellas under the Astellas Asset Purchase Agreement.

Related letter agreement with Astellas and Regeneron

In connection with the Astellas Asset Purchase Agreement, we concurrently entered into a letter agreement with Astellas and Regeneron Pharmaceuticals, Inc. (“Regeneron”), which we refer to as the “Regeneron Letter Agreement.” The Regeneron Letter Agreement relates to a prior Non-Exclusive License and Material Transfer Agreement (the “Terminated Regeneron License Agreement”) that Regeneron and Astellas entered into in March 2007, as amended in July 2010 and subsequently terminated in June 2018, subject to certain surviving rights and obligations of both Regeneron and Astellas. Under the Terminated Regeneron License Agreement, Astellas utilized Regeneron’s human antibody technology in its internal research programs to discover certain product candidates, including the Compound, which it sold to us under the Astellas Asset Purchase Agreement.

Under the Regeneron Letter Agreement, Astellas assigned and transferred to us and we assumed and accepted certain of Astellas' surviving rights and obligations under the Terminated Regeneron License Agreement, including Astellas' royalty payment, reporting and indemnification obligations in connection with activities conducted by us or on our behalf with respect to the Compound. By assuming and accepting Astellas' surviving obligations under the Terminated Regeneron License Agreement, we are required to pay Regeneron mid-single-digit percentage royalties on aggregate worldwide net sales of any product developed by or on behalf of us that contains the Compound as an ingredient or component of the materials sold (a "Royalty Product") during the royalty term. The royalties are determined on a product-by-product and country-by-country basis and expire on the later of (i) a specified number of years after the launch of a given Royalty Product in a given country and (ii) the expiration of the last valid claim of royalty bearing company patent rights claiming or covering such Royalty Product in such country.

Exclusive license agreement with Maruho

In October 2021, we entered into a license agreement with Maruho Co., Ltd. ("Maruho"), as amended on May 30, 2023, which we refer to as the "Maruho License Agreement," under which we granted to Maruho an exclusive, irrevocable, perpetual, royalty-free, sublicensable (subject to our right of first negotiation as described below) license. The license was under certain intellectual property rights controlled by us or our affiliates to research, develop, manufacture via a third party contract manufacturer, sell and import any pharmaceutical, biologic or medical device product (or any combination thereof), which (i) was or is developed by or on behalf of us or our affiliates, and (ii) incorporates or uses the compound designated by Astellas as ASP7266 in Japan (collectively, the "Maruho License Product").

Pursuant to the Maruho License Agreement, we are responsible for and control the global research and development of the Maruho License Product, including in Japan. We will develop the Maruho License Product for use in Japan as part of our global development strategy, and as much as possible on a similar schedule as we develop the Maruho License Product for our initial territory(ies). Maruho will reimburse us for all costs reasonably necessary for any development activities for the Maruho License Product that are specific to Japan, including the cost of the supply of Maruho License Product for use in any preclinical and clinical research and development activities in Japan.

Under the Maruho License Agreement, Maruho is responsible for and controls, at its sole expense, (i) the preparation, filing, prosecution, obtaining and maintaining all regulatory approvals for the Maruho License Product in Japan and (ii) the promotion, marketing, sale and commercialization of the Maruho License Product in Japan. Maruho shall procure the supply of Maruho License Product for commercialization in Japan by purchasing from a contract manufacturing organization ("CMO") used by us, from us directly, or in the event the supply from the foregoing sources doesn't meet the legal requirements in Japan, from a new third-party CMO selected by Maruho in consultation with us. In addition, under the Maruho License Agreement, we granted Maruho a right of first negotiation, exercisable between the effective date of the Maruho License Agreement and the earlier of (a) October 11, 2027 and (b) the occurrence of a merger and acquisition of us by a third party, such that, in the event of our actual liquidation (not including deemed liquidation events such as a merger and acquisition by third parties), Maruho has the right to first negotiate to purchase all of our asset relating to the Maruho License Product. Maruho also granted us a right of first negotiation, exercisable between the effective date of the Maruho License Agreement and the earlier of (a) the fifth anniversary of such effective date and (b) a change of control of us, such that, in the event Maruho desires to sell, assign sublicense or otherwise transfer any or all of Maruho's rights under the Maruho License Agreement, we have a right to first negotiate to acquire such rights.

Both parties waive their right to termination of the Maruho License Agreement for any reason, except that Maruho has the right to terminate the Maruho License Agreement at any time by providing 60 days prior written notice to us.

During the year ended December 31, 2021, we did not receive any payments from Maruho. During the year ended December 31, 2023, we received payments from Maruho in the amount of $2.7 million, which was received during the six months ended June 30, 2023. During the year ended December 31, 2022, we received payments from Maruho in the amount of $0.8 million. During the six months ended June 30, 2024, we received payments from Maruho in the amount of $0.7 million.

License agreement with Lonza

In October 2021, in connection with the Astellas Asset Purchase Agreement, we entered into a license agreement with Lonza Sales AG ("Lonza"), as amended on March 18, 2022 and April 19, 2022, which we refer to as the "Lonza License Agreement." Pursuant to the Lonza License Agreement, we obtained a worldwide, non-exclusive, sublicensable (subject to Lonza's right of pre-approval with respect to any sublicense of manufacturing activities) license to certain intellectual property rights owned by Lonza. The license allows us to use Lonza's glutamine synthetase gene expression system ("Lonza System") to develop, manufacture and commercialize the Compound, including any part of such system that is embodied within or otherwise used to create the cell lines expressing the Compound or a component thereof. Lonza was the originator of the master cell bank for the Compound developed by Astellas, and we are required to comply with certain restrictions with regard to the use of Lonza System, including not to transfer, reverse engineer or modify the Lonza System without Lonza's prior written consent.

As consideration for the rights and licenses granted to us under the Lonza License Agreement, we agreed to pay Lonza certain royalties and annual payments, both payable in swiss francs, in respect of the manufacturing and sale of the Compound, such amounts to be determined by the party manufacturing the Compound, and range from no annual payment to up to a mid-six-figure annual payment, and a less-than-one percent to a low-single-digit percentage royalty on net sales of the Compound. In accordance with the Lonza License Agreement, we entered into a sublicense with Wuxi Biologics (Hong Kong) Limited to manufacture the Compound, requiring us to pay a mid-six-figure annual fee to Lonza pursuant to this provision.

Any royalties due under the Lonza License Agreement are payable on a country-by-country basis until ten years from the first commercial sale of the Compound in that particular country.

The Lonza agreement continues for an indefinite period of time unless otherwise terminated. We have the right to terminate the Lonza License Agreement at any time by providing prior written notice to Lonza. Furthermore, we and Lonza each have the right to terminate the Lonza License Agreement upon the occurrence of a material breach of such agreement by the other party that is irremediable or not remedied within a certain period of time, or the other party's failure to pay debts or entry into liquidation. Lonza also may terminate the Lonza License Agreement by providing written notice to us if we contest the secret or substantial nature of the know-how relating to the Lonza System that is licensed to us under the Lonza License Agreement.

During the year ended December 31, 2021, we did not make any payments to Lonza. During the year ended December 31, 2023, we made an annual payment to Lonza in the amount of $0.4 million, which was paid during the six months ended June 30, 2023. During the year ended December 31, 2022, we made an annual payment to Lonza in the amount of $0.4 million. During the six months ended June 30, 2024, we made an annual payment to Lonza in the amount of $0.5 million.

Government regulation

Regulation of biological products in the United States

In the United States, the FDA regulates biological products under the Federal Food, Drug, and Cosmetic Act ("FDCA"), the Public Health Service Act ("PHSA"), and their implementing regulations. Biological products are also subject to other federal, state and local statutes and regulations. Verekitug is in clinical development and has not been approved by the FDA for marketing in the United States.

An applicant seeking approval to market and distribute a new biological product in the United States generally must satisfactorily complete each of the following steps:

- preclinical laboratory tests, animal studies and formulation studies performed in accordance with the FDA's Good Laboratory Practices ("GLP") regulations, as applicable;
- completion of the manufacture, under cGMP conditions, of the product candidate that the sponsor intends to use in human clinical trials along with required analytical and stability testing;
- submission to the FDA of an Investigational New Drug application ("IND"), for human clinical testing, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board ("IRB") representing each clinical trial site before each clinical trial site may be initiated;
- performance of adequate and well-controlled human clinical trials, in accordance with current Good Clinical Practices ("GCP") and any additional nonclinical studies required to establish the safety and effectiveness of the product candidate for each proposed indication;
- preparation and submission to the FDA of a biologics license application ("BLA"), as applicable, requesting approval to market the product candidate for one or more proposed indications, including submission of detailed information on the manufacture and composition of the product and proposed labeling;
- review of the product by an FDA advisory committee, where appropriate and as applicable;
- satisfactory completion of one or more FDA inspections of the manufacturing facility or facilities, including those of third parties, at which the product, or components thereof, are produced to assess compliance with cGMP and to assure that the facilities, methods and controls are adequate to preserve the product's identity, strength, quality and purity;
- satisfactory completion of any FDA audits of the preclinical studies and clinical trial sites to assure compliance with GLP, as applicable, and GCP, and the integrity of clinical data in support of the BLA;
- payment of user fees under the Prescription Drug User Fee Act ("PDUFA"), unless exempted;
- obtaining FDA approval, or licensure, of the BLA; and
- compliance with any post-approval requirements, including 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.

The failure to comply with the applicable U.S. requirements at any time during the product development process, including preclinical testing, clinical testing, and the approval process, or the post-approval process, may subject an applicant to delays in development, regulatory review or approval and/or administrative or judicial sanctions. These sanctions may include, but are not limited to, the FDA's refusal to allow an applicant to proceed with clinical testing, refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, issuance of warning or untitled letters, adverse publicity, product recalls, marketing restrictions, product seizures, import detentions and refusals, total or partial suspension of production or distribution, injunctions, fines and civil or criminal investigations and penalties brought by the FDA or the Department of Justice ("DOJ"), and other governmental entities, including state agencies.

Preclinical studies and investigational new drug application

Before testing any product candidate in humans, the product candidate must undergo preclinical testing. Preclinical tests include laboratory evaluations of product chemistry, formulation and stability, as well as

studies to evaluate the potential for efficacy and toxicity in animal studies. The conduct of the preclinical tests and formulation of the compounds for testing must comply with federal regulations and requirements. The results of the preclinical tests, together with manufacturing information, analytical data, and plans for the proposed clinical studies, are submitted to the FDA as part of an IND application. Some preclinical testing may continue after an IND is submitted.

An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions about the product candidate or conduct of the proposed clinical trial, including concerns that human research subjects will be exposed to unreasonable health risks, and places the clinical trial on a partial or complete clinical hold. In that case, the IND sponsor and the FDA must resolve the clinical hold issues before the clinical trials can begin.

Clinical holds also may be imposed by the FDA after clinical trials have begun, including if there is concern for patient safety, as a result of new data, findings, or developments in clinical, preclinical and/or chemistry, manufacturing and controls, or where there is non-compliance with regulatory requirements. A separate submission to an existing IND must be made for each successive clinical trial conducted during development, and the FDA reviews such submissions before each clinical trial can begin.

Human clinical trials in support of a BLA

Clinical trials involve the administration of the investigational product candidate to healthy volunteers or patients with the disease or condition to be treated under the supervision of qualified investigators in accordance with GCP requirements. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, dosing procedures, inclusion and exclusion criteria, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. Clinical testing also must satisfy extensive GCP rules and the requirements for informed consent.

A sponsor who wishes to conduct a clinical trial outside the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. When a foreign clinical trial is conducted under an IND, all FDA IND requirements must be met unless waived. The FDA will accept a well-designed and well-conducted foreign clinical study not conducted under an IND if the study was conducted in accordance with GCP requirements, and the FDA is able to validate the data through an onsite inspection if deemed necessary. The GCP requirements encompass both ethical and data integrity standards for clinical trials. The FDA's regulations are intended to help ensure the protection of human subjects enrolled in non-IND foreign clinical trials, as well as the quality and integrity of the resulting data.

Further, each clinical trial must be reviewed and approved by an IRB either centrally or individually at each institution at which the clinical trial will be conducted. The IRB will consider, among other things, clinical trial design, patient informed consent, ethical factors, the safety of human subjects and the possible liability of the institution. An IRB must operate in compliance with FDA regulations. The FDA, IRB, or the clinical trial sponsor may suspend or discontinue a clinical trial at any time for various reasons, including a finding that the clinical trial is not being conducted in accordance with GCP requirements or that the participants are being exposed to an unacceptable health risk.

Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board ("DSMB"), or data monitoring committee ("DMC"). This group may recommend continuation of the trial as planned, changes in trial conduct, or cessation of the trial at designated check points based on certain available data from the trial to which only the DSMB/DMC has access.

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

- Phase 1 clinical trials are initially conducted in a limited population of healthy subjects or disease-affected patients to test the product candidate for safety, including adverse effects, dose tolerance, absorption, metabolism, distribution, excretion and pharmacodynamics.
- Phase 2 clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, evaluate the efficacy of the product candidate for specific targeted indications and determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more costly Phase 3 clinical trials.
- Phase 3 clinical trials typically proceed if the Phase 2 clinical trials demonstrate that a dose range of the product candidate is potentially effective and has an acceptable safety profile. Phase 3 clinical trials are generally undertaken within an expanded patient population to provide substantial evidence of clinical efficacy and further test for safety in an expanded and diverse patient population at multiple, geographically dispersed clinical trial sites to provide a basis for physician labeling and for submitting a BLA to seek regulatory approval for a biological product.

In some cases, the FDA may approve a BLA but require the sponsor to conduct additional clinical trials to further assess the product's safety and effectiveness after approval. Such post-approval trials are typically referred to as Phase 4 clinical trials. These studies are used to gain additional experience from the treatment of patients in the approved indication and, where applicable, to confirm a clinical benefit for products approved under accelerated approval. The failure to exercise due diligence with regard to conducting Phase 4 clinical trials could result in withdrawal of approval for products.

Information about applicable clinical trials must be submitted within specific timeframes to the National Institutes of Health ("NIH") for public dissemination on its ClinicalTrials.gov website.

Progress reports detailing the results of the clinical trials, among other information, must be submitted at least annually to the FDA and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected suspected adverse events, findings from other studies or animal or *in vitro* testing that suggest a significant risk for human subjects and any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. 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.

Under the Pediatric Research Equity Act, a BLA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDCA requires that a sponsor who is planning to submit a marketing application for a 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 60 days of an end-of-phase 2 meeting or as may be agreed between the sponsor and FDA. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests and other information required by regulation. The sponsor and the FDA must reach agreement on the PSP. The FDA or the sponsor may request an amendment to the plan at any time.

The FDA may, on its own initiative or at the request of the sponsor, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric

data requirements. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

Compliance with cGMP requirements

Concurrent with clinical trials, companies must finalize a process for manufacturing the product candidate in commercial quantities in accordance with cGMP requirements. To help reduce the risk of introduction of adventitious agents with the use of biological products, the PHSA emphasizes the importance of manufacturing controls for products with attributes that cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product and, among other things, companies must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life. 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.

Manufacturers and others involved in the manufacture and distribution of products must also register their establishments with the FDA and certain state agencies. Both domestic and foreign manufacturing establishments must register and provide additional information to the FDA upon their initial participation in the manufacturing process. Establishments may be subject to periodic unannounced inspections by government authorities to ensure compliance with cGMPs and other laws. Noncompliance with such requirements can lead to adverse findings by the FDA during these inspections; in instances of significant or continued noncompliance, such adverse findings can serve as the basis for additional regulatory action by the FDA, including but not limited to warning letters, recalls, seizure, consent decrees, fines, and/or criminal penalties.

Review and approval of a BLA

The results of product candidate development, preclinical testing and clinical trials, including negative or ambiguous results as well as positive findings, are submitted to the FDA as part of a BLA requesting approval to market the product for one or more specified indications. The BLA must contain extensive manufacturing information and detailed information on the composition of the product and proposed labeling as well as payment of a user fee. Under federal law, the submission of most BLAs are subject to an application user fee. The sponsor of an approved BLA is also subject to an annual program fee. Certain exceptions and waivers are available for some of these fees, such as an exception from the application fee for products with orphan designation and a waiver for certain small businesses.

The FDA has 60 days after submission of the application to conduct an initial review to determine whether to accept it for filing based on the agency's threshold determination that it is sufficiently complete to permit substantive review. 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. The resubmitted application also is subject to review before the FDA accepts it for filing. If the submission has been accepted for filing, the FDA begins an in-depth review of the application. Under the goals and policies agreed to by the FDA under PDUFA, the FDA has ten months in which to complete its initial review of a standard application and respond to the applicant, and six months for a priority review of the application. The FDA does not always meet its PDUFA goal dates for standard and priority BLAs. The review process may be significantly extended by FDA requests for additional information or clarification. The review process and the PDUFA goal date may be extended by three months if the FDA requests or if the applicant

otherwise provides additional or clarifying information within the last three months before the PDUFA goal date.

The FDA reviews a BLA to determine, among other things, whether the product is safe and effective and whether the facility in which it is manufactured, processed, packaged or held meets standards designed to assure the product's continued safety, quality and purity. The FDA likely will reanalyze the clinical trial data, which could result in extensive discussions between the FDA and the applicant during the review process. On the basis of the FDA's evaluation of the application and accompanying information, including the results of the inspection of the manufacturing facilities and any FDA audits of preclinical and clinical trial sites to assure compliance with GCPs, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. If the application is not approved, the FDA will issue a complete response letter, which will contain the conditions that must be met in order to secure final approval of the application, and when possible, will outline recommended actions the sponsor might take to obtain approval of the application. The complete response letter may require additional clinical data and/or other significant and time-consuming requirements related to clinical trials, preclinical studies or manufacturing. Sponsors that receive a complete response letter may submit to the FDA information that represents a complete response to the deficiencies identified by the FDA. The FDA will then re-review the application, taking into consideration the response, and determine whether the application meets the criteria for approval. The FDA will not approve an application until issues identified in any complete response letters have been addressed. Failure to respond to a complete response letter may be considered by the FDA as a request to withdraw the application.

The FDA may refer applications for novel products or products that present difficult questions of safety or efficacy to an advisory committee. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions, if any. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Even if the FDA approves a new product, the approval may be limited to specific disease states, patient populations and dosages, or the indications for use may otherwise be limited. It may also require that contraindications, warnings, or precautions be included in the product labeling. In addition, the FDA may require post-approval studies, including phase 4 clinical trials, to further assess the product's efficacy and/or safety after approval. The agency may also require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including a REMS, to help ensure that the benefits of the product outweigh the potential risks. A REMS can include medication guides, communication plans for healthcare professionals and elements to assure safe use ("ETASU"). ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patent registries. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. After approval, many types of changes to the approved product, such as adding new indications, certain manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Fast track, breakthrough therapy and priority review designations

FDA provides programs intended to facilitate and expedite development and review of new products that are intended to address an unmet medical need in the treatment of a serious or life-threatening disease or condition. These programs are referred to as fast track designation, breakthrough therapy designation and priority review designation. These designations are not mutually exclusive, and a product candidate may qualify

for one or more of these programs. While these programs are intended to expedite product development and approval, they do not alter the standards for FDA approval.

The FDA may designate a product for fast track designation 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 products with fast track designation, sponsors may have more frequent interactions with the FDA, the product is potentially eligible for accelerated approval and priority review, if relevant criteria are met, and the FDA may initiate review of sections of a product with fast track designation'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 product with fast track designation may be effective. The sponsor must also provide, and the FDA must approve, a schedule for the submission of the remaining information and the sponsor must pay applicable user fees. However, the FDA's time period goal for reviewing a fast track application does not begin until the last section of the application is submitted. In addition, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

A product may be designated as a breakthrough therapy if it is intended, either alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to breakthrough therapies, including holding meetings with the sponsor throughout the development process; providing timely advice to the product sponsor regarding development and approval; involving more senior staff managers in the review process; assigning a cross-disciplinary lead for the review team; and taking other steps to design the clinical trials in an efficient manner. Breakthrough designation may be rescinded if a product no longer meets the qualifying criteria.

The FDA may designate a product for priority review if it is a product that treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting adverse reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes and evidence of safety and effectiveness in a new subpopulation. A priority review designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months. Priority review designation may be rescinded if a product no longer meets the qualifying criteria.

Accelerated approval pathway

The FDA may grant accelerated approval to a product for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit but is not itself a measure of clinical benefit. The FDA may also grant accelerated approval for such a condition when the product has an effect on an intermediate clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality ("IMM"), and that is reasonably likely to predict an effect on IMM or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. The FDA has limited experience with accelerated approvals based on intermediate

clinical endpoints but has indicated that such endpoints generally may support accelerated approval where the therapeutic effect measured by the endpoint is not itself a clinical benefit and basis for traditional approval, if there is a basis for concluding that the therapeutic effect is reasonably likely to predict the ultimate clinical benefit of a product. Products granted accelerated approval must meet the same statutory standards for safety and effectiveness as those granted traditional approval.

The accelerated approval pathway is most often used in settings in which the course of a disease is long, and an extended period of time is required to measure the intended clinical benefit of a product, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. The accelerated approval pathway is usually contingent on a sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the product's clinical benefit. As a result, a product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, confirm a clinical benefit during post-marketing studies or dissemination of false or misleading promotional materials would allow the FDA to withdraw the product from the market on an expedited basis. All promotional materials for therapeutic candidates approved under accelerated regulations are subject to prior review by the FDA.

Orphan drug designation

Orphan drug designation in the United States is designed to encourage sponsors to develop products intended for treatment of rare diseases or conditions. In the United States, a rare disease or condition is statutorily defined as a condition that affects fewer than 200,000 individuals in the United States or that affects 200,000 or more individuals in the United States and for which there is no reasonable expectation that the cost of developing and making available the biological product for the disease or condition will be recovered from sales of the product in the United States.

Orphan drug designation qualifies a sponsor for tax credits and the product for market exclusivity for seven years following the date of the product's marketing approval if granted by the FDA. An application for designation as an orphan product can be made any time prior to the filing of an application for approval to market the product. After FDA grants orphan designation, the product must then go through the review and approval process like any other product.

A sponsor may request orphan drug designation of a previously unapproved product or new orphan indication for an already marketed product. In addition, a sponsor of a product that is otherwise the same product as an already approved orphan drug may seek and obtain orphan drug designation for the subsequent product for the same rare disease or condition if it can present a plausible hypothesis that its product may be clinically superior to the first drug. More than one sponsor may receive orphan drug designation for the same product for the same rare disease or condition, but each sponsor seeking orphan drug designation must file a complete request for designation.

If a product with orphan designation receives the first FDA approval for the disease or condition for which it has such designation or for a select indication or use within the rare disease or condition for which it was designated, the product generally will receive orphan drug exclusivity. Orphan drug exclusivity means that the FDA may not approve another sponsor's marketing application for the same product for the same indication for seven years, except in certain limited circumstances. If a product designated as an orphan drug ultimately receives marketing approval for an indication broader than what was designated in its orphan drug application, it may not be entitled to exclusivity.

The period of exclusivity begins on the date that the marketing application is approved by the FDA and applies only to the indication for which the product has been designated. The FDA may approve a second application

for the same product for a different use or a second application for a clinically superior version of the product for the same use. The FDA cannot, however, approve the same product made by another manufacturer for the same indication during the market exclusivity period unless it has the consent of the sponsor, or the sponsor is unable to provide sufficient quantities.

Pediatric exclusivity

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

U.S. patent term extension and marketing exclusivity

In the United States, a patent claiming a new biological product, its method of use or its method of manufacture may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent extension of up to five years for patent term lost during product development and FDA regulatory review. The extension period is typically one-half the time between the effective date of the IND and the submission date of the BLA, plus the time between the submission date of the BLA and the ultimate approval date, except that the review period is reduced by any time during which the applicant failed to exercise due diligence. Patent term extension cannot be used to extend the remaining term of a patent past a total of 14 years from the product's approval date in the United States. Only one patent applicable to an approved product is eligible for the extension, and the application for the extension must be submitted prior to the expiration of the patent for which extension is sought. A patent that covers multiple products for which approval is sought can only be extended in connection with one of the approvals. The United States Patent and Trademark Office ("USPTO") reviews and approves the application for any patent term extension in consultation with the FDA.

Biosimilars and exclusivity

The Biologics Price Competition and Innovation Act of 2009 ("BPCIA") established a regulatory framework authorizing the FDA to approve biosimilars and interchangeable biosimilars. A biosimilar is a biological product that is highly similar to an already FDA-licensed biological product, called the "reference product." The FDA has issued multiple guidance documents outlining an approach to review and approval of biosimilars. Under the BPCIA, a manufacturer may submit an application for licensure of a biologic product that is "biosimilar to" or "interchangeable with" a reference product. In order for the FDA to approve a biosimilar product, it must find that there are no clinically meaningful differences between the reference product and proposed biosimilar product in terms of safety, purity and potency. For the FDA to approve a biosimilar product as interchangeable with a reference product, the agency must find that the biosimilar product can be expected to produce the same clinical results as the reference product, and (for products administered multiple times) that the biosimilar product and the reference product may be switched without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date of approval of the reference product. The FDA may not approve a biosimilar product until 12 years from the date on which the reference product was approved. Even if a product is considered to be a reference product eligible for exclusivity, another company could market a competing version of that product if

the FDA approves a full BLA for such 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 their product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products, which may be substituted by pharmacies for the reference product, subject to state pharmacy law.

Post-approval regulation

If regulatory approval for a product or new indication for an existing product is obtained, the sponsor will be required to comply with all generally applicable post-approval regulatory requirements as well as any specific post-approval requirements that the FDA may impose as part of the approval process. The sponsor will be required to report certain adverse reactions and production problems to the FDA, provide updated safety and efficacy information and comply with advertising and promotional labeling requirements and record-keeping requirements. Manufacturers and certain of their subcontractors must register their establishments with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP regulations. Accordingly, the sponsor and its third-party manufacturers must continue to expend time, money and effort to maintain compliance with cGMP regulations and other regulatory requirements.

Once an approval is granted, the FDA may withdraw the 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 trials to assess new safety risks, or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product;
- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product licenses;
- product recall, seizure or detention, or refusal to permit the import or export of products;
- withdrawal of the product from the market; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates the marketing, labeling, advertising and promotion of prescription biological products placed on the market. This regulation includes, among other things, standards and regulations for direct-to-consumer advertising, communications regarding unapproved uses, industry-sponsored scientific and educational activities and promotional activities involving the internet and social media. Promotional claims about a product's safety or effectiveness are prohibited before it is approved. After approval, a product generally may be promoted for uses or patient populations consistent with the product's prescribing information. In the United States, healthcare professionals are generally permitted to prescribe products for uses that are not approved by the FDA (sometimes called "off-label use") because the FDA does not regulate the practice of medicine. However, FDA regulations restrict manufacturers' communications about off-label uses. Promotional materials for approved biological products generally must be submitted to the FDA in conjunction with their first use.

If a company, including any representative of the company or anyone speaking on behalf of the company, is found to have promoted off-label uses, the company may become subject to adverse public relations and administrative and judicial enforcement by the FDA, the DOJ, or the Office of the Inspector General of the Department of Health and Human Services, as well as state authorities. This could subject a company to a range of penalties that could have a significant commercial impact, including civil and criminal fines and agreements that materially restrict the manner in which a company promotes or distributes its products.

Data privacy and security laws

In the ordinary course of business, we collect, receive, or otherwise process personal data, including information we may collect about participants in our clinical trials. Accordingly, we are, or may be become, subject to numerous data privacy and security obligations, including global, federal, state, and local laws, regulations, guidance, industry standards, external and internal privacy and security policies, contractual requirements and other obligations related to privacy and data security.

Under the federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), the U.S. Department of Health and Human Services ("HHS"), has issued regulations to protect the privacy and security of protected health information ("PHI"), used or disclosed by covered entities including certain healthcare providers, health plans and healthcare clearinghouses. HIPAA also regulates standardization of data content, codes and formats used in healthcare transactions and standardization of identifiers for health plans and providers. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH"), and their regulations, including the final omnibus rule published on January 25, 2013, also imposes certain obligations on the business associates of covered entities and their subcontractors that obtain protected health information in providing services to or on behalf of covered entities. In addition to federal privacy regulations, there are a number of state laws governing confidentiality and security of health information that are applicable to our business. In addition to possible federal administrative, civil and criminal penalties for HIPAA violations, state attorneys general are authorized to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorney's fees and costs associated with pursuing federal civil actions. Accordingly, state attorneys general have brought civil actions seeking injunctions and damages resulting from alleged violations of HIPAA's privacy and security rules. New laws and regulations governing privacy and security may be adopted in the future as well.

Additionally, states, such as California, Virginia and Colorado have recently enacted the consumer privacy laws that grant rights to data subjects and place increased privacy and security obligations on entities handling personal data of consumers or households. While we are not currently subject to laws such as the California Consumer Privacy Act ("CCPA"), some observers note that the CCPA and similar legislation could mark the beginning of a trend toward more stringent privacy legislation in the U.S., which could increase our potential liability and adversely affect our business.

Because of the breadth of these laws and the narrowness of the statutory exceptions under such laws, it is possible that some of our current or future business activities, including certain clinical research, sales and marketing practices and the provision of certain items and services to our customers, could be subject to challenge under one or more of such privacy and data security laws. The heightening compliance environment and the need to build and maintain robust and secure systems to comply with different privacy compliance and/or reporting requirements in multiple jurisdictions could increase the possibility that we may fail to comply fully with one or more of these requirements. If our operations are found to be in violation of any applicable privacy or data security laws or regulations, we may be subject to penalties, including potentially significant criminal, civil and administrative penalties, damages, fines, imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and/or oversight if we become

subject to a consent decree or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations. While there are some exemptions for certain data processed in the context of clinical trials, developments in data privacy and security laws may further complicate compliance efforts. The impact these increasingly stringent laws and evolving regulatory frameworks related to personal data processing may have on us is more fully discussed in the section titled "Risk factors" appearing elsewhere in this prospectus.

Additionally, to the extent we collect personal data from individuals outside of the United States, through clinical trials or otherwise, we are, or may become, subject to foreign data privacy and security laws, such as the European Union's General Data Protection Regulation 2016/679 ("EU GDPR") and other national data protection legislation in force in relevant EEA Member States, and the EU GDPR as it forms part UK law by virtue of section 3 of the European Union (Withdrawal) Act 2018 ("UK GDPR"). Foreign privacy and data security laws impose significant and complex compliance obligations on entities that are subject to those laws, as more fully discussed in the section titled "Risk factors" appearing elsewhere in this prospectus.

Regulation and procedures governing approval of medicinal products outside the United States

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA approval for a product, an applicant will need to obtain the necessary approvals by the comparable foreign regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. For example, the process governing approval of medicinal products in the European Union generally follows the same lines as in the United States. It entails satisfactory completion of preclinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication. It also requires the submission to the relevant competent authorities of a marketing authorization application ("MAA") and granting of a marketing authorization by these authorities before the product can be marketed and sold in the European Union.

Clinical trial approval

In April 2014, the European Union adopted the Clinical Trials Regulation (EU) No 536/2014 ("CTR"), which entered into application on January 31, 2022 repealing and replacing the Clinical Trials Directive 2001/20/EC. The CTR is directly applicable in all European Union Member States meaning no national implementing legislation in each European Union Member State is required. The CTR aims at harmonizing and streamlining the approval of clinical trials in the European Union, simplifying adverse-event reporting procedures, improving the supervision of clinical trials and increasing their transparency. For instance, the CTR provides for a streamlined application procedure via a single-entry point and strictly defined deadlines for the assessment of clinical trial applications. Parties conducting certain clinical trials must, as in the United States, post clinical trial information in the European Union on the Clinical Trials Information System.

PRIME designation in the European Union

The PRIority MEdicines ("PRIME"), scheme is intended to encourage product development in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation reviewed under the centralized procedure. Eligible products must target conditions for which there is an unmet medical need (there is no satisfactory method of diagnosis, prevention or treatment in the European Union or, if there is, the new medicine will bring a major therapeutic advantage) and they must demonstrate the potential to

address the unmet medical need by introducing new methods of therapy or improving existing ones. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies. Many benefits accrue to sponsors of therapeutic candidates with PRIME designation, including but not limited to early and proactive regulatory dialogue with the European Medicines Agency ("EMA"), frequent discussions on clinical trial designs and other development program elements, and potentially accelerated MAA assessment once a dossier has been submitted. Importantly, a dedicated EMA contact and rapporteur from the Committee for Medicinal Products for Human Use ("CHMP") are appointed early in the PRIME scheme facilitating increased understanding of the product at the EMA's Committee level. A kick-off meeting initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies. Where, during the course of development, a medicine no longer meets the eligibility criteria, support under the PRIME scheme may be withdrawn.

Marketing authorization

To obtain a marketing authorization for a product under the European Union regulatory system, an applicant must submit an MAA, either under a centralized procedure administered by the EMA or one of the procedures administered by competent authorities in European Union Member States (decentralized procedure, national procedure, or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the European Union. Regulation (EC) No 1901/2006 provides that prior to obtaining a marketing authorization in the European Union, an applicant must demonstrate compliance with all measures included in an EMA-approved Pediatric Investigation Plan ("PIP"), covering all subsets of the pediatric population, unless the EMA has granted a product-specific waiver, class waiver or a deferral for one or more of the measures included in the PIP. The Paediatric Committee of the EMA ("PDCO"), may grant deferrals for some medicines, allowing a company to delay development of the medicine for children until there is enough information to demonstrate its effectiveness and safety in adults. The PDCO may also grant waivers when development of a medicine for children is not needed or is not appropriate, such as for diseases that only affect the elderly population. The respective requirements for all marketing authorization procedures are laid down in Regulation (EC) No 1901/2006, the so-called Paediatric Regulation. This requirement also applies when a company wants to add a new indication, pharmaceutical form or route of administration for a medicine that is already authorized. Products that are granted a marketing authorization with the results of the pediatric clinical trials conducted in accordance with the PIP (even where such results are negative) are eligible for six months' supplementary protection certificate extension. In the case of orphan medicinal products, a two-year extension of the orphan market exclusivity may be available. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the PIP are developed and submitted.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid for all European Union Member States, as well as the countries of the EFTA Pillar of the European Economic Area (Norway, Iceland and Liechtenstein) ("EEA"). Pursuant to Regulation (EC) No. 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy medicinal products (gene-therapy, somatic cell-therapy or tissue-engineered medicines) and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of cancer, HIV, AIDS, neurodegenerative disorders, diabetes, auto-immune and other immune dysfunctions and viral diseases. The centralized procedure is optional for products containing a new active substance not yet authorized in the European Union, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the European Union. Manufacturers must demonstrate the quality, safety and efficacy of their products to the EMA. The CHMP provides an opinion regarding the MAA. The European Commission grants or refuses a marketing authorization in light of the opinion delivered by the EMA.

Under the centralized procedure, the CHMP is responsible for conducting an initial assessment of a product. The maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Clock stops may extend the timeframe of evaluation of an MAA considerably beyond 210 days. Where the CHMP gives a positive opinion, the EMA provides the opinion together with supporting documentation to the European Commission, who makes the final decision to grant a marketing authorization, which is issued within 67 days of receipt of the EMA's recommendation.

Accelerated evaluation may be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation. If the CHMP accepts such a request, the time limit of 210 days will be reduced to 150 days (excluding clock stops), but it is possible that the CHMP may revert to the standard time limit for the centralized procedure if it determines that it is no longer appropriate to conduct an accelerated assessment.

National marketing authorizations, which are issued by the competent authorities of the Member States of the European Union and only cover their respective territory, are available for products not falling within the mandatory scope of the centralized procedure. Where a product has already been authorized for marketing in a Member State of the European Union, this national authorization can be recognized in other Member States through the mutual recognition procedure. If the product has not received a national authorization in any Member State at the time of application, it can be approved simultaneously in various Member States through the decentralized procedure.

Now that the UK (which comprises Great Britain and Northern Ireland) has left the European Union, Great Britain is no longer covered by centralized marketing authorizations (under the Northern Irish Protocol, centralized marketing authorizations currently continue to be recognized in Northern Ireland). On January 1, 2024, a new International Recognition Procedure was put in place by the UK's medicines regulator, the Medicines and Healthcare products Regulatory Agency ("MHRA"), under which the MHRA may base a decision to grant a marketing authorization on the positive opinion of the EMA or the approval granted by certain other third country regulators. The MHRA also has the power to have regard to marketing authorizations approved in European Union Member States through decentralized or mutual recognition procedures with a view to more quickly granting a marketing authorization in the UK or Great Britain.

Regulatory data protection in the European Union

In the European Union, new chemical entities (including both small molecules and biological medicinal products) approved on the basis of a complete and independent data package, and existing chemical entities for which a previously non-existing therapeutic indication is sought, qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity pursuant to Regulation (EC) No 726/2004, as amended, and Directive 2001/83/EC, as amended. Data exclusivity, if granted, 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, for a period of eight years from the date on which the reference product was first authorized in the European Union. During the additional two-year period of market exclusivity, a generic or biosimilar MAA can be submitted, and the innovator's data may be referenced, but no medicinal product can be marketed until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to authorization, is held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a new chemical entity so that the innovator gains the prescribed period of data exclusivity, another company may

market another version of the product if such company obtained marketing authorization based on an MAA with a complete and independent data package of pharmaceutical tests, preclinical tests and clinical trials.

Patent term extensions in the European Union and other jurisdictions

The European Union also provides for patent term extension through supplementary protection certificates ("SPCs"). The rules and requirements for obtaining an SPC are similar to those in the United States. An SPC may extend the term of a patent for up to five years after its originally scheduled expiration date and can provide up to a maximum of fifteen years of marketing exclusivity for a product. In certain circumstances, the period of SPC protection may be extended for six additional months if pediatric exclusivity is obtained; and in the case of orphan medicinal products, a two-year extension of the orphan market exclusivity may be available. Although SPCs are available throughout the European Union, sponsors must apply on a country-by-country basis. Similar patent term extension rights exist in certain other foreign jurisdictions outside the European Union.

Periods of authorization and renewals

A marketing authorization is valid for five years, in principle, and it may be renewed indefinitely after five years on the basis of a re-evaluation of the risk-benefit balance by the EMA or by the competent authority of the authorizing Member State. To that end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the Common Technical Document in respect of quality, safety and efficacy, including all variations introduced since the marketing authorization was granted, at least nine months before the marketing authorization ceases to be valid. Once renewed, the marketing authorization is valid for an unlimited period, unless the European Commission or the competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal period. Any authorization that is not followed by the placement of the product on the European Union market (in the case of the centralized procedure) or on the market of the authorizing Member State (in the case of a national procedure) within three years after authorization, or which is not placed on the market for a consecutive period of three years at any time during its authorization, ceases to be valid.

Regulatory requirements after marketing authorization

Following approval, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of the medicinal product, and must adhere in strict compliance with the applicable European Union laws, regulations and guidance, including Directive 2001/83/EC, Directive (EU) 2017/157, Regulation (EC) No 726/2004 and the European Commission Guidelines for Good Manufacturing Practice. These include compliance with the European Union's stringent pharmacovigilance or safety reporting rules, pursuant to which post-authorization studies and additional monitoring obligations can be imposed. In addition, the manufacturing of authorized products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the EMA's GMP requirements and comparable requirements of other regulatory bodies in the European Union, which mandate the methods, facilities and controls used in manufacturing, processing and packing of products to assure their safety and identity.

Much like the Anti-Kickback Statue prohibition in the United 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 also prohibited in the European Union. The provision of benefits or advantages to induce or reward improper performance generally is usually governed by the national anti-bribery laws of European Union Member States and the Bribery Act 2010 in the UK. Infringement of these laws could result in substantial fines and imprisonment. EU Directive 2001/83/EC, which is the EU Directive governing medicinal

products for human use, further provides that, where medicinal products are being promoted to persons qualified to prescribe or supply them, no gifts, pecuniary advantages or benefits in kind may be supplied, offered or promised to such persons unless they are inexpensive and relevant to the practice of medicine or pharmacy. This provision has been transposed into the Human Medicines Regulations 2012 and so remains applicable in the UK despite its departure from the European Union.

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

The advertising and promotion of medicinal products is also subject to laws concerning promotion of medicinal products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. All advertising and promotional activities for the product must be consistent with the approved summary of product characteristics, and therefore all off-label promotion is prohibited. Direct-to-consumer advertising of prescription medicines is also prohibited in the European Union. Although general requirements for advertising and promotion of medicinal products are established under European Union directives, the details are governed by regulations in each Member State and can differ from one country to another.

Orphan designation and exclusivity

Regulation (EC) No 141/2000 and Regulation (EC) No. 847/2000 provide that a product can be designated as an orphan product by the European Commission if its sponsor can establish that the product is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition, where either (i) such condition affects not more than five in ten thousand persons in the European Union when the application is made, or (ii) without incentives it is unlikely that the marketing of the product in the European Union would generate sufficient return to justify the necessary investment in its development. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the European Union or, if such method exists, the product will be of significant benefit to those affected by that condition.

An orphan designation provides a number of benefits, including fee reductions, regulatory assistance and the possibility to apply for a centralized marketing authorization. Marketing authorization for an orphan product leads to a ten-year period of market exclusivity being granted following marketing approval of the orphan product. During this market exclusivity period, the EMA, the European Commission or the European Union Member States may only grant a marketing authorization to a "similar medicinal product" for the same therapeutic indication as an authorized orphan product if: (i) a second applicant can establish that its product, although similar to the authorized orphan product, is safer, more effective or otherwise clinically superior; (ii) the marketing authorization holder for the authorized orphan product consents to a second orphan medicinal product application; or (iii) the marketing authorization holder for the authorized orphan product cannot supply enough orphan medicinal product. A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The market exclusivity period for the authorized therapeutic indication may, however, 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, including if the product is sufficiently profitable not to justify market exclusivity. Orphan designation must be requested before

submitting an application for marketing approval. Orphan designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

The aforementioned European Union rules are applicable in the EFTA Pillar of the EEA (Iceland, Liechtenstein and Norway).

Reform of the regulatory framework in the European Union

The European Commission introduced legislative proposals in April 2023 that, if implemented, will replace the current regulatory framework in the European Union for all medicines (including those for rare diseases and for children). The European Commission has provided the legislative proposals to the European Parliament and the European Council for their review and approval and, in April 2024, the European Parliament proposed amendments to the legislative proposals. Once the European Commission's legislative proposals are approved (with or without amendment), they will be adopted into European Union law.

Brexit and the regulatory framework in the United Kingdom

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

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

Coverage and reimbursement

In the United States 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 verekitug and any potential future 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 us to establish or maintain pricing sufficient to realize a sufficient return on our 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.

There is also significant uncertainty related to the insurance coverage and reimbursement of newly approved products and coverage may be more limited than the purposes for which the medicine is approved by the FDA or comparable foreign regulatory authorities. In the United States, the principal decisions about reimbursement for new medicines are typically made by the Centers for Medicare & Medicaid Services ("CMS"), an agency within the HHS. CMS decides whether and to what extent a new medicine will be covered and reimbursed under Medicare and private payors tend to follow CMS to a substantial degree.

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.

Further, net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. 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 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 ("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.

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 verekitug and any potential future 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.

Other healthcare laws

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business that

may constrain the financial arrangements and relationships through which we research, as well as sell, market and distribute any products for which we obtain marketing authorization. Such laws include, without limitation:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, the purchase, lease, order, arrangement, or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. 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 federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act or federal civil monetary penalties;
- the federal civil and criminal false claims laws and civil monetary penalty laws, such as the federal False Claims Act, which impose criminal and civil penalties and authorize civil whistleblower or qui tam actions, against individuals or entities for, among other things: knowingly presenting, or causing to be presented, to the federal government, claims for payment 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. Manufacturers can be held liable under the federal False Claims Act even when they do not submit claims directly to government payors if they are deemed to “cause” the submission of false or fraudulent claims. The federal False Claims Act also permits a private individual acting as a “whistleblower” to bring actions on behalf of the federal government alleging violations of the federal False Claims Act and to share in any monetary recovery;
- HIPAA, which created new federal criminal statutes that prohibit a person from knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false, fictitious, or fraudulent statements or representations in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters; similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. Physician Payments Sunshine Act and its implementing regulations, which requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children’s Health Insurance Program, with specific exceptions, to report annually to CMS information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain other licensed health care practitioners and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members;
- federal government price reporting laws, which require us to calculate and report complex pricing metrics in an accurate and timely manner to government programs; and
- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm customers.

Additionally, we are subject to state and foreign equivalents of each of the healthcare laws and regulations described above, among others, some of which may be broader in scope and may apply regardless of the payor. Many U.S. states have adopted laws similar to the federal Anti-Kickback Statute and False Claims Act, and may apply to our business practices, including, but not limited to, research, distribution, sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental payors, including private insurers. In addition, some states have passed laws that require pharmaceutical companies to comply with the April 2003 Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers and/or the Pharmaceutical Research and Manufacturers of America's Code on Interactions with Healthcare Professionals. Several states also impose other marketing restrictions or require pharmaceutical companies to make marketing or price disclosures to the state and require the registration of pharmaceutical sales representatives. There are ambiguities as to what is required to comply with these state requirements and if we fail to comply with an applicable state law requirement we could be subject to penalties.

Finally, there are state and foreign laws, including for example the European Union General Data Protection Regulation, which became effective May 2018, governing the privacy and security of health information, many of which differ from each other in significant ways and often are not preempted by HIPAA, 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, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations, exclusion from participation in federal and state healthcare programs and responsible individuals may be subject to imprisonment.

Healthcare reform

Payors, whether domestic or foreign, or governmental or private, are developing increasingly sophisticated methods of controlling healthcare costs and those methods are not always specifically adapted for new technologies such as gene therapy and therapies addressing rare diseases such as those we are developing. In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the health care system that could impact our ability to sell our products profitably. For example, in the United States, in 2010 the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the "ACA"), was enacted, which, among other things, subjected biologic products to potential competition by lower-cost biosimilars; increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program; extended the Medicaid Drug Rebate program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations; subjected manufacturers to new annual fees and taxes for certain branded prescription drugs; created a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and provided incentives to programs that increase the federal government's comparative effectiveness research.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted:

- The Budget Control Act of 2011 and subsequence 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. 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.

- On April 13, 2017, CMS, an agency within the HHS, published a final rule that gives states greater flexibility in setting benchmarks for insurers in the individual and small group marketplaces, which may have the effect of relaxing the essential health benefits required under the ACA for plans sold through such marketplaces.
- On March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, previously set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, effective January 1, 2024. Due to the Statutory Pay-As-You-Go Act of 2010, estimated budget deficit increases resulting from the American Rescue Plan Act of 2021, and subsequent legislation, Medicare payments to providers will be further reduced starting in 2025 absent further legislation.

These laws and regulations may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for verekitug and any potential future product candidates for which we may obtain regulatory approval or the frequency with which verekitug or any potential future product candidates is prescribed or used.

Additionally, there has been increasing legislative and enforcement interest in the U.S. with respect to drug pricing practices. Specifically, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, and review the relationship between pricing and manufacturer patient programs.

In August 2022, the Inflation Reduction Act of 2022 (the "IRA") was signed into law. The IRA includes several provisions that may impact our business, depending on how various aspects of the IRA are implemented. Provisions that may impact our business include a $2,000 out-of-pocket cap for Medicare Part D beneficiaries, the imposition of new manufacturer financial liability on most drugs in Medicare Part D, permitting the U.S. government to negotiate Medicare Part B and Part D pricing for certain high-cost drugs and biologics without generic or biosimilar competition, requiring companies to pay rebates to Medicare for 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 orphan designation and for which the only approved indication is for that disease or condition. If a product receives multiple orphan designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The implementation of the IRA is currently subject to ongoing litigation challenging the constitutionality of the IRA's Medicare drug price negotiation program. The effects of the IRA on our business and the healthcare industry in general is not yet known.

In addition, President Biden has issued multiple executive orders that have sought to reduce prescription drug costs. 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.

Individual states in the United States 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.

Employees and human capital resources

As of August 1, 2024, we had 38 full-time employees and three full-time consultants, and 13 of our employees have M.D. or Ph.D. degrees. Within our workforce, 23 employees are engaged in research and development and 15 are engaged in business development, finance, legal, and general management and administration. Our human capital resources objectives include identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. None of our employees are represented by a labor union or covered by a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

Our corporate headquarters is presently located in Waltham, Massachusetts, where we lease and occupy 16,801 square feet of office space. The initial term of the lease expires on November 1, 2027, with an option to extend the lease for an additional three years thereafter. We previously leased and occupied 8,146 square feet of office space and subleased an additional 3,405 square feet of office space in Waltham, Massachusetts. The initial term of this lease and sublease expired on June 30, 2023 and 2024, respectively, with an option to continue each thereafter on a month to month basis unless terminated by either party upon written notice. In July 2024, we provided written notice of our intent to terminate this lease and sublease.

We believe that our leased premises will be sufficient for our needs for the foreseeable future. To meet the future needs of our business, we may lease additional or alternate space, and we believe suitable additional or alternative space will be available in the future on commercially reasonable terms.

Legal proceedings

From time to time, we may become involved in litigation or other legal proceedings. We are not currently a party to any litigation or legal proceedings that, in the opinion of our management, are probable to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on our business, financial condition, results of operations and prospects because of defense and settlement costs, diversion of management resources and other factors.

Management

Executive officers and directors

The following table sets forth the name, age and position of each of our executive officers, directors and director nominees as of August 1, 2024:

Name	Age	Position(s)
Executive officers and employee director		
E. Rand Sutherland, M.D., M.P.H.	55	Chief Executive Officer and Director
Michael Paul Gray, M.B.A.	53	Chief Financial and Operating Officer
Aaron Deykin, M.D.	58	Chief Medical Officer and Head of Research and Development
Adam Houghton, Ph.D., M.B.A.	54	Chief Business Officer
Non-employee directors and director nominee		
Ronald C. Renaud, Jr., M.B.A.(1)	55	Chairman of the Board
Daniella Beckman(3)	46	Director Nominee*
Erez Chimovits, M.B.A., M.Sc.(1)(2)	60	Director
H. Edward Fleming, Jr., M.D.(2)(3)	61	Director
Dayton Misfeldt+	50	Director
Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.(1)(3)	61	Director
Marcella Kuhlman Ruddy, M.D., M.S.(2)	62	Director
Atsushi Sugita, M.B.A.+	50	Director
Andy Wardle, M.B.Ch.B., M.B.A.+	35	Director

(1) Member of the compensation committee.

(2) Member of the nominating and corporate governance committee.

(3) Member of the audit committee.

* Ms. Beckman was appointed to serve as a member of our board of directors, effective upon the effectiveness of the registration statement of which this prospectus is a part.

\+ Mr. Misfeldt, Mr. Sugita and Dr. Wardle have each resigned from our board of directors, effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part.

Executive officers and employee director

E. Rand Sutherland, M.D., M.P.H. Dr. Sutherland has served as our Chief Executive Officer and a member of our board of directors since April 2024. From May 2022 until June 2023, Dr. Sutherland served as Chief Executive Officer of Seeker Biologics Inc., a privately held biotechnology company. Dr. Sutherland served as President of Translate Bio, Inc. (“Translate Bio”), from March 2021 until the company’s acquisition in September 2021. From February 2014 to March 2021, Dr. Sutherland served in various research and development and medical affairs roles at Sanofi, most recently as Senior Vice President and Global Head of Medical Affairs for Sanofi Genzyme from July 2018 to March 2021. Previously, Dr. Sutherland was Professor of Medicine at the University of Colorado and Chief of Pulmonary and Critical Care Medicine at National Jewish Health in Denver, where he

treated patients and led an NIH-funded translational research program in severe asthma. Dr. Sutherland has served as a director of Krystal Biotech, Inc. since January 2022. He previously served on the board of directors of Allakos Inc. from August 2023 until May 2024. Dr. Sutherland holds a B.A. from Oberlin College, an M.P.H. from the Harvard School of Public Health and an M.D. from the University of Chicago. Dr. Sutherland completed his post-doctoral training in Internal Medicine at the University of California, San Francisco, where he also served as Chief Medical Resident, followed by a fellowship in Pulmonary and Critical Care Medicine at the University of Colorado. We believe Dr. Sutherland is qualified to serve as a member of our board of directors because of his scientific and professional background, and his familiarity with our Company as Chief Executive Officer.

Michael Paul Gray, M.B.A. Mr. Gray has served as our Chief Financial Officer and Chief Operating Officer since March 2024. Mr. Gray was Chief Financial Officer and Chief Operating Officer of Carmot Therapeutics, Inc. from June 2023 until February 2024. Mr. Gray was Chief Financial Officer and Chief Operating Officer of Imara, Inc. from April 2019 until March 2023 and Chief Financial Officer and Chief Operating Officer of Arsanis, Inc. from March 2016 until March 2022. Prior to this, Mr. Gray held a number of leadership positions at Curis, Inc., including most recently as Chief Financial Officer and Chief Business Officer from February 2013 until February 2016. Mr. Gray previously served on the board of directors of Therapeutics Acquisition Corporation, from May 2020 until its merger in July 2021. He received his B.S. in business administration (accounting) from Bryant College and an M.B.A. in corporate finance and entrepreneurial management from the F.W. Olin Graduate School of Business at Babson College.

Aaron Deykin, M.D. Dr. Deykin has served as our Chief Medical Officer and Head of Research and Development since April 2022. From March 2020 until April 2022, Dr. Deykin was Senior Vice President of Clinical Sciences overseeing Biostatistics, Statistical Programming, Biomarkers, Clinical Pharmacology, Epidemiology, and Clinical Operations for Biogen, Inc.'s ("Biogen") pipeline globally. Prior to this, Dr. Deykin was a member of the faculty of Medicine at Harvard Medical School and a member of the Pulmonary and Critical Care faculty at Brigham and Women's Hospital from September 1999 until March 2010. In that capacity, he treated patients with asthma and other advanced respiratory diseases while leading the medical activities of the Lung Transplantation Program, directing the Pulmonary Function Testing Laboratory and serving as the Associate Director of the Asthma Research Center. Dr. Deykin has been awarded board certification in Internal Medicine, Pulmonary Disease, and Critical Care Medicine, and holds an M.D. from Harvard Medical School and a B.A. from Dartmouth College.

Adam Houghton, Ph.D., M.B.A. Dr. Houghton has served as our Chief Business Officer since October 2021. From March 2019 until September 2021, Dr. Houghton was Vice President, Corporate Strategy, and Head of AbbVie Ventures, AbbVie Inc.'s corporate venture investment group and served as Senior Director and Head, Immunology Search and Evaluation from February 2015 until March 2019. Prior to this, Dr. Houghton was Senior Director and Head of Search and Evaluation at Biogen from July 2017 until February 2018. From November 2013 until February 2015, Dr. Houghton was Senior Director, Global External Research and Development, BioMedicines and Tailored Therapeutics at Eli Lilly and Company. Prior to this, Dr. Houghton was Section Head, Bone and Inflammation Drug Discovery at Procter & Gamble Pharmaceuticals from April 2000 until July 2005 and Research Assistant at Zeneca (now AstraZeneca) from October 1988 until September 1994. Dr. Houghton received a B.S. from Manchester Metropolitan University, a Ph.D. in Cell and Molecular Biology from the University of Sheffield, performed post-doctoral research at Yale School of Medicine and received an M.B.A. from Xavier University.

Non-employee directors and director nominee

Ronald C. Renaud, Jr., M.B.A. Mr. Renaud is Chair of our board of directors and has been a member of our board of directors since November 2021. Since October 2024, Mr. Renaud has served as President and Chief Executive Officer and a member of the board of directors at Kailera Therapeutics, Inc. Prior to this, Mr. Renaud

served as President and Chief Executive Officer and a member of the board of directors of Cerevel Therapeutics Holdings, Inc. from June 2023 until August 2024. Prior to this, Mr. Renaud was a partner at Bain Capital Life Sciences from September 2022 through June 2023. Prior to this, he served as Chair and Chief Executive Officer of Translate Bio from 2014 until the close of its acquisition by Sanofi in September 2021. Prior to this, Mr. Renaud was at Idenix Pharmaceuticals, Inc. from 2007 through 2014, where he served as Chief Financial Officer, Chief Business Officer and, finally, President and Chief Executive Officer at the time of its acquisition by Merck & Company, Inc. ("Merck"). Prior to this, Mr. Renaud was a biotechnology equity research analyst at J.P. Morgan, Schwab Soundview and Bear Stearns from January 2000 until February 2006. Mr. Renaud also served in various positions at Amgen Inc. from April 1994 until December 1999. Mr. Renaud previously served on the boards of Atara Biotherapeutics, Inc. from April 2020 until December 2022, Ikena Oncology, Inc. from March 2018 until December 2022, Chimerix, Inc. from December 2014 until November 2021, and Akebia Therapeutics, Inc. from September 2014 until December 2018. Mr. Renaud holds a B.A. from St. Anselm College and an M.B.A. from the Marshall School of Business at the University of Southern California. We believe Mr. Renaud is qualified to serve on our board of directors because of his leadership and management experience and his extensive knowledge of the biopharmaceutical industry.

Daniella Beckman. Ms. Beckman was appointed to serve as a member of our board of directors, effective upon the effectiveness of the registration statement of which this prospectus is a part. Ms. Beckman has served as the Chief Financial Officer of Tango Therapeutics, Inc. (Nasdaq: TNGX) since September 2019, where she previously served as interim Chief Financial Officer from October 2016 to September 2019. From November 2015 to September 2019, she provided consulting and interim chief financial officer services for early-stage biotechnology companies. From June 2011 until August 2014, Ms. Beckman served as Chief Financial Officer of Idenix Pharmaceuticals, Inc., where she previously served as Corporate Controller from March 2008 until June 2011. Ms. Beckman has served on the boards of directors of Blueprint Medicines Corporation (Nasdaq: BPMC) since December 2021 and Vor Biopharma Inc. (Nasdaq: VOR) since July 2020, and previously served on the boards of directors of 5:01 Acquisition Corp. from October 2020 to October 2022 and Translate Bio from October 2017 to September 2021. Ms. Beckman holds a B.S. from Boston University. We believe Ms. Beckman is qualified to serve as a member of our board of directors because of her financial expertise and leadership experience in the biopharmaceutical industry.

Erez Chimovits, M.B.A., M.Sc. Mr. Chimovits has been a member of our board of directors since October 2021. Mr. Chimovits is a Partner at OrbiMed, an investment firm, where he has served in various roles of increasing responsibility since November 2010. Mr. Chimovits previously served on the boards of directors of Adicet Bio, Inc. from January 2016 until March 2021, BiomX, Inc. from December 2015 until October 2020, LogicBio Therapeutics, Inc. from January 2016 until December 2020, and Novus Therapeutics, Inc. (now Eledon Pharmaceuticals, Inc) from June 2017 until September 2020. Mr. Chimovits served as Chief Executive Officer of NasVax Ltd. (now SciSparc Ltd.) from January 2007 to November 2010. Previously, Mr. Chimovits served as President of Compugen USA Inc., a subsidiary of Compugen Ltd., from January 2001 to January 2007, and as Executive Vice President in Commercial Operations from December 1999 to January 2007. Mr. Chimovits earned his M.B.A., M.Sc. in Microbiology, and B.Sc. from Tel Aviv University. We believe Mr. Chimovits is qualified to serve as a member of our board of directors because of his professional background in the biopharmaceutical industry.

H. Edward Fleming, Jr., M.D. Dr. Fleming has served on our board of directors since June 2023. Since November 2022, Dr. Fleming has served as the Executive Vice President of Enavate Sciences where he works closely to invest in and build therapeutic companies. From January 1997 until August 2022, Dr. Fleming held multiple positions at McKinsey & Company ("McKinsey"), most recently as Senior Partner and global leader of McKinsey's research and development practice. Dr. Fleming has served on the board of directors of CRISPR Therapeutics AG since June 2021. Dr. Fleming earned his B.A. in Chemistry from Harvard University, his M.D.

from Vanderbilt University, and completed internal medicine training at Johns Hopkins Hospital and subspecialty training in Pulmonary and Critical Care Medicine at the University of California, San Francisco. We believe Dr. Fleming is qualified to serve on our board of directors because of his experience in the healthcare industry, including working closely with biopharmaceutical companies on strategy, operational performance and research and development innovation.

Dayton Misfeldt. Mr. Misfeldt has served on our board of directors since October 2021. Since January 2021, Mr. Misfeldt has served as a Partner at Decheng Capital, an investment firm, and focuses on biopharmaceutical investment opportunities. Previously, Mr. Misfeldt was Managing Director at Bay City Capital, a venture capital firm he worked at from May 2000 to December 2020. Mr. Misfeldt previously served as a member of the board of directors of Sunesis Pharmaceuticals, Inc. ("Sunesis") from April 2009 until December 2020 and as Sunesis' interim Chief Executive Officer from January 2018 until December 2020. Before joining Bay City Capital, Mr. Misfeldt was a Vice President at Roth Capital Partners, where he worked as a sell-side analyst covering the biopharmaceutical industry from October 1997 until April 2000. Mr. Misfeldt received a B.A. in Economics from the University of California, San Diego. We believe that Mr. Misfeldt is qualified to serve as a member of our board of directors because of his venture capital experience in the biopharmaceutical industry. Mr. Misfeldt resigned from our board of directors, effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part. Mr. Misfeldt's resignation was not due to any disagreement with us or any matters relating to our operations, policies or practices.

Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A. Dr. Ratcliffe has served as a member of our board of directors since October 2021. Since April 2019, Dr. Ratcliffe has served as Head of Biotechnology at Access Industries, a privately held industrial group. From September 2008 until March 2019, Dr. Ratcliffe held various positions at New Leaf Venture Partners, most recently as Managing Director. From January 1997 until August 2008, Dr. Ratcliffe was Worldwide Head of Clinical Research and Development at Pfizer Inc. Dr. Ratcliffe has served as a member of the boards of directors of Disc Medicine, Inc. since September 2019 and Eliem Therapeutics, Inc. since October 2019. Previously, Dr. Ratcliffe served as a member of the boards of directors of Arvinas, Inc. from October 2015 until August 2022, Passage Bio, Inc. from September 2019 until March 2022, Unum Therapeutics, Inc. from March 2018 until April 2019, Deciphera Pharmaceuticals, Inc. from September 2017 until March 2019, Aptinyx, Inc. from June 2018 until April 2019 and Edge Therapeutics, Inc. (now PDS Biotechnology Corp.,) from October 2015 until November 2018. Dr. Ratcliffe received an M.B.Ch.B. and a Ph.D. in immunology from University of Cape Town and an M.B.A. from the University of Michigan. We believe Dr. Ratcliffe is qualified to serve as a member of our board of directors because of his extensive clinical development and venture capital experience in the life sciences industry.

Marcella Kuhlman Ruddy, M.D., M.S. Dr. Ruddy has served on our board of directors since January 2023. Since July 2021, Dr. Ruddy has served as Chief Medical Officer at Tectonic Therapeutic, Inc. From June 2016 until June 2021, Dr. Ruddy was at Regeneron Pharmaceuticals, Inc. where she was the Head of Clinical Development for the Immunology/Inflammation Therapeutic Area. Previously, Dr. Ruddy held positions of increasing responsibility, including Head of Early Clinical Development for Immunology, from November 2004 until June of 2014 at Merck. From November 2015 until June 2016, Dr. Ruddy served as Vice President, Clinical Development and Head of Pharmacovigilance at Alnylam Pharmaceuticals, Inc. From June 2014 until November 2014, Dr. Ruddy served as Vice President of Clinical Immunology at EMD Serono, Inc., Merck's healthcare business. From June 1996 until October 2004, Dr. Ruddy held a staff position in the Pulmonary Unit at Massachusetts General Hospital/Harvard Medical School where she founded and directed the Adult Cystic Fibrosis Program. Dr. Ruddy holds a B.A. from Princeton University and a M.D. and M.S. from Washington University, St. Louis and completed her Internal Medicine and Pulmonary fellowship training at Harvard Medical School affiliated hospitals. We believe Dr. Ruddy is qualified to serve as a member of our board of directors because of her extensive experience in both drug development and the biopharmaceutical industry.

Atsushi Sugita, M.B.A. Mr. Sugita has served on our board of directors since December 2021. Since December 2020, Mr. Sugita has served as President and Chief Executive Officer of Maruho Co., Ltd. ("Maruho"), a privately held Japanese pharmaceutical company. Mr. Sugita has served on the board of directors of Maruho since December 2014 and as Executive Vice President from January 2020 until December 2020. From December 2016 until October 2018, Mr. Sugita served as Maruho's Senior Corporate Officer in charge of Global Strategy and Business Development, Finance and Accounting, and Human Resources and from October 2018 until January 2020, he served as Executive Corporate Officer of Business Operations & Administration. From July 2005 until February 2012, Mr. Sugita was employed by Janssen Pharmaceutical K.K. in Japan in managerial positions in corporate planning and marketing, and was dispatched to Johnson & Johnson in the U.S. from September 2008 until August 2009. Mr. Sugita has a bachelor's degree in economics from Kyoto University and an M.B.A. from the Kellogg School of Management at Northwestern University. We believe Mr. Sugita is qualified to serve as a member of our board of directors because of his experience serving as an officer of a pharmaceutical company. Mr. Sugita resigned from our board of directors, effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part. Mr. Sugita's resignation was not due to any disagreement with us or any matters relating to our operations, policies or practices.

Andy Wardle, M.B.Ch.B., M.B.A. Dr. Wardle has served as a member of our board of directors since December 2023. Since September 2021, Dr. Wardle has served as an investor in late-stage biotechnology at Venrock Healthcare Capital Partners. From January 2019 until August 2021, Dr. Wardle served as director of clinical development at Mirum Pharmaceuticals, Inc. From August 2015 until May 2017, Dr. Wardle served as senior associate in the healthcare practice at Boston Consulting Group (London). From August 2013 until July 2015, Dr. Wardle was a practicing physician in London at Hammersmith Hospital. Dr. Wardle has an M.B.Ch.B. and B.S. from the University of Bristol and an M.B.A. from Stanford Graduate School of Business. We believe Dr. Wardle is qualified to serve as a member of our board of directors because of his investment experience in biotechnology. Dr. Wardle resigned from our board of directors, effective immediately prior to the effectiveness of the registration statement of which this prospectus forms a part. Dr. Wardle's resignation was not due to any disagreement with us or any matters relating to our operations, policies or practices.

Composition of our board of directors

Our board currently consists of seven members, each of whom are members pursuant to the board composition provisions of our second amended and restated certificate of incorporation and agreements with our stockholders. These board composition provisions will terminate upon the completion of this offering. Upon the termination of these provisions, there will be no further contractual obligations regarding the election of our directors. Our nominating and corporate governance committee and our board of directors may therefore consider a broad range of factors relating to the qualifications and background of nominees. Our nominating and corporate governance committee's and our board of directors' priority in selecting board members is identification of persons who will further the interests of our stockholders through their established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape, professional and personal experiences, and expertise relevant to our growth strategy. Our directors hold office until their successors have been elected and qualified or until the earlier of their resignation or removal. Our third amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, and second amended and restated bylaws, which will became upon the effectiveness of the registration statement of which this prospectus forms a part, also provide that our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds of the votes that all our stockholders would be entitled to cast in an annual election of directors, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

Director independence

Our board of directors has determined that all members of the board of directors, except Dr. Sutherland, our Chief Executive Officer, are independent directors, including for purposes of the rules of the Nasdaq Global Select Market ("Nasdaq") and the Securities and Exchange Commission ("SEC"). Our board of directors also determined that Ms. Beckman, who has been appointed to serve as a member of our board of directors effective upon the effectiveness of the registration statement of which this prospectus is a part, is an independent director. In making such independence determination, our board of directors considered the relationships that each non-employee director and director nominee has with us and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director and director nominee. In considering the independence of the directors and director nominee listed above, our board of directors considered their association with the holders of more than 5% of our common stock. Upon the completion of this offering, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of Nasdaq and the rules and regulations of the SEC. Dr. Sutherland is not an independent director under these rules because he is the Chief Executive Officer of the Company.

Family relationships

There are no family relationships among any of our executive officers or directors.

Staggered board

In accordance with the terms of our third amended and restated certificate of incorporation, to be in effect immediately prior to the completion of this offering, and second amended and restated bylaws, which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, our board of directors will be divided into three staggered classes of directors and each will be assigned to one of the three classes. At each annual meeting of the stockholders, a class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2025 for Class I directors, 2026 for Class II directors and 2027 for Class III directors.

- Our Class I directors will be Erez Chimovits, M.B.A., M.Sc. and Marcella Kuhlman Ruddy, M.D., M.S.
- Our Class II directors will be H. Edward Fleming, Jr., M.D. and Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.
- Our Class III directors will be Daniella Beckman, Ronald C. Renaud, Jr., M.B.A. and E. Rand Sutherland, M.D., M.P.H.

Our third amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, and second amended and restated bylaws, which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, provide that the number of our directors shall be fixed from time to time by a resolution of the majority of our board of directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in control.

Board leadership structure

Currently, the role of chairperson of the board of directors is separated from the role of Chief Executive Officer. Our Chief Executive Officer is responsible for recommending strategic decisions and capital allocation to the board of directors and to ensure the execution of the recommended plans. The chairperson of the board of

directors is responsible for leading the board of directors in its fundamental role of providing advice to and independent oversight of management. Our board of directors recognizes the time, effort and energy that the Chief Executive Officer is required to devote to his position in the current business environment, as well as the commitment required to serve as our chairperson, particularly as the board of directors' oversight responsibilities continue to grow. While our second amended and restated bylaws and corporate governance guidelines do not require that our chairperson and Chief Executive Officer positions be separate, our board of directors believes that having separate positions is the appropriate leadership structure for us at this time and demonstrates our commitment to good corporate governance.

Role of the board in risk oversight

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including the risks relating to our financial condition, development and commercialization activities, operations, strategic direction, and intellectual property as more fully discussed in the section titled "Risk factors" included elsewhere in this prospectus. Management is responsible for the day-to-day management of risks we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, our board of directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed.

The role of the board of directors in overseeing the management of our risks is conducted primarily through committees of the board of directors, as disclosed in the descriptions of each of the committees below and in the charters of each of the committees. The full board of directors (or the appropriate board committee in the case of risks that are under the purview of a particular committee) discusses with management our major risk exposures, their potential impact on us, and the steps we take to manage them. When a board committee is responsible for evaluating and overseeing the management of a particular risk or risks, the chairperson of the relevant committee reports on the discussion to the full board of directors during the committee reports portion of the next board meeting. This enables the board of directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

Committees of our board of directors

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which operates pursuant to a charter to be adopted by our board of directors that became effective upon the effectiveness of the registration statement of which this prospectus is a part. The board of directors may also establish other committees from time to time to assist the Company and the board of directors. The composition and functioning of all of our committees will comply with all applicable requirements of the Sarbanes-Oxley Act of 2002, as amended (the "Sarbanes-Oxley Act"), Nasdaq and SEC rules and regulations, if applicable. Each committee's charter is available on our website at www.upstreambio.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Audit committee

Ms. Beckman, Dr. Fleming and Dr. Ratcliffe serve on the audit committee, which is chaired by Ms. Beckman. Our board of directors has determined that each member of the audit committee is "independent" for audit committee purposes as that term is defined by the rules of the SEC and Nasdaq, and that each has sufficient knowledge in financial and auditing matters to serve on the audit committee. Our board of directors has

designated Ms. Beckman as an “audit committee financial expert,” as defined under the applicable rules of the SEC. The audit committee’s responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending, based upon the audit committee’s review and discussions with management and our independent registered public accounting firm, whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions;
- reviewing quarterly earnings releases; and
- reviewing our major risk exposures, including financial, operational, cybersecurity, competition, legal and regulatory exposures.

Compensation committee

Mr. Chimovits, Dr. Ratcliffe and Mr. Renaud serve on the compensation committee, which is chaired by Mr. Renaud. Our board of directors has determined that each member of the compensation committee is “independent” as defined in the Nasdaq listing standards. The compensation committee’s responsibilities include:

- annually reviewing and recommending to the board of directors the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and based on such evaluation (i) reviewing and recommending to the board of directors the cash compensation of our Chief Executive Officer, and (ii) reviewing and recommending to the board of directors grants and awards to our Chief Executive Officer under equity-based plans;
- reviewing and approving the compensation of our other executive officers;

- developing and implementing compensation policies and plans;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq listing rules;
- retaining and approving the compensation of any compensation advisors;
- reviewing and recommending to the board of directors our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing our compensation committee report if and when required by SEC rules;
- reviewing and discussing annually with management our Compensation Discussion and Analysis, if and when required, to be included in our annual proxy statement; and
- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Nominating and corporate governance committee

Mr. Chimovits, Dr. Fleming and Dr. Ruddy serve on the nominating and corporate governance committee, which is chaired by Dr. Ruddy. Our board of directors has determined that each member of the nominating and corporate governance committee is "independent" as defined in the Nasdaq listing standards. The nominating and corporate governance committee's responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership, including any specific qualities or skills, and reassessing such criteria on an ongoing basis;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines;
- reviewing and discussing with the board of directors succession plans for our key officers; and
- overseeing the evaluation of our board of directors, its committees and management.

Compensation committee interlocks and insider participation

None of the members of our compensation committee is currently, or has at any time during the prior three years been, one of our officers or employees. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Corporate governance

We have adopted a written code of business conduct and ethics that applies to our directors, officers, and employees, including our principal executive officer, principal financial officer, principal accounting officer, or controller, or persons performing similar functions. A current copy of this code is posted on the Corporate Governance section of our website, which is located at www.upstreambio.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K.

Limitations on liability and indemnification agreements

As permitted by Delaware law, provisions in our third amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, and second amended and restated bylaws, which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, limit or eliminate the personal liability of directors and officers for a breach of their fiduciary duty of care as a director or officer. The duty of care generally requires that, when acting on behalf of the corporation, a director and or officer exercise an informed business judgment based on all material information reasonably available to him or her. Consequently, a director or officer will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director or officer, except for liability for:

- any breach of the director or officer's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- for our directors, unlawful payments of dividends or unlawful stock repurchases, or redemptions as provided in Section 174 of the Delaware General Corporation Law ("DGCL");
- for our officers, any derivative action by or in the right of the corporation; or
- any transaction from which the director or officer derived an improper personal benefit.

These limitations of liability do not limit or eliminate our rights or any stockholder's rights to seek non-monetary relief, such as injunctive relief or rescission. These provisions will not alter a director or officer's liability under other laws, such as the federal securities laws or other state or federal laws. Our third amended and restated certificate of incorporation that will become effective upon the completion of this offering also authorizes us to indemnify our officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Delaware law, our second amended and restated bylaws provide that:

- we will indemnify our directors, officers, employees and other agents to the fullest extent permitted by law;
- we must advance expenses to our directors and officers, and may advance expenses to our employees and other agents, in connection with a legal proceeding to the fullest extent permitted by law; and
- the rights provided in our second amended and restated bylaws are not exclusive.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director or officer, then the liability of our directors or officers will be so eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our second amended and restated bylaws also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our second amended and restated bylaws permit such indemnification. We have obtained such insurance.

In addition to the indemnification provided for in our third amended and restated certificate of incorporation and second amended and restated bylaws, we have entered into separate indemnification agreements with each of our directors and executive officers, which are broader than the specific indemnification provisions contained in the DGCL. These indemnification agreements may require us, among other things, to indemnify our directors and executive officers for some expenses, including attorneys' fees, expenses, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of his service as one of our directors or executive officers or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers.

This description of the indemnification provisions of our third amended and restated certificate of incorporation, our second amended and restated bylaws and our indemnification agreements is qualified in its entirety by reference to these documents, each of which is attached as an exhibit to the registration statement of which this prospectus forms a part.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable.

There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

Compensation recovery

In connection with this offering, we have adopted a compensation recovery policy that applies to our officers. Under the Sarbanes-Oxley Act, in the event of misconduct that results in a financial restatement that would have reduced a previously paid incentive amount, we can recoup those improper payments from our chief executive officer and chief financial officer. The SEC also recently adopted rules which direct national stock exchanges to require listed companies to implement policies intended to recoup bonuses paid to executives if the company is found to have misstated its financial results.

Executive compensation

The following discussion contains forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding our future compensation programs. The actual amount and form of compensation and the compensation policies and practices that we adopt in the future may differ materially from currently planned programs as summarized in this discussion.

As an emerging growth company and smaller reporting company, we have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies," as such term is defined in the rules promulgated under the Securities Act. The compensation provided to our named executive officers for the fiscal year ended December 31, 2023 is detailed in the 2023 Summary Compensation Table and accompanying footnotes and narrative that follow. Further, the employment terms ended for each of Mses. Truex and Beachell following the end of fiscal year ended December 31, 2023. Our named executive officers for the fiscal year ended December 31, 2023 are:

- Samantha Truex, Former Chief Executive Officer;
- Aaron Deykin, M.D., Chief Medical Officer; and
- Jennifer Beachell, Former Chief Operating Officer.

To date, the compensation of our named executive officers has consisted of a combination of base salary, cash bonuses and long-term incentive compensation in the form of stock options. Our named executive officers, like all of our full-time employees, are eligible to participate in our health and welfare benefit plans and 401(k) plan. As we transition from a private company to a publicly traded company, we intend to evaluate our compensation values and philosophy and compensation plans and arrangements as circumstances require.

2023 summary compensation table

The following table shows the total compensation earned by, or paid to, our named executive officers for services rendered to us in all capacities during the fiscal year ended December 31, 2023.

Name and principal position	Year	Salary ($)	Bonus ($)	Option awards[1] ($)	Non-equity incentive plan compensation[2] ($)	All other compensation[3] ($)	Total ($)
Samantha Truex *Former Chief Executive Officer*[4]	2023	475,000	—	943,227	235,125	9,900	1,663,252
Aaron Deykin, M.D. *Chief Medical Officer*	2023	470,000	50,000[5]	86,540	206,800	9,900	823,240
Jennifer Beachell *Former Chief Operating Officer*[6]	2023	374,000	—	204,319	143,990	8,394	730,703

(1) The amounts reported in this column represent the aggregate grant date fair value of stock options granted to the named executive officers during 2023, as calculated in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 718. Such grant date value does not take into account any estimated forfeitures related to service-based vesting conditions. The assumptions used in the grant date fair value of the awards in this column are described in Note 10 to our consolidated financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these stock option awards and do not correspond to the actual economic value that may be received by our named executive officers upon the exercise of the stock option awards or any sale of the underlying shares. These awards are described in more detail in the section titled "Narrative disclosure to summary compensation table—Equity-based compensation" below.

(2) The amounts reported represent annual performance bonuses earned based on achievement of company performance during the year ended December 31, 2023. For more information on these bonuses, see description of the annual performance bonuses under the section titled "Narrative disclosure to summary compensation table—2023 non-equity compensation (cash bonuses)" below.

(3) The amounts reported represent an employer matching contribution on the employee's behalf under our 401(k) plan.

(4) Ms. Truex ceased being our Chief Executive Officer in March 2024.

(5) The amount reported represents a $50,000 signing bonus paid to Dr. Deykin in connection with the commencement of his employment pursuant to the terms of his offer letter, as described below under the section titled "Executive compensation arrangements—Employment compensation arrangements in place prior to the offering for our named executive officers, and our current Chief Executive Officer and Chief Financial and Operating Officer."

(6) Ms. Beachell ceased being our Chief Operating Officer in March 2024.

Narrative disclosure to summary compensation table

Compensation philosophy

Our executive compensation philosophy is to provide a competitive and market-based total compensation program to attract, motivate, and retain our executive team. Our compensation is based heavily on performance, which aligns with our goal to drive long-term growth and value creation.

2023 base salaries

Our named executive officers each receive a base salary to compensate them for services rendered to our Company. The base salary payable to each named executive officer is intended to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities. Base salaries are expected to be reviewed annually, typically in connection with our annual performance review process, approved by our board of directors or the compensation committee of the board of directors, and may be adjusted from time to time to realign salaries with market levels after taking into account individual responsibilities, performance and experience, except in the case of Dr. Deykin whose base salary may be subject to upward adjustment from time to time at the Company's discretion.

The annual base salaries for each of our named executive officers for the fiscal year ended December 31, 2023 are set forth in the table below:

Name	Annual base salary
Samantha Truex	$ 475,000
Aaron Deykin, M.D.	$ 470,000
Jennifer Beachell	$ 374,000

2023 non-equity compensation (cash bonuses)

For the fiscal year ended December 31, 2023, each of the named executive officers was eligible to earn an annual cash bonus determined by our board of directors in its sole discretion, based on achievement of certain corporate performance milestones primarily focused on the advancement of our program and completion of financing strategies. The target annual bonus for each of our named executive officers for the fiscal year ended December 31, 2023 was equal to the percentage of the executive's respective annual base salary specified below:

Name	Target bonus percentage
Samantha Truex	45%
Aaron Deykin, M.D.	40%
Jennifer Beachell	35%

In the first quarter of 2024, our board of directors determined that we had achieved 110% of our performance goals for 2023 and, accordingly, paid each of our named executives officers a bonus as specified in the Summary Compensation Table above.

Equity-based compensation

Although we do not yet have a formal policy with respect to the grant of equity incentive awards to our executive officers, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executives and our stockholders. In addition, we believe that equity grants promote executive retention because they incentivize our executive officers to remain in our employment during the vesting period. To date, we have granted our named executive officers stock option awards.

For additional information regarding outstanding equity awards held by our named executive officers as of December 31, 2023, see the "Outstanding equity awards at 2023 fiscal year end" table below.

401(k) plan

We maintain a retirement savings plan ("401(k) plan") that is intended to qualify for favorable tax treatment under Section 401(a) of the Code, and contains a cash or deferred feature that is intended to meet the requirements of Section 401(k) of the Code. U.S. employees are generally eligible to participate in the 401(k) plan, subject to certain criteria. Participants may make pre-tax and certain after-tax (Roth) salary deferral contributions to the plan from their eligible earnings up to the statutorily prescribed annual limit under the Code. Participants who are 50 years of age or older may contribute additional amounts based on the statutory limits for catch-up contributions. Participant contributions are held in trust as required by law. We make matching contributions equal to 50% of each participant's elective deferrals on the first 6% of the participant's compensation.

Outstanding equity awards at 2023 fiscal year end

The following table lists all outstanding equity awards held by our named executive officers as of December 31, 2023.

		Option awards[1]			
Name	Vesting commencement date	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price ($)	Option expiration date
Samantha Truex	10/13/2021[2][3]	628,952	—	$ 3.45	01/01/2032
	02/14/2023[2][4]	429,250	—	$ 3.45	01/01/2032
	03/02/2023[2][4]	38,254	—	$ 4.27	03/01/2033
	08/10/2023	—	262,250	$ 4.87	08/13/2033
Aaron Deykin, M.D.	04/27/2022	116,521	163,132	$ 3.45	06/03/2032
	02/14/2023	—	182,431	$ 3.45	06/03/2032
	03/03/2023	—	16,258	$ 4.27	03/02/2033
	08/10/2023	—	11,853	$ 4.87	08/09/2033
Jennifer Beachell	11/29/2021	85,678	78,823	$ 3.45	01/01/2032
	07/21/2022	8,739	15,936	$ 2.96	09/15/2032
	02/14/2023	—	107,312	$ 3.45	01/01/2032
	03/03/2023	—	55,232	$ 4.27	03/02/2033
	08/10/2023	—	11,853	$ 4.87	08/09/2033

(1) Each stock option award is subject to the terms of the Company's 2021 Stock Option and Grant Plan, as amended (the "2021 Plan"). Each stock option vests as follows: 25% of the shares subject to the stock option vested on the one year anniversary of the vesting commencement date, and the remaining 75% of the shares subject to the stock option vest on a monthly basis thereafter, in each case, subject to the NEO's continuous service relationship with the company through each applicable vesting date. Each stock option is subject to acceleration in the event of a qualified termination within the change in control period, as described below under the section titled "—Executive compensation arrangements—Employment compensation arrangements in place prior to the offering for our named executive officers, and our current Chief Executive Officer and Chief Financial and Operating Officer."

(2) Each stock option was early exercisable.

(3) As of December 31, 2023, 327,363 shares subject to this stock option were vested and 301,588 shares were unvested.

(4) As of December 31, 2023, all of the shares underlying this stock option were unvested.

Executive compensation arrangements

We have entered into an employment agreement or offer letter with each of our named executive officers. Each employment agreement or offer letter provides for "at-will" employment and the compensation and benefits described below. In connection with this offering, we have entered into a new severance and change in control plan which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, in which Dr. Deykin participates.

Employment compensation arrangements in place prior to the offering for our named executive officers, and our current Chief Executive Officer and Chief Financial and Operating Officer

Samantha Truex

On October 14, 2021, we entered into an executive employment agreement with Ms. Truex (the "Truex Employment Agreement") for the position of Chief Executive Officer. The Truex Employment Agreement provided for Ms. Truex's at-will employment, base salary and annual bonus eligibility, as well as a signing bonus of $125,000 and an initial option grant, which is reflected in the "Outstanding equity awards at 2023 fiscal year end" table above. The Truex Employment Agreement provides that Ms. Truex was eligible to participate in the employee benefit plans available to our employees, subject to the terms of such plans.

Upon a termination of Ms. Truex's employment by us without "cause" or her resignation for "good reason," each as defined in the Truex Employment Agreement, more than one month prior to a "change in control" (each term as defined in the Truex Employment Agreement) or more than twelve months following a change in control, subject to (i) signing a general release of claims in favor of the Company and (ii) not breaching any of the post-employment covenants and contractual obligations to the Company, Ms. Truex is entitled to (A) continued payment of her then current base salary for a period of twelve months and (B) if Ms. Truex was participating in the Company's group health plan immediately prior to the termination date and timely elects continuation coverage under the Consolidated Omnibus Budget Reconciliation Act ("COBRA"), a monthly payment equal to the monthly employer contribution that the Company would have made to provide health insurance to Ms. Truex had Ms. Truex remained employed by the Company until the earliest of (a) the twelve-month anniversary of the date of termination; (b) Ms. Truex's eligibility for group health plan benefits under any other employer's group health plan; or (c) cessation of the continuation rights under COBRA and (C) a single lump sum payment equal to 100% of Ms. Truex's target bonus for the calendar year in which termination of employment occurs (collectively, the "Truex Severance Benefits"). In addition, and subject to the same conditions, upon a termination by us without cause or Ms. Truex's resignation for good reason within one month prior to, or within twelve months after, a change in control, in addition to the severance pay and benefits set forth in (A), (B) and (C) above, Ms. Truex is entitled to full acceleration of her then outstanding and unvested time-based equity awards.

Ms. Truex has entered into a Proprietary Rights, Inventions, Non-Competition, and Non-Solicitation Agreement that contains various restrictive covenants, including non-competition and non-solicitation.

Ms. Truex's employment was terminated as of March 22, 2024. In connection with such termination, we entered into a separation agreement with Ms. Truex, dated as of March 13, 2024 (the "Truex Separation Agreement"), including a release of claims, providing for (i) the Truex Severance Benefits, (ii) acceleration of her then outstanding and unvested time-based equity awards granted on August 14, 2023, such that options to purchase 38,245 shares vested as of the date of termination, (iii) an extension of the exercise period of Ms. Truex's vested options from 90 days to 24 months from the date of termination, provided that such period may be shortened consistent with the provisions of the applicable equity documents in the event of a change of control or sale event and (iv) a reimbursement of legal fees of up to $10,000 incurred in connection with the review of the Truex Separation Agreement.

Aaron Deykin, M.D.

On March 10, 2022, we entered into an offer letter with Dr. Deykin (the "Deykin Offer Letter") for the position of Chief Medical Officer and Head of Research and Development. The Deykin Offer Letter provides for Dr. Deykin's at-will employment, base salary and annual bonus eligibility. In addition, the Deykin Offer Letter provides for a $100,000 signing bonus, payable in two equal installments, with the first such installment having been paid shortly following Dr. Deykin's commencement of employment with us and the remainder becoming payable one year thereafter, subject to Dr. Deykin's continued employment with us through such date. The Deykin Offer Letter also provides for an initial option grant, which is reflected in the "Outstanding equity awards at 2023 fiscal year end" table above. Dr. Deykin is eligible to participate in the employee benefit plans available to our senior executives, subject to the terms of such plans.

Upon a termination of Dr. Deykin's employment by us without "cause" or his resignation for "good reason" more than three months prior to a "change in control" (each term as defined in the Deykin Offer Letter) or more than twelve months following a change in control, subject to (i) signing a general release of claims in favor of the Company and (ii) not breaching any of the post-employment covenants and contractual obligations to the Company, Dr. Deykin shall be entitled to (A) continued payment of his then current base salary for a period of

six months, (B) if Dr. Deykin was participating in the Company's group health plan immediately prior to the termination date and timely elects continuation coverage under COBRA, a monthly payment equal to the monthly employer contribution that the Company would have made to provide health insurance to Dr. Deykin had Dr. Deykin remained employed by the Company until the earliest of (a) the six-month anniversary of the date of termination; (b) Dr. Deykin's eligibility for group health plan benefits under any other employer's group health plan; or (c) cessation of the continuation rights under COBRA and (C) a single lump sum payment equal to the prorated amount of Dr. Deykin's target bonus for the calendar year in which termination of employment occurs. In addition, and subject to the same conditions, upon a termination by us without cause or Dr. Deykin's resignation for good reason within three months prior to, or within twelve months after, a change in control, in addition to the severance pay and benefits set forth in (A), (B) and (C) above, Dr. Deykin shall be entitled to full acceleration of his then outstanding and unvested time-based equity awards.

Dr. Deykin has entered into an Employee Confidentiality, Assignment, Nonsolicitation and Noncompetition Agreement that contains various restrictive covenants, including confidentiality, non-competition and non-solicitation.

In connection with this offering, we have entered into a new employment agreement with Dr. Deykin providing for substantially similar terms as described above, except that such employment agreement does not provide severance benefits. However, Dr. Deykin is eligible to participate in our severance and change in control plan, as further described below.

Jennifer Beachell

On November 1, 2021, we entered into an offer letter with Ms. Beachell (the "Beachell Offer Letter") for the position of Chief Commercial Officer. The Beachell Offer Letter provided for Ms. Beachell's at-will employment, base salary and annual bonus eligibility. The Beachell Offer Letter also provides for an initial option grant, which is reflected in the "Outstanding equity awards at 2023 fiscal year end" table above. The Beachell Offer Letter provides that Ms. Beachell is eligible to participate in the employee benefit plans available to our senior executives, subject to the terms of such plans.

Upon a termination of Ms. Beachell's employment by us without "cause" or her resignation for "good reason" more than one month prior to a "change in control" (each term as defined in the Beachell Offer Letter) or more than twelve months following a change in control, subject to (i) signing a general release of claims in favor of the Company and (ii) not breaching any of the post-employment covenants and contractual obligations to the Company, Ms. Beachell was entitled to (A) continued payment of her then current base salary for a period of six months, (B) if Ms. Beachell was participating in the Company's group health plan immediately prior to the termination date and timely elects continuation coverage under COBRA, a monthly payment equal to the monthly employer contribution that the Company would have made to provide health insurance to Ms. Beachell had Ms. Beachell remained employed by the Company until the earliest of (a) the six-month anniversary of the date of termination; (b) Ms. Beachell's eligibility for group health plan benefits under any other employer's group health plan; or (c) cessation of the continuation rights under COBRA and (C) a single lump sum payment equal to the prorated amount of Ms. Beachell's target bonus for the calendar year in which termination of employment occurs and the payment of any earned but unpaid annual bonus for the year prior to the year in which termination occurs (collectively, the "Beachell Severance Benefits"). In addition, and subject to the same conditions, upon a termination by us without cause or Ms. Beachell's resignation for good reason within one month prior to, or within twelve months after, a change in control, in addition to the severance pay and benefits set forth in (A), (B) and (C) above, Ms. Beachell is entitled to full acceleration of her then outstanding and unvested time-based equity awards.

Ms. Beachell has entered into an Employee Confidentiality, Assignment, Nonsolicitation and Noncompetition Agreement that contains various restrictive covenants, including confidentiality, non-competition and non-solicitation.

Ms. Beachell's employment was terminated as of March 8, 2024. In connection with her termination of employment, we entered into a separation agreement with Ms. Beachell, including a release of claims, providing for (i) the Beachell Severance Benefits, (ii) the extension of the post-termination exercise period of certain stock options held by Ms. Beachell from 90 days to twelve months, provided that such period may be shortened consistent with the provisions of the applicable equity documents in the event of a change of control or sale event and (iii) reimbursement for outplacement costs in an amount not to exceed $5,000.

Current employment agreements with E. Rand Sutherland, M.D., M.P.H., our Chief Executive Officer, and Michael Paul Gray, M.B.A., our Chief Financial and Operating Officer

Prior to this offering, we entered into employment agreements with E. Rand Sutherland, M.D., M.P.H., our current Chief Executive Officer, and Michael Paul Gray, M.B.A., our current Chief Financial and Operating Officer, setting forth terms of at-will employment, including base salary, annual target bonus eligibility, initial equity grants and severance upon a termination of employment without cause or resignation for good reason, each as defined in the applicable agreement filed as an exhibit to the registration statement of which this prospectus is part. Further, each executive entered into an Employee Confidentiality, Assignment, Nonsolicitation and Noncompetition Agreement, that contains various restrictive covenants, including confidentiality, noncompetition and non-solicitation.

Amended and restated employment agreements

Effective as of and subject to the closing of this offering, we entered into new employment agreements with Dr. Sutherland, Mr. Gray and Dr. Deykin (each, an "Amended Employment Agreement," and collectively, the "Amended Employment Agreements") that supersede in all respects all prior employment agreements, offer letters and severance agreements between Dr. Sutherland, Mr. Gray and Dr. Deykin and us, including those summarized above.

Under the Amended Employment Agreements, each of Dr. Sutherland, Mr. Gray and Dr. Deykin will continue to serve in their respective roles on an at-will basis. The Amended Employment Agreements provide for each of Dr. Sutherland, Mr. Gray and Dr. Deykin's initial Base Salary (as defined in the applicable Amended Employment Agreement) of $630,000, $460,000, and $488,800, respectively, target annual bonus eligibility of 50%, 40%, and 40% of base salary, respectively, and continued compliance with restrictive covenants. In addition, each such executive is eligible to participate in our severance and change in control plan, as further described below, which is filed as an exhibit to the registration statement of which this prospectus is a part.

Employee benefit and equity compensation plans

2021 stock option and grant plan

Our 2021 Stock Option and Grant Plan was adopted by our board of directors on December 7, 2021 and approved by our stockholders on January 19, 2022. On March 13, 2024, our board of directors adopted and our stockholders approved an amendment to the 2021 Stock Option and Grant Plan (as amended, the "2021 Plan"). The 2021 Plan will continue to govern outstanding equity awards granted thereunder. As of June 30, 2024, 74,027 shares of our common stock remained available for future issuance under the 2021 Plan. Following this offering, we will not grant any further awards under our 2021 Plan, but all outstanding awards under the 2021 Plan will continue to be governed by their existing terms.

The shares of common stock underlying any awards under the 2021 Plan that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of stock or otherwise terminated (other than by exercise) and shares withheld upon exercise of an option or settlement of an award to cover the

exercise price or tax withholding, are currently added back to the shares of common stock available for issuance under the 2021 Plan. Following this offering, such shares will be added to the shares of common stock available for issuance under the 2024 Plan.

Our board of directors and our compensation committee have acted as administrators of the 2021 Plan. The administrator has the full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted and the number of shares subject to such awards, to make any combination of awards to participants, to accelerate at any time the exercisability or vesting of any award and to determine the specific terms and conditions of each award, subject to the provisions of the 2021 Plan. Persons eligible to participate in the 2021 Plan are officers, employees, non-employee directors, consultants and advisors as selected from time to time by the administrator in its discretion.

The 2021 Plan permits the granting of nonqualified stock options and options intended to qualify as incentive stock options under Section 422 of the Code. The per share exercise price of each option is determined by our board of directors but may not be less than 100% of the fair market value of the common stock on the date of grant. The term of each option is fixed by the administrator but may not exceed 10 years from the date of grant. The administrator determines at what time or times each option may be exercised.

In addition, the 2021 Plan permits the granting of restricted shares of common stock, unrestricted stock awards and restricted stock units.

The 2021 Plan provides that upon the effectiveness of a “sale event,” as defined in the 2021 Plan, the administrator may take any one or more of the following actions as to all or any (or any portion of) outstanding awards: (i) provide that all such awards will be assumed or substituted with substantially equivalent awards by the acquiring or succeeding corporation (or affiliate thereof); (ii) provide that all such awards will terminate or forfeit upon the effective time of any such sale event unless assumed or continued by the successor entity, or new stock options or other awards are substituted therefor; or (iii) provide for a cash payment to the holders of common stock for each vested award canceled in the sale event.

Upon the occurrence of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in common stock, the administrator will equitably adjust the outstanding awards, which may include adjustments to the number and type of securities subject to such outstanding award and/or the exercise price or grant price, thereof.

Unless otherwise determined by the administrator, awards may generally not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution.

The board of directors may amend, suspend or terminate the 2021 Plan at any time, subject to stockholder approval where such approval is required by applicable law. The administrator of the 2021 Plan may also amend, modify or cancel any outstanding award, provided that no amendment to an award may adversely affect a participant’s rights without his or her consent.

2024 stock option and incentive plan

Our 2024 Plan was adopted by our board of directors on August 19, 2024, approved by our stockholders on October 4, 2024 and became effective upon the date immediately preceding the date on which the registration statement of which this prospectus is a part was declared effective by the SEC. The 2024 Plan replaced the 2021 Plan as our board of directors has determined not to make additional awards under the 2021 Plan following the closing of our initial public offering. However, the 2021 Plan will continue to govern outstanding equity awards granted thereunder. The 2024 Plan allows us to make equity-based and cash-based incentive awards to our officers, employees, directors and consultants.

We have initially reserved 3,180,000 shares of our common stock for the issuance of awards under the 2024 Plan (the “Initial Limit”). The 2024 Plan provides that the number of shares reserved and available for issuance under the 2024 Plan will automatically increase on January 1, 2025 and each January 1 thereafter, by five percent of the outstanding number of shares of our common stock on the immediately preceding December 31 or such lesser number of shares as determined by our compensation committee (the “Annual Increase”). The number of shares reserved under the 2024 Plan is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

The shares we issue under the 2024 Plan will be authorized but unissued shares or shares that we reacquire. The shares of common stock underlying any awards under the 2024 Plan and the 2021 Plan that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, reacquired by us prior to vesting, satisfied without the issuance of stock, expire or are otherwise terminated (other than by exercise) will be added back to the shares of common stock available for issuance under the 2024 Plan.

The maximum number of shares of common stock that may be issued in the form of incentive stock options shall not exceed the Initial Limit, cumulatively increased on January 1, 2025 and on each January 1 thereafter by the lesser of the Annual Increase for such year or 3,180,000 shares of common stock.

The grant date fair value of all awards made under our 2024 Plan and all other cash compensation paid by us to any non-employee director in any calendar year for services as a non-employee director shall not exceed $750,000; provided, however, that such amount shall be $1,000,000 for the calendar year in which the applicable non-employee director is initially elected or appointed to the board of directors.

The 2024 Plan is administered by our compensation committee. Our compensation committee has the full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted and the number of shares subject to such awards, to make any combination of awards to participants, to accelerate at any time the exercisability or vesting of any award and to determine the specific terms and conditions of each award, subject to the provisions of the 2024 Plan. Persons eligible to participate in the 2024 Plan are those full or part-time officers, employees, non-employee directors and consultants as selected from time to time by our compensation committee in its discretion.

The 2024 Plan permits the granting of both options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and options that do not so qualify. The option exercise price of each option will be determined by our compensation committee but generally may not be less than 100 percent of the fair market value of our common stock on the date of grant unless the option (i) is granted pursuant to a transaction described in, and in a manner consistent with Section 424(a) of the Code, (ii) is granted to an individual who is not subject to U.S. income tax or (iii) complies with Section 409A of the Code. The term of each option will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each option may be exercised.

Our compensation committee may award stock appreciation rights under the 2024 Plan subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares of common stock, or cash, equal to the value of the appreciation in our stock price over the exercise price. The exercise price of each stock appreciation right will be determined by our compensation committee but generally may not be less than 100 percent of the fair market value of our common stock on the date of grant unless the stock appreciation right (i) is granted pursuant to a transaction described in, and in a manner consistent with Section 424(a) of the Code, (ii) is granted to an individual who is not subject to U.S. income tax or (iii) complies with Section 409A of the Code. The term of each stock appreciation right will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each stock appreciation right may be exercised.

Our compensation committee may award restricted shares of common stock and restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified vesting period. Our compensation committee may also grant shares of common stock that are free from any restrictions under the 2024 Plan. Unrestricted stock may be granted to participants in recognition of past services or for other valid consideration and may be issued in lieu of cash compensation due to such participant.

Our compensation committee may grant dividend equivalent rights to participants that entitle the recipient to receive credits for dividends that would be paid if the recipient had held a specified number of shares of common stock.

Our compensation committee may grant cash bonuses under the 2024 Plan to participants, subject to the achievement of certain performance goals.

The 2024 Plan provides that upon the effectiveness of a “sale event,” as defined in the 2024 Plan, an acquirer or successor entity may assume, continue or substitute outstanding awards under the 2024 Plan. To the extent that awards granted under the 2024 Plan are not assumed or continued or substituted by the successor entity, upon the effective time of the sale event, such awards shall terminate and all awards subject solely to time-based vesting conditions will fully vest and, if applicable, become nonforfeitable. In the event of such termination, (i) individuals holding options and stock appreciation rights will be permitted to exercise such options and stock appreciation rights (to the extent exercisable) within a specified period of time prior to the sale event or (ii) we may make or provide for a payment, in cash or in kind, to participants holding vested and exercisable options and stock appreciation rights equal (A) the difference between the per share cash consideration payable to stockholders in the sale event and the per share exercise price of the options or stock appreciation rights, multiplied by (B) the number of shares subject to such outstanding vested and exercisable options and stock appreciation rights (to the extent exercisable at prices not in excess of the per share cash consideration), and we may make or provide for a payment, in cash or in kind, to participants holding other vested awards equal to the per share cash consideration multiplied by the number of vested shares underlying such awards.

Our board of directors may amend or discontinue the 2024 Plan and our compensation committee may amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose, but no such action may adversely affect rights under an award without the holder’s consent. Certain amendments to the 2024 Plan require the approval of our stockholders. The administrator of the 2024 Plan is specifically authorized to exercise its discretion to reduce the exercise price of outstanding stock options and stock appreciation rights or effect the repricing of such awards through cancellation and re-grants without stockholder consent. No awards may be granted under the 2024 Plan after the date that is 10 years from the effective date of the 2024 Plan. No awards under the 2024 Plan have been issued prior to the date of this prospectus.

2024 employee stock purchase plan

Our ESPP was adopted by our board of directors on August 19, 2024, approved by our stockholders on October 4, 2024 and became effective on the date immediately preceding the date on which the registration statement of which this prospectus forms a part was declared effective by the SEC. The ESPP is intended to qualify as an “employee stock purchase plan” within the meaning of Section 423 of the Code. The ESPP initially reserves and authorizes the issuance of up to a total of 488,467 shares of our common stock to participating employees. The ESPP provides that the number of shares reserved and available for issuance will automatically increase on January 1, 2025 and each January 1 thereafter through January 1, 2034, by the least

of (i) 976,934 shares of common stock, (ii) one percent of the outstanding number of shares of common stock on the immediately preceding December 31, or (iii) such lesser number of shares of common stock as determined by the administrator of the ESPP. The number of shares reserved under the ESPP is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

All employees employed by us or any designated subsidiary as of the first day of an offering are eligible to participate; provided that the administrator of the ESPP may determine that employees must satisfy one or more of the following service requirements before participating in the ESPP: (1) customary employment with us for more than 20 hours per week and 5 or more months per calendar year, (2) continuous employment with us for a minimum period of time, not to exceed two years, prior to the first date of an offering or (3) such other criteria as the administrator of the ESPP may determine consistent with the requirements of section 423 of the Code. However, any employee who owns 5 percent or more of the total combined voting power or value of all classes of our stock will not be eligible to purchase shares of common stock under the ESPP.

We may make one or more offerings each year to our employees to purchase shares under the ESPP, consisting of one or more purchase periods. Each eligible employee may elect to participate in any offering by submitting an enrollment form at least 15 business days before the applicable offering date

Each employee who is a participant in the ESPP may purchase shares of our common stock by authorizing payroll deductions of up to percent of his or her eligible compensation during an offering period. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase shares of our common stock on the last business day of the offering period at a price equal to 85 percent of the fair market value of the shares of our common stock on the first business day of the offering period or the last business day of the purchase period, whichever is lower, provided that no more than a number of shares of common stock determined by dividing $25,000 by the fair market value of our common stock on the offering date of the offering (or such other number as established by the administrator in advance of the offering period) may be purchased by any one employee during each offering period. Under applicable tax rules, an employee may purchase no more than $25,000 worth of shares of our common stock, valued at the start of the purchase period, under the ESPP in any calendar year.

The accumulated payroll deductions of any employee who is not a participant on the last day of an offering period will be refunded. An employee's rights under the ESPP terminate upon voluntary withdrawal from the plan or when the employee ceases employment with us for any reason.

The ESPP may be terminated or amended by our board of directors at any time. An amendment that increases the number of shares of our common stock authorized under the ESPP and certain other amendments require the approval of our stockholders.

Senior executive cash incentive bonus plan

On August 19, 2024, our board of directors adopted the Senior Executive Cash Incentive Bonus Plan (the "Bonus Plan"), which became effective upon the effectiveness of the registration statement of which this prospectus forms a part. The Bonus Plan provides for annual cash bonus payments based upon the attainment of Company and individual performance targets established by our compensation committee. The payment targets will be related to financial and operational measures or objectives with respect to our Company (the "Corporate Performance Goals") as well as individual performance objectives.

Our compensation committee may select Corporate Performance Goals from among the following: developmental, publication, clinical or regulatory milestones; cash flow (including, but not limited to, operating cash flow and free cash flow); revenue; corporate revenue; earnings before interest, taxes, depreciation and amortization; net income (loss) (either before or after interest, taxes, depreciation and/or amortization); changes in the market price of our

common stock; economic value-added; acquisitions, licenses, collaborations or strategic transactions; financing or other capital raising transactions; operating income (loss); return on capital, assets, equity, or investment; stockholder returns; return on sales; total shareholder return; gross or net profit levels; productivity; expense efficiency; margins; operating efficiency; customer satisfaction; working capital; earnings (loss) per share of the company's common stock; bookings, new bookings or renewals; sales or market shares; number of prescriptions or prescribing physicians; coverage decisions; leadership development, employee retention and recruiting and other human resources matters; operating income and/or net annual recurring revenue; or any other performance goal as selected by the compensation committee, any of which may be measured in absolute terms, as compared to any incremental increase, in terms of growth, as compared to results of a peer group, against the market as a whole, compared to applicable market indices, and/or measured on a pre-tax or post-tax basis.

Each executive officer who is selected to participate in the Bonus Plan will have a target bonus opportunity set for each performance period. The bonus formulas will be adopted in each performance period by the compensation committee and communicated to each executive. The Corporate Performance Goals will be measured at the end of each performance period after our financial reports have been published or such other appropriate time as the compensation committee determines. If the Corporate Performance Goals and individual performance objectives are met, payments will be made as soon as practicable following the end of each performance period, but no later than two and one-half months after the end of the fiscal year in which such performance period ends. Subject to the rights contained in any agreement between the executive officer and us, an executive officer must be employed by us on the bonus payment date to be eligible to receive a bonus payment. The Bonus Plan also permits the compensation committee to approve additional bonuses to executive officers in its sole discretion.

Executive severance plan

On August 19, 2024, our board of directors adopted the Executive Severance Plan (the "Severance Plan"), which became effective upon the effectiveness of the registration statement of which this prospectus forms a part, in which our currently employed named executive officer and certain other executives are expected to participate. The benefits provided in the Severance Plan replaces any severance for which such named executive officer may be eligible under their existing severance and change in control agreements (unless otherwise specified).

The Severance Plan provides that upon a termination by us for any reason other than for Cause, death or Disability, or resignation for Good Reason, each as defined in the Severance Plan (a "Qualifying Termination"), in each case outside of the period commencing three months prior to and ending on the first month anniversary following a Change in Control, as defined in the Severance Plan (the "Change in Control Period"), eligible participants will be entitled to receive, subject to the execution and delivery of a release of claims in favor of the company and continued compliance with all applicable restrictive covenants, (a) 12 months of continued base salary (or the annual base salary in effect for the year immediately prior to the year in which the date of termination occurs) ("Base Salary") for the Chief Executive Officer, nine months for each other chief executive other than the Chief Executive Officer, and six months for each senior vice president of the Company, and (b) an amount equal to the monthly employer contribution that we would have made to provide health insurance for the applicable participant if he or she had remained employed by us while receiving payments of Base Salary.

The Severance Plan also provides that upon a Qualifying Termination within the Change in Control Period, an eligible participant will be entitled to receive, in lieu of the payments and benefits above and subject to the execution and delivery of a release of claims in favor of the company and continued compliance with all applicable restrictive covenants, (a) a lump sum payment equal to the sum of (i) 18 months' Base Salary for the Chief Executive Officer, 12 months' Base Salary for each chief executive other than the Chief Executive Officer and nine months' Base Salary for each senior vice president (such periods, the "CIC Periods") and (ii) 1.5 times

the target annual bonus in effect immediately prior to the date of termination (or immediately prior to the change in control if higher) for the Chief Executive Officer, 1.0 times for each chief executive other than the Chief Executive Officer and 0.75 times for each senior vice president, (b) an amount equal to the monthly employer contribution, based on the premiums as of the date of termination, that we would have made to provide health insurance for the applicable participant if he or she had remained employed by us for the duration of the applicable CIC Period and (c) for all outstanding and unvested equity awards of the company that are subject to time-based vesting held by the participant, full accelerated vesting of such awards.

The payments and benefits provided under the Severance Plan in connection with a Change in Control may not be eligible for a federal income tax deduction by us pursuant to Section 280G of the Code. These payments and benefits may also subject an eligible participant, including named executive officers, to an excise tax under Section 4999 of the Code. If the payments or benefits payable in connection with a Change in Control would be subject to the excise tax imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to the participant.

Equity grant to employee

Effective immediately following the IPO Effective Date, we granted a recently hired employee options to purchase an aggregate of 4,000 shares of our common stock (the “Employee IPO Grant”). The Employee IPO Grant has an exercise price per share equal to the price set forth on the cover page of this prospectus, expires ten years from the date of grant and vests as follows: 25% on the first anniversary of the vesting commencement date (as set forth in the option award agreement) and the remaining 75% in 36 equal monthly installments thereafter, subject to the employee’s continued service with the Company through each vesting date.

Director compensation

2023 director compensation table

The following table presents the total compensation for each person who served as a non-employee member of our board of directors during the year ended December 31, 2023. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards or non-equity awards to, or pay any other compensation to any of the non-employee members of our board of directors in 2023. We reimburse non-employee members of our board of directors for reasonable travel and out-of-pocket expenses incurred in attending meetings of our board of directors and committees of our board of directors.

Name	Fees earned or paid in cash ($)	Option awards($)[1]	All other compensation ($)	Total ($)
Ronald C. Renaud Jr., M.B.A.(2)	80,000	128,216	—	208,216
Marcella Kuhlman Ruddy, M.D., M.S.(3)(4)	30,208	155,122	—	185,330
H. Edward Fleming, Jr., M.D.(5)(6)	—	—	—	—
Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.(5)	—	—	—	—
Erez Chimovits, M.B.A., M.Sc.(5)	—	—	—	—
Dayton Misfeldt(5)	—	—	—	—
Andy Wardle, M.B.Ch.B., M.B.A.(5)(7)	—	—	—	—
Atsushi Sugita, M.B.A.(5)	—	—	—	—
Srinivas Akkaraju(5)(8)	—	—	—	—
Emil Bujak(5)(8)	—	—	—	—
Bernard Davitian(5)(8)	—	—	—	—
Eran Perry(5)(8)	—	—	—	—
Chen Yu(5)(8)	—	—	—	—
Alex Rosen(5)(9)	—	—	—	—

(1) The amounts reported in this column represent the aggregate grant date fair value of the stock option awards granted to our directors during 2023, as calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures related to service-based vesting conditions. The assumptions used in the grant date fair value of the awards reported in this column are described in Note 10 to our consolidated financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these stock option awards and do not correspond to the actual economic value that may be received by our directors upon the exercise of the stock option awards or any sale of the underlying shares.

(2) Mr. Renaud holds option to purchase 312,847 shares as of December 31, 2023.

(3) Dr. Ruddy holds option to purchase 64,141 shares as of December 31, 2023.

(4) The director joined the board of directors in January 2023.

(5) Such director does not hold any equity awards as of December 31, 2023.

(6) The director joined the board of directors in June 2023.

(7) The director joined the board of directors in December 2023.

(8) The director resigned from the board of directors in June 2023.

(9) The director resigned from the board of directors in November 2023.

In August 2024, in connection with the approval of the non-employee director compensation policy described below, our board of directors approved option grants to certain members of our board of directors, with each of Mr. Renaud, Dr. Ruddy, Dr. Fleming, Dr. Ratcliffe and Mr. Chimovits being granted options to purchase 17,096 shares of our common stock, which became effective immediately following the time the registration statement of which this prospectus is a part was declared effective by the SEC, or the IPO Effective Date. The options were granted under our 2024 Plan with an exercise price per share equal to the price set forth on the cover page of this prospectus, which was the fair market value of a share of our common stock on the grant date of the

option. Subject to the applicable directors' continued service relationship with us, the options will vest in full and become exercisable on the earlier of (i) our next annual meeting of stockholders following our initial public offering or (ii) the one-year anniversary of the grant.

Non-employee director compensation policy

In connection with this offering, we adopted a non-employee director compensation policy that became effective upon the effectiveness of the registration statement of which this prospectus forms a part and is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Under the policy, each director who is not an employee will be paid cash compensation as set forth below:

	Annual retainer
Board of Directors:	
Members	$40,000
Additional retainer for non-executive chair	$30,000
Audit Committee:	
Members (other than chair)	$15,000
Retainer for chair	$ 7,500
Compensation Committee:	
Members (other than chair)	$12,000
Retainer for chair	$ 6,000
Nominating and Corporate Governance Committee:	
Members (other than chair)	$10,000
Retainer for chair	$ 5,000

In addition, the non-employee director compensation policy provides that, upon initial election to our board of directors, each non-employee director will be granted a one-time stock option award to purchase 34,681 shares of our common stock (the "Initial Grant"). The Initial Grant will vest in equal monthly installments over three years from the date of grant, subject to continued service on our board through the applicable vesting date. The Initial Grant will expire ten years from the date of grant and have an exercise price per share equal to the fair market value of our common stock on the date of grant.

Furthermore, on the date of each annual meeting of stockholders following the completion of this offering, each non-employee director who continues as a non-employee director (other than a director receiving an Initial Grant) following such meeting will be granted an annual stock option award to purchase 17,096 shares of our common stock (the "Annual Grant"). The Annual Grant will vest in full upon the earlier of the following annual meeting of the stockholders or the first anniversary of the date of grant and have an exercise price per share equal to the fair market value of our common stock on the date of grant.

Finally, upon the effectiveness of the registration statement of which this prospectus forms a part, each non-employee director then serving on our board (except Daniella Beckman who will receive the award described below) received an Annual Grant with an exercise price per share equal to the price set forth on the cover page of this prospectus, which shall vest in full on the earlier of the first anniversary of the date of grant or the next annual meeting of stockholders.

All awards granted under the non-employee director compensation policy will vest in full upon the occurrence of a “sale event” as defined in our 2024 stock option and incentive plan.

The aggregate amount of compensation, including both equity compensation and cash compensation, paid to any non-employee director for service as a non-employee director in a calendar year period will not exceed $1,000,000 in the first calendar year such individual becomes a non-employee director and $750,000 in any other calendar year.

We will reimburse all reasonable out-of-pocket expenses incurred by non-employee directors in attending meetings of the board of directors and committees thereof.

The Company has appointed Daniella Beckman as a non-employee director, which appointment became effective upon the effectiveness of the registration statement of which this prospectus forms a part. Upon her appointment, Ms. Beckman received an award consistent with the terms of the Initial Grant set forth above, with an exercise price per share equal to the price set forth on the cover page of this prospectus.

Certain relationships and related party transactions

The following is a description of transactions or series of transactions since our incorporation in April 2021, to which we were or will be a party, in which:

- the amount involved in the transaction exceeds, or will exceed, the lesser of $120,000 or one percent of the average of the Company's total assets for the last two completed fiscal years; and
- in which any of our executive officers, directors or holder of five percent or more of any class of our capital stock, including their immediate family members or affiliated entities, had or will have a direct or indirect material interest.

Compensation arrangements for our named executive officers and our directors are described elsewhere in this prospectus under "Executive compensation" and "Director compensation."

Private placement of securities

Series A redeemable convertible preferred stock financings

First closing

In October 2021, in connection with the initial closing of our Series A redeemable convertible preferred stock financing, we issued and sold an aggregate of 11,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $10.00 per share for an aggregate purchase price of $110.0 million.

Each share of our Series A redeemable convertible preferred stock will automatically convert into 1.049 shares of our common stock immediately prior to the completion of this offering. The following table summarizes purchases of our Series A redeemable convertible preferred stock by related persons:

Participant	Affiliated director(s) or officer(s)	Shares of series A redeemable convertible preferred stock	Total purchase price ($)
AI Upstream LLC(1)	Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.	1,650,000	16,500,000
Altshuler Shaham Provident Fund and Pension Ltd.(2)	—	1,375,000	13,750,000
Decheng Global Life Sciences Fund IV, L.P.(3)	Dayton Misfeldt	1,375,000	13,750,000
HBM Healthcare Investments (Cayman) Ltd.(4)	—	1,100,000	11,000,000
Maruho Deutschland GmbH(5)	Atsushi Sugita, M.B.A.	1,375,000	13,750,000
Omega Fund VII, L.P.(6)	—	825,000	8,250,000
OrbiMed Israel Partners II, L.P.(7)	Erez Chimovits, M.B.A., M.Sc.	275,000	275,000
OrbiMed Private Investments VIII, L.P.(7)	Erez Chimovits, M.B.A., M.Sc.	1,100,000	11,000,000
Samsara BioCapital, L.P.(8)	—	825,000	8,250,000
TCG Crossover Fund I, L.P.(9)	—	1,100,000	11,000,000

(1) AI Upstream LLC is a holder of five percent or more of our capital stock. Dr. Ratcliffe is head of biotech at Access Industries and a member of our board of directors.

(2) Altshuler Shaham Provident Fund and Pension Ltd. is a holder of five percent or more of our capital stock.

(3) Decheng Global Life Sciences Fund IV, L.P. is a holder of five percent or more of our capital stock. Mr. Misfeldt is a partner at Decheng Capital and a former member of our board of directors.

(4) HBM Healthcare Investments (Cayman) Ltd. is a holder of five percent or more of our capital stock.

(5) Maruho Deutschland GmbH is a holder of five percent or more of our capital stock. Mr. Sugita is president and chief executive officer of Maruho Co. and a former member of our board of directors.

(6) Omega Fund VII, L.P. is a holder of five percent or more of our capital stock.

(7) Entities affiliated with OrbiMed hold five percent or more of our capital stock. Mr. Chimovits is a partner at OrbiMed and a member of our board of directors.

(8) Samsara BioCapital, L.P. is a holder of five percent or more of our capital stock.

(9) TCG Crossover Fund I, L.P. is a holder of five percent or more of our capital stock.

Milestone closings

In October 2022, in connection with the interim milestone closing of our Series A redeemable convertible preferred stock financing, we issued and sold an aggregate of 1,000,000 shares of Series A redeemable convertible preferred stock at a purchase price of $10.00 per share for an aggregate purchase price of $10.0 million. In February 2023, in connection with the second milestone closing of our Series A redeemable convertible preferred stock financing, we issued and sold an aggregate of 8,000,000 shares of Series A redeemable convertible preferred stock at a purchase price of $10.00 per share for an aggregate purchase price of $80.0 million.

Each share of our Series A redeemable convertible preferred stock will automatically convert into 1.049 shares of our common stock immediately prior to the completion of this offering. The following table summarizes purchases of our Series A redeemable convertible preferred stock by related persons:

Participant	Affiliated director(s) or officer(s)	Shares of series A redeemable convertible preferred stock	Total purchase price ($)
AI Upstream LLC(1)	Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.	1,350,000	13,500,000
Altshuler Shaham Provident Fund and Pension Ltd.(2)	—	1,125,000	11,250,000
Decheng Global Life Sciences Fund IV, L.P.(3)	Dayton Misfeldt	1,125,000	11,250,000
HBM Healthcare Investments (Cayman) Ltd.(4)	—	900,000	9,000,000
Maruho Deutschland GmbH(5)	Atsushi Sugita, M.B.A.	1,125,000	11,250,000
Omega Fund VII, L.P.(6)	—	675,000	6,750,000
OrbiMed Israel Partners II, L.P.(7)	Erez Chimovits, M.B.A., M.Sc.	225,000	225,000
OrbiMed Private Investments VIII, L.P.(7)	Erez Chimovits, M.B.A., M.Sc.	900,000	9,000,000
Samsara BioCapital, L.P.(8)	—	675,000	6,750,000
TCG Crossover Fund I, L.P.(9)	—	900,000	9,000,000

(1) AI Upstream LLC is a holder of five percent or more of our capital stock. Dr. Ratcliffe is head of biotech at Access Industries and a member of our board of directors.

(2) Altshuler Shaham Provident Fund and Pension Ltd. is a holder of five percent or more of our capital stock.

(3) Decheng Global Life Sciences Fund IV, L.P. is a holder of five percent or more of our capital stock. Mr. Misfeldt is a partner at Decheng Capital and a former member of our board of directors.

(4) HBM Healthcare Investments (Cayman) Ltd. is a holder of five percent or more of our capital stock.

(5) Maruho Deutschland GmbH is a holder of five percent or more of our capital stock. Mr. Sugita is president and chief executive officer of Maruho Co. and a former member of our board of directors.

(6) Omega Fund VII, L.P. is a holder of five percent or more of our capital stock.

(7) Entities affiliated with OrbiMed hold five percent or more of our capital stock. Mr. Chimovits is a partner at OrbiMed and a member of our board of directors.

(8) Samsara BioCapital, L.P. is a holder of five percent or more of our capital stock.

(9) TCG Crossover Fund I, L.P. is a holder of five percent or more of our capital stock.

Series B redeemable convertible preferred stock financing

First closing

In June 2023, we issued and sold an aggregate of 2,941,170 shares of our Series B redeemable convertible preferred stock at a purchase price of $17.00 per share for an aggregate purchase price of $50.0 million. Each share of our Series B redeemable convertible preferred stock will automatically convert into 1.049 shares of our common stock immediately prior to the completion of this offering. The following table summarizes purchases of our Series B redeemable convertible preferred stock by related persons:

Participant	Affiliated director(s) or officer(s)	Shares of series B redeemable convertible preferred stock	Total purchase price ($)
AI Upstream LLC(1)	Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.	279,411	4,749,987
Altshuler Shaham Provident Fund and Pension Ltd.(2)	—	183,823	3,124,991
BCLS Fund III Investments, LP	—	433,823	7,374,991
Decheng Global Life Sciences Fund IV, L.P.(3)	Dayton Misfeldt	110,294	1,874,998
HBM Healthcare Investments (Cayman) Ltd.(4)	—	147,058	2,499,986
Omega Fund VII, L.P.	—	110,294	1,874,998
OrbiMed Israel Partners II, L.P.(5)	Erez Chimovits, M.B.A., M.Sc.	47,058	799,986
OrbiMed Private Investments VIII, L.P.(5)	Erez Chimovits, M.B.A., M.Sc.	188,235	3,199,995
Samsara BioCapital, L.P.	—	117,647	1,999,999
TCG Crossover Fund I, L.P.(6)	—	161,764	2,749,988
Entities affiliated with Enavate Sciences(7)	H. Edward Fleming, Jr., M.D.	514,705	8,749,985
Venrock Healthcare Capital Partners EG, L.P.(8)	Andy Wardle, M.B.Ch.B., M.B.A.	308,361	5,242,137
Venrock Healthcare Capital Partners III, L.P.(8)	Andy Wardle, M.B.Ch.B., M.B.A.	114,052	1,938,884
VHCP Co-Investment Holdings III, LLC(8)	Andy Wardle, M.B.Ch.B., M.B.A.	11,410	193,970

(1) AI Upstream LLC is a holder of five percent or more of our capital stock. Dr. Ratcliffe is head of biotech at Access Industries and a member of our board of directors.

(2) Altshuler Shaham Provident Fund and Pension Ltd. is a holder of five percent or more of our capital stock.

(3) Decheng Global Life Sciences Fund IV, L.P. is a holder of five percent or more of our capital stock. Mr. Misfeldt is a partner at Decheng Capital and a former member of our board of directors.

(4) HBM Healthcare Investments (Cayman) Ltd. is a holder of five percent or more of our capital stock.

(5) Entities affiliated with OrbiMed hold five percent or more of our capital stock. Mr. Chimovits is a partner at OrbiMed and a member of our board of directors.

(6) TCG Crossover Fund I, L.P. is a holder of five percent or more of our capital stock.

(7) UpStream Aggregator, LP, an entity affiliated with Enavate Sciences, holds five percent or more of our capital stock. Dr. Fleming is an executive vice president at Enavate Sciences and a member of our board of directors.

(8) Dr. Wardle is an investor at Venrock Healthcare Capital Partners and a former member of our board of directors.

Series B option closing

In April 2024, in connection with the Series B option closing of our Series B redeemable convertible preferred stock financing, we issued and sold an aggregate of 8,823,523 shares of our Series B redeemable convertible preferred stock at a purchase price of $17.00 per share for an aggregate purchase price of $150.0 million. Each share of our Series B redeemable convertible preferred stock will automatically convert into 1.049 shares of our common stock immediately prior to the completion of this offering. The following table summarizes purchases of our Series B redeemable convertible preferred stock by related persons:

Participant	Affiliated director(s) or officer(s)	Shares of series B redeemable convertible preferred stock	Total purchase price ($)
AI Upstream LLC(1)	Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.	838,235	14,249,995
Altshuler Shaham Provident Fund and Pension Ltd.(2)	—	551,470	9,374,990
BCLS Fund III Investments, LP	—	1,301,470	22,124,990
Decheng Global Life Sciences Fund IV, L.P.(3)	Dayton Misfeldt	330,882	5,624,994
HBM Healthcare Investments (Cayman) Ltd.(4)	—	441,176	7,499,992
OrbiMed Israel Partners II, L.P.(5)	Erez Chimovits, M.B.A., M.Sc.	141,176	2,399,992
OrbiMed Private Investments VIII, L.P.(5)	Erez Chimovits, M.B.A., M.Sc.	564,705	9,599,985
TCG Crossover Fund I, L.P.(6)	—	485,294	8,249,998
Entities affiliated with Enavate Sciences(7)	H. Edward Fleming, Jr., M.D.	1,544,117	26,249,989
Venrock Healthcare Capital Partners EG, L.P.(8)	Andy Wardle, M.B.Ch.B., M.B.A.	989,508	16,821,636
Venrock Healthcare Capital Partners III, L.P.(8)	Andy Wardle, M.B.Ch.B., M.B.A.	283,590	4,821,030
VHCP Co-Investment Holdings III, LLC(8)	Andy Wardle, M.B.Ch.B., M.B.A.	28,372	482,324

(1) AI Upstream LLC is a holder of five percent or more of our capital stock. Dr. Ratcliffe is head of biotech at Access Industries and a member of our board of directors.

(2) Altshuler Shaham Provident Fund and Pension Ltd. is a holder of five percent or more of our capital stock.

(3) Decheng Global Life Sciences Fund IV, L.P. is a holder of five percent or more of our capital stock. Mr. Misfeldt is a partner at Decheng Capital and a former member of our board of directors.

(4) HBM Healthcare Investments (Cayman) Ltd. is a holder of five percent or more of our capital stock.

(5) Entities affiliated with OrbiMed hold five percent or more of our capital stock. Mr. Chimovits is a partner at OrbiMed and a member of our board of directors.

(6) TCG Crossover Fund I, L.P. is a holder of five percent or more of our capital stock.

(7) UpStream Aggregator, LP, an entity affiliated with Enavate Sciences, holds five percent or more of our capital stock. Dr. Fleming is an executive vice president at Enavate Sciences and a member of our board of directors.

(8) Dr. Wardle is an investor at Venrock Healthcare Capital Partners and a former member of our board of directors.

Investors' rights, voting and right of first refusal agreements

In connection with our redeemable convertible preferred stock financings, we entered into an investors' rights agreement, voting agreement and right of first refusal agreement, in each case, with the purchasers of our redeemable convertible preferred stock and certain holders of our common stock.

Our amended and restated investors' rights agreement ("Investor Rights Agreement") provides certain holders of our redeemable convertible preferred stock with a participation right to purchase their pro rata share of new securities that we may propose to sell and issue, subject to certain exceptions. Such participation right will terminate upon the completion of this offering. The Investor Rights Agreement further provides certain holders of our capital stock with the right to demand that we file a registration statement, subject to certain limitations, and to request that their shares be covered by a registration statement that we are otherwise filing. See the section titled "Description of capital stock—Registration rights" included elsewhere in this prospectus, for additional information regarding such registration rights.

Our amended and restated voting agreement ("Voting Agreement") provides for drag-along rights in respect of sales by certain holders of our capital stock. The Voting Agreement also contains provisions with respect to the elections of our board of directors and its composition. The rights under the Voting Agreement will terminate upon the completion of this offering.

Our amended and restated right of first refusal and co-sale agreement ("Right of First Refusal and Co-Sale Agreement") provides for rights of first refusal and co-sale rights in respect of sales by certain holders of our capital stock. The rights under the Right of First Refusal and Co-Sale Agreement will terminate upon the completion of this offering.

Maruho license agreement

In October 2021, we entered into a license agreement with Maruho Co. Ltd ("Maruho") (as amended, the "Maruho License Agreement"). Mr. Sugita, a former member of our board of directors, is president and chief executive officer of Maruho. Maruho is a co-founder of our company and affiliated with Maruho Deutschland GmbH, a holder of more than 5% of our outstanding capital stock. Please see the section titled "Business—Asset purchase and license agreements" included elsewhere in this prospectus for a description of the Maruho License Agreement.

Indemnification agreements

In connection with this offering, we have entered into new agreements to indemnify our directors and executive officers. These agreements, among other things, require us to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding, including any action by or in our right, on account of any services undertaken by such person on behalf of our company or that person's status as a member of our board of directors or executive officer to the maximum extent allowed under Delaware law.

Policies for approval of related party transactions

Our board of directors reviews and approves transactions with directors, officers and holders of 5% or more of our voting securities and their affiliates, each a related party. Prior to this offering, the material facts as to the related party's relationship or interest in the transaction are disclosed to our board of directors prior to their consideration of such transaction, and the transaction is not considered approved by our board of directors unless a majority of the directors who are not interested in the transaction approve the transaction. Further, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction are disclosed to the stockholders, who must approve the transaction in good faith.

In connection with this offering, we adopted a written related party transactions policy that all such transactions must be approved by our audit committee. This policy became effective on the date on which the registration statement of which this prospectus is a part was declared effective by the SEC.

Principal stockholders

The following table sets forth certain information known to us regarding beneficial ownership of our capital stock as of August 1, 2024, and as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of our capital stock;
- each of our named executive officers;
- each of our directors and director nominees; and
- all of our current executive officers and directors as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Under those rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power. Except as noted by footnote, and subject to community property laws where applicable, we believe, based on the information provided to us, that the persons and entities named in the table below have sole voting and investment power with respect to all common stock shown as beneficially owned by them. We have deemed shares of common stock subject to options that are currently exercisable or exercisable within 60 days of August 1, 2024 to be outstanding and to be beneficially owned by the person holding the option for the purpose of computing the percentage ownership of that person but have not treated them as outstanding for the purpose of computing the percentage ownership of any other person.

The percentage of beneficial ownership prior to this offering in the table below is based on 36,343,454 shares of common stock deemed to be outstanding as of August 1, assuming the automatic conversion of all outstanding shares of our Series A and Series B redeemable convertible preferred stock immediately prior to the completion of this offering, and the percentage of beneficial ownership after this offering in the table below is based on 51,343,454 shares of common stock to be outstanding after the completion of the offering. The information in the table below assumes no exercise of the underwriters' option to purchase additional shares.

Unless otherwise noted below, the address for each beneficial owner listed in the table below is c/o Upstream Bio, Inc., 890 Winter Street, Suite 200, Waltham, MA 02451.

	Shares beneficially owned prior to offering		Shares beneficially owned after offering	
	Number	Percent (%)	Number	Percent (%)
Name of beneficial owner				
5% or greater shareholders:				
Entities affiliated with OrbiMed(1)	4,868,589	13.40	4,868,589	9.48
AI Upstream LLC(2)	4,319,410	11.88	4,319,410	8.41
Altshuler Shaham Provident Fund and Pension Ltd.(3)	3,393,822	9.34	3,393,822	6.61
Decheng Capital Global Life Sciences Fund IV, L.P.(4)	3,085,293	8.49	3,085,293	6.01
TCG Crossover Fund I, L.P.(5)	2,776,763	7.64	2,776,763	5.41
HBM Healthcare Investments (Cayman) Ltd.(6)	2,715,056	7.47	2,715,056	5.29
Maruho Deutschland GmbH(7)	2,622,503	7.22	2,622,503	5.11
Entities affiliated with Enavate Sciences(8)	2,159,703	5.94	2,159,703	4.21
Samsara BioCapital, L.P.(9)	2,067,146	5.69	2,067,146	4.03
Omega Fund VII, L.P.(10)	2,036,293	5.60	2,036,293	3.97
BCLS Fund III Investments, LP(11)	1,820,322	5.01	1,820,322	3.55
Entities affiliated with Venrock Healthcare Capital Partners(12)	1,820,319	5.01	1,820,319	3.55
Named executive officers, directors and director nominees:				
Jennifer Beachell, *Former Chief Operating Officer*(13)	142,935	*	142,935	*
Aaron Deykin, M.D., *Chief Medical Officer*(14)	250,474	*	250,474	*
Samantha Truex, *Former Chief Executive Officer*(15)	561,610	1.52	561,610	1.08
E. Rand Sutherland, M.D., M.P.H., *Chief Executive Officer and Director*	—	—	—	—
Ronald C. Renaud, Jr., M.B.A.(16)	171,106	*	171,106	*
Daniella Beckman	—	—	—	—
Erez Chimovits, M.B.A., M.Sc.(17)	973,716	2.68	973,716	1.90
H. Edward Fleming, Jr., M.D.	—	—	—	—
Dayton Misfeldt	—	—	—	—
Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A.	—	—	—	—
Marcella Kuhlman Ruddy, M.D., M.S.(18)	25,425	*	25,425	*
Atsushi Sugita, M.B.A.	—	—	—	—
Andy Wardle, M.B.Ch.B., M.B.A.	—	—	—	—
All current executive officers and directors as a group (12 persons)(19)	1,631,445	4.41	1,631,445	3.14

* Represents beneficial ownership of less than one percent.

(1) Consists of (i) 251,760 shares of common stock held by OrbiMed Israel Partners II, L.P. (“OIP II”), (ii) 1,007,040 shares of common stock held by OrbiMed Private Investments VIII, LP (“OPI VIII”), (iii) 524,500 shares of common stock issuable upon conversion of Series A preferred stock held by OIP II, (iv) 2,098,000 shares of common stock issuable upon conversion of Series A preferred stock held by OPI VIII, (v) 197,456 shares of common stock issuable upon conversion of Series B preferred stock held by OIP II and (vi) 789,833 shares of common stock issuable upon conversion of Series B preferred stock held by OPI VIII. OrbiMed Israel GP II, L.P. (“Israel GP”) is the general partner of OIP II and OrbiMed Advisors Israel II Limited (“Advisors Israel”) is the general partner of Israel GP. By virtue of such relationships, Israel GP and Advisors Israel may be deemed to have investment and voting power with respect to the shares held by OIP II and as a result, may be deemed to have beneficial ownership over such securities. Advisors Israel exercises this investment and voting power through a management committee comprised of Carl L. Gordon, David P. Bonita and Erez Chimovits, each of whom disclaims beneficial ownership of the shares held by OIP II. OrbiMed Capital GP VIII LLC (“GP VIII”) is the general partner of OPI VIII and OrbiMed Advisors LLC (“OrbiMed Advisors”) is the managing member of GP VIII. By virtue of such relationships, GP VIII and OrbiMed Advisors may be deemed to have investment and voting power with respect to the shares held by OPI VIII and as a result, may be deemed to have beneficial ownership over such securities. OrbiMed Advisors exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and W. Carter Neild, each of whom disclaims beneficial ownership of the shares held by OPI VIII. Mr. Chimovits is an employee of OrbiMed and a member of our board of directors. The address for each of the entities and individuals identified in this footnote is c/o OrbiMed Advisors LLC, 601 Lexington Avenue 54th Floor, New York, NY 10022.

(2) Consists of (i) 3,147,000 shares of common stock issuable upon conversion of Series A preferred stock held by AI Upstream LLC ("AIU") and (ii) 1,172,410 shares of common stock issuable upon conversion of Series B preferred stock held by AIU. The shares held by AIU may be deemed to be beneficially owned by Access Industries Holdings LLC ("AIH"), Access Industries Management, LLC ("AIM") and Len Blavatnik (collectively, the "Access Reporting Persons") because (i) AIH indirectly controls all of the outstanding voting interests in AIU, (ii) AIM controls AIH and (iii) Mr. Blavatnik controls AIM and holds a majority of the outstanding voting interests in AIH. Each of the Access Reporting Persons, and each of their affiliated entities and the officers, partners, members and managers thereof, disclaims beneficial ownership of the shares held by AIU. Liam Ratcliffe, M.B.Ch.B., Ph.D., M.B.A. is head of biotechnology at Access Industries, Inc., an affiliate of AIU, and a member of our board of directors. The address for each of the Access Reporting Persons is c/o Access Industries, Inc., 40 West 57th Street, 28th Floor, New York, NY 10019.

(3) Consists of (i) 2,622,500 shares of common stock issuable upon conversion of Series A preferred stock held by provident and pension funds managed by Altshuler Shaham Provident & Pension Funds Ltd. ("Altshuler Funds") and (ii) 771,322 shares of common stock issuable upon conversion of Series B preferred stock held by provident and pension funds managed by Altshuler Funds. The provident and pension funds are managed by employees of Altshuler Funds and its indirect parent company, Altshuler- Shaham Ltd., for the benefit of public investors and not for the economic benefit of Altshuler Funds. Altshuler Funds possesses sole authority with respect to the voting of all shares, but shares authority with Altshuler Shaham Ltd. concerning the disposition of such shares. The address of each of Altshuler Funds and Altshuler Shaham Ltd. is 19 A Habarzel St. Ramat Hahayal, Tel Aviv, 6971026, Israel.

(4) Consists of (i) 2,622,500 shares of common stock issuable upon conversion of Series A preferred stock held by Decheng Capital Global Life Sciences Fund IV, L.P. ("Decheng Fund IV") and (ii) 462,793 shares of common stock issuable upon conversion of Series B preferred stock held by Decheng Fund IV. Decheng Capital Management IV (Cayman), LLC ("Decheng Fund GP") is the general partner of Decheng Fund IV. Xiangmin Cui is the manager of Decheng Fund GP. Each of Decheng Fund GP and Dr. Cui may be deemed to beneficially own the securities held by Decheng Fund IV. Each of Decheng Fund GP and Dr. Cui disclaim beneficial ownership of these securities, except to the extent of their respective pecuniary interests therein. Dayton Misfeldt is a partner at Decheng Capital LLC, the service company of Decheng Fund IV, and a former member of our board of directors. The address for each of the entities and individuals identified in this footnote is 3000 Sand Hill Road, Building 2, Suite 110, Menlo Park, CA 94025.

(5) Consists of (i) 2,098,000 shares of common stock issuable upon conversion of Series A preferred stock held by TCG Crossover Fund I, L.P. ("TCGX Fund I") and (ii) 678,763 shares of common stock issuable upon conversion of Series B preferred stock held by TCGX Fund I. TCG Crossover GP I, LLC ("TCGX GP I") is the general partner of TCGX Fund I and may be deemed to have voting, investment and dispositive power with respect to these securities. Chen Yu is the sole managing member of TCGX GP I and may be deemed to share voting investment and dispositive power with respect to these securities. The address for each of the entities and individuals identified in this footnote is 705 High St., Palo Alto, CA 94301.

(6) Consists of (i) 2,098,000 shares of common stock issuable upon conversion of Series A preferred stock held by HBM Healthcare Investments (Cayman) Ltd. ("HBM Healthcare") and (ii) 617,056 shares of common stock issuable upon conversion of Series B preferred stock held by HBM Healthcare. Voting and investment power over the shares held by HBM Healthcare is exercised by its board of directors, which consists of Jean Marc Lesieur, Sophia Harris, Richard Coles, Dr. Andreas Wicki, Paul Woodhouse and Dr. Mark Kronenfeld, none of whom has individual voting or investment power with respect to the shares. The address for each of the entities and individuals identified in this footnote is Governors Square, 23 Lime Tree Bay Avenue, PO Box 30852, Grand Cayman, KY1-1204, Cayman Islands.

(7) Consists of (i) 3 shares of common stock held by Maruho Deutschland GmbH and (ii) 2,622,500 shares of common stock issuable upon conversion of Series A preferred stock held by Maruho Deutschland GmbH. Atsushi Sugita, M.B.A. is president and chief executive officer of Maruho Co., Ltd., the sole owner of Maruho Deutschland GmbH, and a former member of our board of directors. The address for Maruho Deutschland GmbH is Berliner Allee 29 40212 Düsseldorf Germany.

(8) Consists of 2,159,703 shares of common stock issuable upon conversion of Series B preferred stock held by UpStream Aggregator, LP ("UpStream LP"), a limited partnership affiliated with Enavate Sciences. Enavate Sciences GP, LLC ("Enavate GP") is the general partner of UpStream LP. Voting, investment and dispositive power with respect to the shares held by UpStream LP are made collectively by the managers of Enavate GP: Jim Momtazee, Laura Furmanski, Neel Varshney and James P. Boylan, each of whom expressly disclaims beneficial ownership of the shares. H. Edward Fleming, Jr., M.D. is an executive vice president of Enavate Sciences Management Inc., which is solely owned by Enavate Sciences, LP, and a member of our board of directors. UpStream LP is a wholly owned subsidiary of Enavate Sciences, LP. The address for each of the entities and individuals identified in this footnote is c/o Enavate Sciences, LP, 106 W 56th Street, 8th Floor, New York, NY 10019.

(9) Consists of (i) 1,573,500 shares of common stock issuable upon conversion of Series A preferred stock held by Samsara BioCapital, L.P. ("Samsara LP") and (ii) 493,646 shares of common stock issuable upon conversion of Series B preferred stock held by Samsara LP. Samsara BioCapital GP, LLC ("Samsara GP") is the general partner of Samsara LP and may be deemed to beneficially own the shares held by Samsara LP. Dr. Srinivas Akkaraju, M.D., Ph.D., has voting and investment power over the shares held by Samsara GP and, accordingly, may be deemed to beneficially own the shares held by Samsara LP. Samsara GP and Dr. Akkaraju disclaim beneficial ownership in these shares except to the extent of its or his respective pecuniary interest therein. The address for each of the entities and individuals identified in this footnote is 628 Middlefield Road, Palo Alto, CA 94301.

(10) Consists of (i) 1,573,500 shares of common stock issuable upon conversion of Series A preferred stock held by Omega Fund VII, L.P. ("Omega Fund") and (ii) 462,793 shares of common stock issuable upon conversion of Series B preferred stock held by Omega Fund. Omega Fund VII GP Manager, Ltd. ("Omega Ltd.") is the sole general partner of Omega Fund VII GP, L.P. ("Omega GP"), which is the sole general partner of Omega Fund; and each of Omega Ltd. and Omega GP may be deemed to own beneficially the shares held by Omega Fund. Claudio Nessi, Francesco Draetta and Otello Stampacchia are the directors of Omega Ltd. and, as a result, may be deemed to share voting and investment power over the shares held directly by Omega Fund. Each of Dr. Nessi, Mr. Draetta, Dr. Stampacchia, Omega Ltd. and Omega GP disclaim beneficial ownership of the shares held by Omega Fund except to the extent of their pecuniary interest therein. The address for each of the entities and individuals identified in this footnote is 888 Boylston Street, Suite 1111, Boston, MA 02199.

(11) Consists of 1,820,322 shares of common stock issuable upon conversion of Series B preferred stock held by BCLS Fund III Investments, LP ("BCLS III"). Bain Capital Life Sciences Investors, LLC ("BCLSI") is the manager of Bain Capital Life Sciences III General Partner, LLC, which is the general partner of Bain Capital Life Sciences Fund III, L.P., which is the managing member of BCLS Fund III Investments GP, LLC, which is the general partner of BCLS III. As a result, BCLSI may be deemed to share voting and dispositive power with respect to the securities held by BCLS III. The address for each of the entities identified in this footnote is c/o Bain Capital Life Sciences, LP, 200 Clarendon Street, Boston, MA 02116.

(12) Consists of (i) 1,361,463 shares of common stock issuable upon conversion of Series B preferred stock held by Venrock Healthcare Capital Partners EG, L.P. (“VHCP EG”), (ii) 417,125 shares of common stock issuable upon conversion of Series B preferred stock held by Venrock Healthcare Capital Partners III, L.P. (“VHCP III”) and (iii) 41,731 shares of common stock issuable upon conversion of Series B preferred stock held by VHCP Co-Investment Holdings III, LLC (“VHCP Holdings III”).VHCP Management III, LLC (“VHCPM”) is the sole general partner of VHCP III and the sole manager of VHCP Holdings III. VHCP Management EG, LLC (“VHCPM EG”) is the sole general partner of VHCP EG. Dr. Bong Koh and Nimish Shah are the voting members of VHCPM and VHCPM EG. Andy Wardle, M.B.Ch.B., is an investor at Venrock Healthcare Capital Partners and a former member of our board of directors. The address for each of the entities and individuals identified in this footnote is 7 Bryant Park, 23rd Floor, New York, NY 10018.

(13) Consists of (i) 13,075 shares of common stock and (ii) 129,860 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by Ms. Beachell.

(14) Consists of 250,474 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by Dr. Deykin.

(15) Consists of (i) 29,057 shares of common stock and (ii) 532,553 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by Ms. Truex.

(16) Consists of 171,106 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by Mr. Renaud.

(17) Consists of (i) 251,760 shares of common stock held by OIP II, (ii) 524,500 shares of common stock issuable upon conversion of Series A preferred stock held by OIP II and (iii) 197,456 shares of common stock issuable upon conversion of Series B preferred stock held by OIP II. Israel GP is the general partner of OIP II and Advisors Israel is the general partner of Israel GP. By virtue of such relationships, Israel GP and Advisors Israel may be deemed to have investment and voting power with respect to the shares held by OIP II and as a result, may be deemed to have beneficial ownership over such securities. Advisors Israel exercises this investment and voting power through a management committee comprised of Carl L. Gordon, David P. Bonita and Erez Chimovits, each of whom disclaims beneficial ownership of the shares held by OIP II. Mr. Chimovits is an employee of OrbiMed and a member of our board of directors. The address for each of the entities and individuals identified in this footnote is c/o OrbiMed Advisors LLC, 601 Lexington Avenue 54th Floor, New York, NY 10022.

(18) Consists of 25,425 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by Dr. Ruddy.

(19) Consists of (i) 251,760 shares of common stock, (ii) 524,500 shares of common stock issuable upon conversion of Series A preferred stock, (iii) 197,456 shares of common stock issuable upon conversion of Series B preferred stock and (iv) 657,729 shares of common stock issuable upon the exercise of options exercisable within 60 days of August 1, 2024 held by our current executive officers, Dr. Sutherland, Mr. Gray, Dr. Deykin and Dr. Houghton, and current directors.

Description of capital stock

The following descriptions are summaries of the material terms of our third amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, and second amended and restated bylaws, which became effective upon the effectiveness of the registration statement of which this prospectus forms a part. The descriptions of the common stock and preferred stock give effect to changes to our capital structure that will occur immediately prior to the completion of this offering. We refer in this section to our third amended and restated certificate of incorporation as our certificate of incorporation, and we refer to our second amended and restated bylaws as our bylaws.

General

Upon filing of our certificate of incorporation and the completion of this offering, our authorized capital stock will consist of 500,000,000 shares of common stock, par value $0.001 per share, and 10,000,000 shares of preferred stock, par value $0.001 per share, all of which shares of preferred stock will be undesignated.

As of June 30, 2024, 36,341,695 shares of our common stock were outstanding and held by 65 stockholders of record. This amount assumes the conversion of all outstanding shares of our redeemable convertible preferred stock into common stock, which will occur immediately prior to the completion of this offering.

Common stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. The holders of our common stock do not have any cumulative voting rights. Holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights or other subscription rights or redemption or sinking fund provisions.

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock. The shares to be issued by us in this offering will be, when issued and paid for, validly issued, fully paid and non-assessable.

Preferred stock

Immediately prior to the completion of this offering, all outstanding shares of our redeemable convertible preferred stock will be converted into shares of our common stock. Upon the consummation of this offering, our board of directors will have the authority, without further action by our stockholders, to issue up to shares of preferred stock in one or more series and to fix the rights, preferences, privileges, and restrictions thereof. These rights, preferences, and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms, and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our Company or other corporate action. Immediately after consummation of this offering, no shares of preferred stock will be outstanding, and we have no present plan to issue any shares of preferred stock.

Stock options

As of June 30, 2024, 6,224,230 shares of common stock were issuable upon the exercise of outstanding stock options under the 2021 Plan, at a weighted-average exercise price of $4.96 per share. Following this offering, 3,180,000 shares of our common stock are reserved for future issuance under the 2024 Plan, which became effective on the date immediately prior to the effectiveness of the registration statement of which this prospectus forms a part, as well as any future automatic annual increases in the number of shares of common stock reserved for issuance under the 2024 Plan and any shares underlying outstanding stock awards granted under the 2021 Plan, that expire or are repurchased, forfeited, cancelled, or withheld. For additional information regarding terms of our equity incentive plans, see the section titled "Executive compensation—Employee benefit and equity compensation plans" included elsewhere in this prospectus.

Registration rights

Upon the completion of this offering, certain holders of our common stock, including those issuable upon the conversion of redeemable convertible preferred stock, will be entitled to rights with respect to the registration of these securities under the Securities Act. These rights are provided under the terms of an investors' rights agreement between us and the holders of our redeemable convertible preferred stock. The investors' rights agreement includes demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs and expenses of underwritten registrations under this agreement will be borne by us and all selling expenses, including underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Demand registration rights

Beginning six months after the completion of this offering, certain holders of our common stock, including those issuable upon the conversion of shares of our redeemable convertible preferred stock upon completion of this offering, will be entitled to demand registration rights. Under the terms of the investors' rights agreement, we will be required, upon the written request of a majority of holders of the registerable securities then outstanding that would result in an aggregate offering price of at least $5 million, to file a registration statement on Form S-1 with respect to the registrable securities then outstanding and to use commercially reasonable efforts to effect the registration of all or a portion of these shares for public resale.

Short-form registration rights

Upon the completion of this offering, certain holders of our common stock, including those issuable upon the conversion of shares of our redeemable convertible preferred stock upon completion of this offering, are also entitled to short-form registration rights. Pursuant to the investors' rights agreement, if we are eligible to file a registration statement on Form S-3, upon the written request of at least 30% in interest of these holders to sell registrable securities at an aggregate price of at least $1 million, we will be required to use commercially reasonable efforts to effect a registration of such shares. We are required to effect only one registration in any twelve month period pursuant to this provision of the investor rights agreement.

Piggyback registration rights

Upon the completion of this offering, certain holders of our common stock, including those issuable upon the conversion of shares of our redeemable convertible preferred stock upon completion of this offering, are entitled to piggyback registration rights. If we register any of our securities either for our own account or for the account of other security holders, the holders of these shares are entitled to include their shares in the

registration. Subject to certain exceptions contained in the investors' rights agreement, we and the underwriters may limit the number of shares included in the underwritten offering to the number of shares which we and the underwriters determine in our sole discretion will not jeopardize the success of the offering.

Indemnification

Our investors' rights agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expiration of registration rights

The demand registration rights and short-form registration rights granted under the investor rights agreement will terminate on the fifth anniversary of the completion of this offering.

Anti-takeover effects of our certificate of incorporation and bylaws and Delaware law

Our certificate of incorporation and 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. These provisions include the items described below.

Board composition and filling vacancies

Our certificate of incorporation will provide for the division of our board of directors into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also will provide that directors may be removed only for cause and then only by the affirmative vote of the holders of two-thirds or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum. The classification of directors, together with the limitations on removal of directors and treatment of vacancies, has the effect of making it more difficult for stockholders to change the composition of our board of directors.

No written consent of stockholders

Our certificate of incorporation provides that all stockholder actions are required to 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 bylaws or removal of directors by our stockholders without holding a meeting of stockholders.

Meetings of stockholders

Our certificate of incorporation and bylaws provide that only a majority of the members of our board of directors then in office may 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. Our bylaws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance notice requirements

Our bylaws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. Our bylaws specify the requirements as to form and content of all stockholders' notices. These requirements may preclude stockholders from bringing matters before the stockholders at an annual or special meeting.

Amendment to certificate of incorporation and bylaws

Any amendment of our certificate of incorporation must first be approved by a majority of our board of directors, and if required by law or our certificate of incorporation, must thereafter be approved by 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 the provisions relating to stockholder action, board composition, and limitation of liability must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than two-thirds of the outstanding shares of each class entitled to vote thereon as a class. Our bylaws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the bylaws; and may also be amended by the affirmative vote of a majority of the outstanding shares entitled to vote on the amendment, voting together as a single class, except that the amendment of the provisions relating to notice of stockholder business and nominations and special meetings must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than two-thirds of the outstanding shares of each class entitled to vote thereon as a class, or, if our board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

Undesignated preferred stock

Our certificate of incorporation provides for 10,000,000 authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest, or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Choice of forum

Our bylaws provide that the Court of Chancery of the State of Delaware is the sole and exclusive forum for the following claims or causes of action under the Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of, or a claim based on, a breach of a

fiduciary duty owed by any of our current or former directors, officers, or other employees or stockholders to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law ("DGCL") or our certificate of incorporation or amended and restated bylaws (including the interpretation, validity or enforceability thereof) or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware, or (iv) any action asserting a claim governed by the internal affairs doctrine.

However, Section 27 of the Exchange Act creates exclusive federal jurisdiction over all claims brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. Consequently, this choice of forum provision would not apply to claims or causes of action brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction or the Securities Act. Moreover, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all claims brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder.

In addition, our bylaws provide that, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. We note that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

Additionally, our bylaws provide that any person or entity holding, owning or otherwise acquiring any interest in any of our securities shall be deemed to have notice of and consented to these provisions.

Section 203 of the Delaware General Corporation Law

Upon completion of this offering, we will be subject to the provisions of Section 203 of the DGCL. 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 a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or

- at or after the time the stockholder became interested, the business combination was approved by our board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge, or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges, or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Limitations on liability and indemnification

See the section titled “Management—Limitations on liability and indemnification” included elsewhere in this prospectus.

Nasdaq Global Select Market listing

Our common stock has been approved for listing on the Nasdaq Global Select Market under the trading symbol “UPB.”

Transfer agent and registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

Shares eligible for future sale

Prior to this offering, there has been no public market for our shares. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Based on the number of shares outstanding as of June 30, 2024, upon the completion of this offering, 51,341,695 shares of our common stock will be outstanding, assuming the automatic conversion of all outstanding shares of our Series A and Series B redeemable convertible preferred stock into shares of common stock, no exercise of the underwriters' option to purchase additional shares and no exercise of outstanding options. Of the outstanding shares, all of the shares sold in this offering will be freely tradable, except that any shares held by our affiliates, as that term is defined in Rule 144 under the Securities Act, may only be sold in compliance with the limitations described below.

Rule 144

In general, a person who has beneficially owned restricted stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale, and (ii) we are subject to the Securities Exchange Act of 1934, as amended (the "Exchange Act"), periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares then outstanding, which will equal 513,416 shares immediately after this offering assuming no exercise of the underwriters' option to purchase additional shares, based on the number of shares outstanding as of June 30, 2024; or
- the average weekly trading volume of our common stock on the Nasdaq Global Select Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers, or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under the section titled "Underwriting" included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-up agreements

We, all of our directors and executive officers, and the holders of all of our capital stock and securities convertible into or exchangeable for our capital stock have entered into lock-up agreements with the underwriters and/or are subject to market standoff agreements or other agreements with us, which prevents them from selling any of our common stock or any securities convertible into or exercisable or exchangeable for common stock for a period of not less than 180 days from the date of this prospectus without the prior written consent of the representatives, subject to certain exceptions. See the section titled “Underwriting” included elsewhere in this prospectus for more information.

Registration rights

Upon completion of this offering, certain holders of our securities will be entitled to various rights with respect to registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act immediately upon the effectiveness of the registration. See the section titled “Description of capital stock—Registration rights” included elsewhere in this prospectus for more information.

Equity incentive plans

We intend to file one or more registration statements on Form S-8 under the Securities Act to register our shares issued or reserved for issuance under our equity incentive plans. The first such registration statement is expected to be filed soon after the date of this prospectus and will automatically become effective upon filing with the SEC. Accordingly, shares registered under such registration statement will be available for sale in the open market, unless such shares are subject to vesting restrictions with us or the lock-up restrictions described above.

Material U.S. federal income tax considerations for non-U.S. holders of common stock

The following discussion is a summary of material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the purchase, ownership and disposition of our common stock issued pursuant to this offering. This discussion is based on the Internal Revenue Code of 1986, as amended (the "Code"), Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service (the "IRS"), all as in effect on the date hereof. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income, the alternative minimum tax, or the special tax accounting rules under Section 451(b) of the Code, and also does not address any U.S. federal non-income tax consequences, such as estate or gift tax consequences, or any tax consequences arising under any state, local or foreign tax laws. This discussion does not address all of the U.S. federal income tax consequences that may be relevant to a non-U.S. holder in light of such non-U.S. holder's particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to non-U.S. holders subject to special rules under the U.S. federal income tax laws, including:

- U.S. expatriates, former citizens, or long-term residents of the United States;
- partnerships or other entities or arrangements treated as pass-through or disregarded entities for U.S. federal income tax purposes (and investors therein);
- "controlled foreign corporations";
- "passive foreign investment companies";
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- persons who acquire our common stock through the exercise of an option or otherwise as compensation;
- qualified foreign pension funds as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds;
- persons that elect to apply Section 1400Z-2 of the Code to gains recognized with respect to shares of our common stock;
- persons that own or have owned, actually or constructively, more than 5% of our common stock;

- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or synthetic security or a constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of non-U.S. holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is for U.S. federal income tax purposes:

- a non-resident alien individual;
- a corporation or any organization taxable as a corporation for U.S. federal income taxes that is not created or organized under the laws of the United States, any state thereof, or the District of Columbia; or
- a foreign trust or estate, the income of which is not subject to U.S. federal income tax on a net income basis.

Distributions on our common stock

As described under “Dividend policy,” we do not currently anticipate declaring or paying, for the foreseeable future, any distributions on our capital stock. However, if we were to distribute cash or other property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles.

Subject to the discussion below regarding effectively connected income, backup withholding and FATCA (as defined below), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our withholding agent with a valid IRS Form W-8BEN (in the case of individuals) or IRS Form W-8BEN-E (in the case of entities), or other appropriate form, certifying such holder’s qualification for the reduced rate. This certification must be provided to us or our withholding agent before the payment of the dividends and must be updated periodically. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder’s behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our withholding agent, either directly or through other intermediaries.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder’s U.S. trade or

business (and are attributable to such holder's permanent establishment or fixed base in the United States if required by an applicable tax treaty), the non-U.S. holder generally will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) , certifying that the dividends are effectively connected with the non-U.S. Holder's conduct of a trade or business within the United States to the applicable withholding agent.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected dividends, as adjusted for certain items.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under the section titled "—Gain on disposition of our common stock" below.

Gain on disposition of our common stock

Subject to the discussion below regarding backup withholding and FATCA (as defined below), a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other taxable disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for a period or periods aggregating 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation ("USRPHC") for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not "regularly traded" on an established securities market during the calendar year in which the sale or other disposition occurs.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses of the non-U.S. Holder (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our worldwide real property interests and our other trade or business assets. We believe that we are not currently and we do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC. Even if we are treated as a USRPHC, gain realized by a non-U.S. holder on a disposition of our common stock will not be subject to U.S. federal income tax so long as (1) the non-U.S. holder owned, directly, indirectly and constructively, no more than 5% of our common stock at all times within the shorter of (a) the five-year period preceding the disposition or (b) the holder's holding period and (2) our common stock is "regularly traded" on an established securities market within the meaning of applicable U.S. Treasury regulations. There can be no assurance that our common stock qualifies as regularly traded on an established securities market for purposes of the rules described above.

Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information reporting and backup withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of distributions on our common stock paid to such holder and the amount of any tax withheld with respect to those distributions. These information reporting requirements apply even if no withholding was required because the distributions were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of distributions on or the gross proceeds of a disposition of our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or otherwise establishes an exemption, and if the payor does not have actual knowledge, or reason to know, that the holder is a U.S. person who is not an exempt recipient.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on foreign entities

Sections 1471 through 1474 of the Code, which are commonly referred to as FATCA, impose a U.S. federal withholding tax of 30% on certain payments made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally imposes a U.S. federal withholding tax of 30% on certain payments made to a "non-financial foreign entity" (as specially defined under these rules) unless such entity provides the withholding agent a certification that it does not have any "substantial United States owners" or provides information identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. FATCA currently applies to dividends paid on our common stock and would have applied also to

payments of gross proceeds from the sale or other disposition of our common stock. However, proposed regulations under FATCA provide for the elimination of the federal withholding tax of 30% applicable to gross proceeds of a sale or other disposition of from property of a type that can produce U.S. source dividends or interest. Under these proposed Treasury Regulations (which may be relied upon by taxpayers prior to finalization), FATCA withholding does not apply to gross proceeds from sales or other dispositions of our common stock.

Prospective investors are encouraged to consult with their tax advisors regarding the possible implications of FATCA on their investment in our common stock.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY RECENT AND PROPOSED CHANGE IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS.

Underwriting

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC, TD Securities (USA) LLC, Piper Sandler & Co. and William Blair & Company, L.L.C. are acting as joint book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	6,000,000
TD Securities (USA) LLC	4,050,000
Piper Sandler & Co.	3,150,000
William Blair & Company, L.L.C.	1,800,000
Total	15,000,000

The underwriters are committed to purchase all the shares of common stock offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $0.7140 per share. After the initial offering of the shares to the public, if all of the shares of common stock are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of any shares made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to 2,250,000 additional shares of common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $1.19 per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without option to purchase additional shares exercise	With full option to purchase additional shares exercise
Per share	$ 1.19	$ 1.19
Total	$ 17,850,000	$ 20,527,500

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $4.0 million. We have agreed to reimburse the underwriters for expenses relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc. in an amount up to $40,000.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not, subject to certain exceptions, (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, hedge, lend, or otherwise transfer or dispose of, directly or indirectly, or submit to, or file with, the SEC a registration statement under the Securities Act relating to, any shares of our common stock or any securities convertible into or exercisable or exchangeable for any shares of our common stock, or (ii) enter into any swap, hedging, or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of any shares of common stock or any such other securities, or publicly disclose the intention to undertake any of the foregoing (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC, TD Securities (USA) LLC, Piper Sandler & Co. and William Blair & Company, L.L.C. for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold in this offering.

The restrictions on our actions, as described above, do not apply to certain transactions, including (i) the issuance of shares of common stock or securities convertible into or exercisable for shares of our common stock pursuant to the conversion or exchange of convertible or exchangeable securities or the exercise of warrants or options (including net exercise) or the settlement of RSUs (including net settlement), in each case outstanding on the date of the underwriting agreement and described in this prospectus; (ii) grants of stock options, stock awards, restricted stock, RSUs, or other equity awards and the issuance of shares of common stock or securities convertible into or exercisable or exchangeable for shares of our common stock (whether upon the exercise of stock options or otherwise) to our employees, officers, directors, advisors, or consultants pursuant to the terms of an equity compensation plan in effect as of the closing date of this offering and described in this prospectus; (iii) the issuance of up to 10% of the outstanding shares of common stock, or securities convertible into, exercisable for, or which are otherwise exchangeable for, common stock, immediately following the closing date of this offering, in acquisitions or other similar strategic transactions, provided that such recipients enter into a lock-up agreement with the underwriters; or (iv) the filing of any registration statement on Form S-8 relating to securities granted or to be granted pursuant to any plan in effect on the date of the underwriting agreement and described in this prospectus or any assumed benefit plan pursuant to an acquisition or similar strategic transaction.

Our directors and executive officers, and all of our securityholders (such persons, the “lock-up parties”) have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each lock-up party, with limited exceptions, for a period of 180 days after the date of this prospectus (such period, the “restricted period”), may not and may not cause any of their direct or indirect affiliates to, without the prior written consent of J.P. Morgan Securities LLC, TD Securities (USA) LLC, Piper Sandler & Co. and William Blair & Company, L.L.C., (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including without limitation, our common stock or such other securities which may be deemed to be beneficially owned by the lock-up party in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant) (collectively with the common stock, the “lock-up securities”), (ii) enter into any

hedging, swap or other agreement or transaction that transfers, in whole or in part, any of the economic consequences of ownership of the lock-up securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of the lock-up securities, in cash or otherwise, (iii) make any demand for or exercise any right with respect to the registration of any the lock-up securities, or (iv) publicly disclose the intention to do any of the foregoing.

Such persons or entities have further acknowledged that these undertakings preclude them from engaging in any hedging or other transactions or arrangements (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) designed or intended, or which could reasonably be expected to lead to or result in, a sale or disposition or transfer (whether by the lock-up party or any other person) of any economic consequences of ownership, in whole or in part, directly or indirectly, of any lock-up securities, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of lock-up securities, in cash or otherwise. Such persons or entities further confirm that they have furnished the representatives with the details of any transaction such persons or entities, or any of their respective affiliates, is a party to as of the date hereof, which transaction would have been restricted by the lock-up agreements if it had been entered into by such persons or entities during the restricted period.

The restrictions described in the immediately preceding paragraph and contained in the lock-up agreements between the underwriters and the lock-up parties do not apply, subject in certain cases to various conditions, to certain transactions, including (a) transfers or disposals of lock-up securities: (i) as bona fide gifts, as a charitable contribution or for bona fide estate planning purposes, (ii) by will or intestacy or any other testamentary document, (iii) to any trust for the direct or indirect benefit of the lock-up party or any immediate family member, (iv) to a corporation, partnership, limited liability company, investment fund or other entity (A) of which the lock-up party and/or its immediate family members are the legal and beneficial owner of all of the outstanding equity securities or similar interests, or (B) controlled by, or under common control with, the lock-up party or the immediate family of the lock-up party, (v) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (i) through (iv), (vi) in the case of a corporation, partnership, limited liability company, trust or other business entity, (A) to another corporation, partnership, limited liability company, trust or other business entity that is a wholly owned subsidiary or an affiliate of the lock-up party, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up party or its affiliates or (B) as part of a dispositions, transfer or distribution to limited partners, members or stockholders of the lock-up party; (vii) by operation of law, (viii) to us (A) from an employee upon death, disability or termination of employment of such employee or (B) pursuant to a right of first refusal that we have with respect to transfers of such shares of our common stock or other securities, provided that such right is described in this prospectus, (ix) after the completion of this offering, as part of a transaction related to of lock-up securities acquired in (A) this offering or (B) open market transactions on or after the date of this prospectus, (x) to us in connection with the vesting, settlement or exercise of restricted stock units, options, warrants or other rights to purchase shares of our common stock (including “net” or “cashless” exercise), including for the payment of exercise price and tax and remittance payments, (xi) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction approved by our board of directors and made to all stockholders involving a change in control, and enter into any lock-up, voting or similar agreement pursuant to which the lock-up party may agree to transfer, sell, tender or otherwise dispose of lock-up securities in connection with such a transaction, provided that if such transaction is not completed, all such lock-up securities would remain subject to the restrictions in the immediately preceding paragraph (xii) to an immediate family member of the lock-up party; or (xiii) to us in connection with the transfer of shares of our common stock pursuant to option agreements relating to the early exercise by the lock-up party of unvested options issued pursuant to the our equity incentive plans, which plans are in each case described in this prospectus, under which we have the right to repurchase such shares and only

to the extent we elect to exercise such right; (b) exercise of the options, settlement of RSUs or other equity awards, or the exercise of warrants granted pursuant to plans described in in this prospectus, provided that any lock-up securities received upon such exercise, vesting or settlement would be subject to restrictions similar to those in the immediately preceding paragraph; (c) the conversion of outstanding preferred stock, warrants to acquire preferred stock, or convertible securities into shares of our common stock or warrants to acquire shares of our common stock, provided that any common stock or warrant received upon such conversion would be subject to restrictions similar to those in the immediately preceding paragraph; (d) the establishment or modification by lock-up parties of trading plans under Rule 10b5-1 under the Exchange Act, provided that such plan does not provide for the transfer of lock-up securities during the restricted period; and (e) sell shares of our common stock to be sold by the undersigned pursuant to the terms of the underwriting agreement.

J.P. Morgan Securities LLC, TD Securities (USA) LLC, Piper Sandler & Co. and William Blair & Company, L.L.C., in their sole discretion, may release the securities subject to any of the lock-up agreements with the underwriters described above, in whole or in part at any time.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

Our common stock has been approved for listing on the Nasdaq Global Select Market (“Nasdaq”) under the symbol “UPB.”

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount.

The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters

commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on Nasdaq, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price was determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters considered a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for shares of our common stock, or that the shares will trade in the public market at or above the initial public offering price.

Other relationships

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Selling restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Notice to prospective investors in the European Economic Area

In relation to each Member State of the European Economic Area (each a “Relevant State”), no shares have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the

publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that offers of shares may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the Prospectus Regulation), subject to obtaining the prior consent of the underwriters; or

(iii) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation, and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and to us that it is a "qualified investor" within the meaning of Article 2(e) of the Prospectus Regulation. In the case of any shares being offered to a financial intermediary as that term is used in the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant State to qualified investors as so defined or in circumstances in which the prior consent of the underwriters have been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer to the public" in relation to shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

Notice to prospective investors in the United Kingdom

No shares have been offered or will be offered pursuant to the offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares which (i) has been approved by the Financial Conduct Authority or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provisions in Article 74 (transitional provisions) of the Prospectus Amendment etc (EU Exit) Regulations 2019/1234, except that the shares may be offered to the public in the United Kingdom at any time:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of underwriters for any such offer; or

(iii) in any other circumstances falling within Section 86 of the FSMA.

provided that no such offer of the shares shall require the Issuer or any Manager to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus

Regulation. For the purposes of this provision, the expression an “offer to the public” in relation to the shares in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares and the expression “UK Prospectus Regulation” means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are “qualified investors” (as defined in the Prospectus Regulation) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the “Order”) and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”) or otherwise in circumstances which have not resulted and will not result in an offer to the public of the shares in the United Kingdom within the meaning of the Financial Services and Markets Act 2000.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Notice to prospective investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser’s province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser’s province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (“NI 33-105”), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to prospective investors in Switzerland

This prospectus does not constitute an offer to the public or a solicitation to purchase or invest in any shares. No shares have been offered or will be offered to the public in Switzerland, except that offers of shares may be made to the public in Switzerland at any time under the following exemptions under the Swiss Financial Services Act (“FinSA”):

(i) to any person which is a professional client as defined under the FinSA;

(ii) to fewer than 500 persons (other than professional clients as defined under the FinSA), subject to obtaining the prior consent of the representatives of the underwriters for any such offer; or

(iii) in any other circumstances falling within Article 36 FinSA in connection with Article 44 of the Swiss Financial Services Ordinance, provided that no such offer of shares shall require the Company or any investment bank to publish a prospectus pursuant to Article 35 FinSA.

The shares have not been and will not be listed or admitted to trading on a trading venue in Switzerland.

Neither this document nor any other offering or marketing material relating to the shares constitutes a prospectus as such term is understood pursuant to the FinSA and neither this document nor any other offering or marketing material relating to the shares may be publicly distributed or otherwise made publicly available in Switzerland.

Notice to prospective investors in the Dubai International Financial Centre

This document relates to an Exempt Offer in accordance with the Markets Law, DIFC Law No. 1 of 2012, as amended. This document is intended for distribution only to persons of a type specified in the Markets Law, DIFC Law No. 1 of 2012, as amended. It must not be delivered to, or relied on by, any other person. The Dubai Financial Services Authority ("DFSA") has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for this document. The securities to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this document you should consult an authorized financial advisor.

In relation to its use in the DIFC, this document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient, and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

Notice to prospective investors in the United Arab Emirates

The shares have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority, Financial Services Regulatory Authority ("FSRA") or the DFSA.

Notice to prospective investors in Australia

This prospectus:

- does not constitute a disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) (the "Corporations Act");
- has not been, and will not be, lodged with the Australian Securities and Investments Commission ("ASIC"), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document for the purposes of the Corporations Act; and
- may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, available under section 708 of the Corporations Act ("Exempt Investors").

The shares may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares may be issued, and no draft or definitive offering memorandum, advertisement or other offering material relating to any shares may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares of our common stock under this prospectus will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the shares of our common stock you undertake to us that you will not, for a period of 12 months from the date of issue of the shares, offer, transfer, assign or otherwise alienate those shares of our common stock to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to prospective investors in Japan

The shares have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any “resident” of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to prospective investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) (the “SFO”) of Hong Kong and any rules made thereunder; or (b) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong) (the “CO”) or which do not constitute an offer to the public within the meaning of the CO. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the SFO and any rules made thereunder.

Notice to prospective investors in Singapore

Each underwriter has acknowledged that this prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each underwriter has represented and agreed that it has not offered or sold any shares or caused the shares to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares or cause the shares to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this prospectus

or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, whether directly or indirectly, to any person in Singapore other than:

(i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the "SFA")) pursuant to Section 274 of the SFA;

(ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or

(iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

(iv) Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(v) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(vi) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(c)(ii) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—In connection with Section 309B of the SFA and the CMP Regulations 2018, unless otherwise specified before an offer of shares of our common stock, we have determined, and hereby notify all relevant persons (as defined in Section 309A(1) of the SFA), that the shares of common stock are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Notice to prospective investors in Bermuda

Shares may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to prospective investors in Saudi Arabia

This document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Rules on the Offer of Securities and Continuing Obligations Regulations as issued by the board of the Saudi Arabian Capital Market Authority ("CMA") pursuant to resolution number 3-123-2017 dated 27 December 2017, as amended (the "CMA Regulations"). The CMA does not make any representation as to the accuracy or completeness of this document and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorised financial adviser.

Notice to prospective investors in the British Virgin Islands

The shares are not being, and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on behalf of us. The shares may be offered to companies incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands), "BVI Companies"), but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands.

Notice to prospective investors in China

This prospectus will not be circulated or distributed in the PRC and the shares will not be offered or sold, and will not be offered or sold to any person for re-offering or resale directly or indirectly to any residents of the PRC (for such purposes, not including the Hong Kong and Macau Special Administrative Regions or Taiwan), except pursuant to any applicable laws and regulations of the PRC. Neither this prospectus nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with applicable laws and regulations.

Notice to prospective investors in Korea

The shares have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder (the "FSCMA"), and the shares have been and will be offered in Korea as a private placement under the FSCMA. None of the shares may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder (the "FETL"). Furthermore, the purchaser of the shares shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares. By the purchase of the shares, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares pursuant to the applicable laws and regulations of Korea.

Notice to prospective investors in Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the shares has been or will be registered with the Securities Commission of Malaysia ("Commission") for the Commission's approval pursuant to the Capital Markets and Services Act 2007. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Malaysia other than (i) a

closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services Licence; (iii) a person who acquires the shares, as principal, if the offer is on terms that the shares may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the shares is made by a holder of a Capital Markets Services License who carries on the business of dealing in securities. The distribution in Malaysia of this prospectus is subject to Malaysian laws. This prospectus does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Notice to prospective investors in Taiwan

The shares have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorised to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares in Taiwan.

Notice to prospective investors in South Africa

Due to restrictions under the securities laws of South Africa, no “offer to the public” (as such term is defined in the South African Companies Act, No. 71 of 2008 (as amended or re-enacted) (the “South African Companies Act”) is being made in connection with the issue of the shares in South Africa. Accordingly, this document does not, nor is it intended to, constitute a “registered prospectus” (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any other regulatory authority in South Africa. The shares are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions stipulated in section 96 (1) applies:

Section 96 (1) (a) the offer, transfer, sale, renunciation or delivery is to:

(i) persons whose ordinary business, or part of whose ordinary business, is to deal in securities, as principal or agent;

(ii) the South African Public Investment Corporation;

(iii) persons or entities regulated by the Reserve Bank of South Africa;

(iv) authorised financial service providers under South African law;

	(v) financial institutions recognised as such under South African law;
	(vi) a wholly-owned subsidiary of any person or entity contemplated in (c), (d) or (e), acting as agent in the capacity of an authorised portfolio manager for a pension fund, or as manager for a collective investment scheme (in each case duly registered as such under South African law); or
	(vii) any combination of the person in (i) to (vi); or
Section 96 (1) (b)	the total contemplated acquisition cost of the securities, for any single addressee acting as principal is equal to or greater than ZAR1,000,000 or such higher amount as may be promulgated by notice in the Government Gazette of South Africa pursuant to section 96(2)(a) of the South African Companies Act.

Information made available in this prospectus should not be considered as “advice” as defined in the South African Financial Advisory and Intermediary Services Act, 2002.

Notice to prospective investors in Israel

This prospectus does not constitute a prospectus under the Israeli Securities Law, 5728-1968, or the Israeli Securities Law, and has not been filed with or approved by the Israel Securities Authority. In Israel, this prospectus is being distributed only to, and is directed only at, and any offer of the shares is directed only at, (i) a limited number of persons in accordance with the Israeli Securities Law and (ii) investors listed in the first addendum, or the Addendum, to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and “qualified individuals,” each as defined in the Addendum (as it may be amended from time to time), or, collectively referred to as qualified investors (in each case, purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors are required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it.

Legal matters

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Certain legal matters related to this offering will be passed upon for the underwriters by Cooley LLP, San Francisco, California.

Experts

The financial statements as of December 31, 2023 and 2022 and for the years then ended included in this prospectus have been so included in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where you can find more information

We have filed with the SEC a registration statement on Form S-1 (File Number 333-282197) under the Securities Act with respect to the common stock we are offering by this prospectus. This prospectus does not contain all of the information included in the registration statement. For further information pertaining to us and our common stock, you should refer to the registration statement and to its exhibits. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete, and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreement or other document.

Upon the completion of the offering, we will be subject to the informational requirements of the Exchange Act and will file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including the registration statement, at the SEC's website at www.sec.gov. We also maintain a website at www.upstreambio.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference. Upon completion of the offering, you may access, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendment to those reported filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC.

Index to consolidated financial statements

Report of independent registered public accounting firm

To the Board of Directors and Stockholders of Upstream Bio, Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of Upstream Bio, Inc. and its subsidiary (the "Company") as of December 31, 2023 and 2022, and the related consolidated statements of operations and comprehensive loss, of redeemable convertible preferred stock and stockholders' deficit and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Basis for opinion

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

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

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

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
June 12, 2024, except for the effects of the stock split discussed in Note 18 to the consolidated financial statements, as to which the date is October 7, 2024

We have served as the Company's auditor since 2022.

Upstream Bio, Inc.
Consolidated balance sheets
(Amounts in thousands, except share and per share amounts)

	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 25,833	$ 17,051
Short-term investments	83,977	-
Accounts receivable - related party	98	412
Prepaid expenses and other current assets	7,088	844
Total current assets	116,996	18,307
Property and equipment, net	159	75
Operating lease right-of-use assets	43	89
Other non-current assets	-	7
Total assets	$ 117,198	$ 18,478
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities:		
Accounts payable	$ 1,990	$ 712
Accrued expenses and other current liabilities	4,480	4,057
Operating lease liabilities, current portion	45	87
Total current liabilities	6,515	4,856
Preferred stock tranche right liabilities	2,874	6,947
Operating lease liabilities, net of current portion	-	7
Total liabilities	9,389	11,810
Commitments and contingencies (Note 13)		
Redeemable convertible preferred stock (Series A, B), $0.001 par value; 31,764,693 shares and 20,000,000 shares authorized at December 31, 2023 and 2022, respectively; 22,941,170 shares and 12,000,000 shares issued and outstanding at December 31, 2023 and 2022, respectively; aggregate liquidation preference of $267,718 and $126,886 at December 31, 2023 and 2022, respectively	230,935	112,823
Stockholders' deficit:		
Common stock, $0.001 par value; 40,664,346 shares and 28,000,000 shares authorized at December 31, 2023 and 2022, respectively; 2,992,479 and 2,937,197 shares issued and outstanding at December 31, 2023 and 2022, respectively	3	3
Additional paid-in capital	4,824	1,279
Accumulated other comprehensive income	21	-
Accumulated deficit	(127,974)	(107,437)
Total stockholders' deficit	(123,126)	(106,155)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 117,198	$ 18,478

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

Upstream Bio, Inc.
Consolidated statements of operations and comprehensive loss
(Amounts in thousands, except share and per share amounts)

	Year Ended December 31,	
	2023	2022
Collaboration revenue - related party	$ 2,380	$ 1,212
Operating expenses:		
Research and development	31,799	18,657
General and administrative[1]	10,695	6,464
Total operating expenses	42,494	25,121
Loss from operations	(40,114)	(23,909)
Other income (expense):		
Change in fair value of preferred stock tranche right liabilities	15,527	(77)
Interest income	4,165	205
Other expense, net	(115)	(87)
Total other income, net	19,577	41
Net loss	$ (20,537)	$ (23,868)
Redeemable convertible preferred stock cumulative dividends	(17,718)	-
Net loss attributable to common stockholders	$ (38,255)	$ (23,868)
Net loss per share attributable to common stockholders, basic and diluted	$ (12.95)	$ (8.13)
Weighted-average common shares outstanding, basic and diluted	2,953,756	2,937,197
Comprehensive loss:		
Net loss	$ (20,537)	$ (23,868)
Unrealized gain on investments, net of tax	21	-
Comprehensive loss	$ (20,516)	$ (23,868)

(1) Includes related party amounts of $0.1 million for the year ended December 31, 2023 (Note 16).

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

Upstream Bio, Inc.
Consolidated statements of redeemable convertible preferred stock and stockholders' deficit
(Amounts in thousands, except share amounts)

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balances at December 31, 2021	11,000,000	$ 102,041	2,937,197	$ 3	$ -	$ (83,569)	$ -	$ (83,566)
Issuance of Series A redeemable convertible preferred stock in connection with the partial settlement of the tranche right liability	1,000,000	10,782	-	-	-	-	-	-
Stock-based compensation expense	-	-	-	-	1,279	-	-	1,279
Net loss	-	-	-	-	-	(23,868)	-	(23,868)
Balances at December 31, 2022	12,000,000	112,823	2,937,197	3	1,279	(107,437)	-	(106,155)
Issuance of Series A redeemable convertible preferred stock in connection with the settlement of the tranche right liability	8,000,000	80,320	-	-	-	-	-	-
Issuance of Series B redeemable convertible preferred stock, net of preferred stock tranche right liability of $11,774 and issuance costs of $434	2,941,170	37,792	-	-	-	-	-	-
Exercise of stock options, net of tax withholding	-	-	34,302	-	118	-	-	118
Stock-based compensation expense	-	-	-	-	3,325	-	-	3,325
Stock-based compensation expense - related party	-	-	20,980	-	102	-	-	102
Unrealized gain on available-for-sale securities, net of tax	-	-	-	-	-	-	21	21
Net loss	-	-	-	-	-	(20,537)	-	(20,537)
Balances at December 31, 2023	22,941,170	$ 230,935	2,992,479	$ 3	$ 4,824	$ (127,974)	$ 21	$ (123,126)

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

Upstream Bio, Inc.
Consolidated statements of cash flows
(Amounts in thousands)

	Year Ended December 31,	
	2023	2022
Cash flows from operating activities:		
Net loss	$ (20,537)	$ (23,868)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	60	7
Stock-based compensation expense	3,325	1,279
Stock-based compensation expense - related party	102	-
Change in fair value of preferred stock tranche right liabilities	(15,527)	77
Series B issuance costs allocated to tranche right liability	134	-
Net amortization of premiums and accretion of discounts on short-term investments	(1,260)	-
Non-cash lease expense	82	72
Changes in operating assets and liabilities:		
Accounts receivable - related party	314	(412)
Prepaid expenses and other current assets	(6,237)	(585)
Other non-current assets	-	(7)
Accounts payable	1,278	462
Accrued expenses and other current liabilities	422	4,021
Operating lease liabilities	(82)	(67)
Net cash used in operating activities	(37,926)	(19,021)
Cash flows from investing activities:		
Purchases of short-term investments	(128,990)	-
Maturities of short-term investments	46,292	-
Purchases of property and equipment	(144)	(82)
Net cash used in investing activities	(82,842)	(82)
Cash flows from financing activities:		
Proceeds from the issuance of Series A redeemable convertible preferred stock[(1)]	80,000	10,000
Payments of issuance costs of Series A redeemable convertible preferred stock issued in prior period	-	(37)
Proceeds from the issuance of Series B redeemable convertible preferred stock including tranche right, net of issuance costs paid	49,432	-
Proceeds from exercises of stock options, net of tax withholding	118	-
Net cash provided by financing activities	129,550	9,963
Net increase (decrease) in cash and cash equivalents	8,782	(9,140)
Cash and cash equivalents at beginning of period	17,051	26,191
Cash and cash equivalents at end of period	$ 25,833	$ 17,051
Supplemental cash flow information:		
Right-of-use asset obtained in exchange for operating lease liability	$ 36	$ 161
Supplemental disclosure of non-cash investing and financing activities:		
Settlement of Series A preferred stock tranche right liability	$ 320	$ 782

(1) Includes related party amounts of $10.0 million and $1.3 million for the years ended December 31, 2023 and 2022, respectively (Note 16).

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

Upstream Bio, Inc.
Notes to consolidated financial statements

1. Nature of the business and basis of presentation

Upstream Bio, Inc. was incorporated in April 2021, under the laws of the State of Delaware, and along with its consolidated subsidiary (collectively, the "Company" or "Upstream"), is focused on developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. Since its inception, the Company has devoted substantially all of its efforts to raising capital and incurring research and development expenses related to advancing verekitug, a clinical-stage monoclonal antibody that targets and inhibits the Thymic Stromal Lymphopoietin receptor.

Risks and uncertainties

The global economy has experienced extreme volatility and disruptions due to the military conflict between Russia and Ukraine and the war between Israel and Hamas. These conditions have impacted, and may continue to impact, the capital and credit markets, which may reduce the Company's ability to raise additional capital through equity, equity-linked instruments or debt financings which could negatively impact the Company's short-term and long-term liquidity. Additionally, the Company's results of operations could be adversely affected by general conditions in the global economy and financial markets. A severe or prolonged economic downturn could result in a variety of risks to the Company's business, including a reduced ability to raise additional capital when needed on favorable terms, if at all. The Federal Reserve has raised interest rates multiple times in response to concerns about inflation and it 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. Any of the foregoing could harm the Company's business, and it cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact its ability to raise capital, business, results of operations and financial condition.

The Company is subject to risks and uncertainties common to early-stage companies in the biopharmaceutical industry, including, but not limited to, successful development of verekitug, the development of new technological innovations by competitors, dependence on key personnel, the ability to attract and retain qualified employees, protection of proprietary technology, compliance with governmental regulations and the ability to secure additional capital to fund operations and commercial success of verekitug. There can be no assurance that the Company's research and development will be successfully completed, that adequate protection for the Company's intellectual property will be maintained, that any therapeutic products developed will obtain required regulatory approval or that any approved or consumer products will be commercially viable. Even if the Company's development efforts are successful, it is uncertain when, if ever, the Company will generate significant product sales.

Liquidity

The Company has evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the consolidated financial statements are available to be issued.

The accompanying consolidated financial statements have been prepared on the basis of continuity of operations, realization of assets and the satisfaction of liabilities and commitments in the ordinary course of business. The Company has historically financed its operations principally through the issuance and sale of Series A redeemable convertible preferred stock ("Series A Preferred Stock") and Series B redeemable convertible preferred stock ("Series B Preferred Stock"), which are collectively referred to as the "Preferred Stock." The Company has incurred recurring losses and negative cash flows from operations since its inception and expects to

continue to incur losses and negative cash flows for the foreseeable future as it continues the research and development of verekitug. During the years ended December 31, 2023 and 2022, the Company incurred a net loss of $20.5 million and $23.9 million, respectively. As of December 31, 2023, the Company had an accumulated deficit of $128.0 million.

As of the date the consolidated financial statements for the year ended December 31, 2023 were available to be issued, the Company expects its existing cash, cash equivalents and short-term investments, which includes $150.0 million in gross cash proceeds from the issuance and sale of 8,823,523 shares of Series B Preferred Stock in connection with the Series B Preferred Stock Purchase Agreement (the "Series B Agreement") in April 2024 (Note 18), will be sufficient to fund its operating expenses and capital expenditures requirements for at least the next twelve months from the date the annual consolidated financial statements were available to be issued.

The Company is seeking to complete an initial public offering ("IPO") of its common stock. Upon the completion of a qualified public offering on specified terms (Note 8), the Company's outstanding Preferred Stock will automatically convert into shares of common stock. In the event the Company does not complete an IPO, until such time as the Company can generate significant product revenue, if ever, the Company expects to fund its operations through equity offerings or debt financings, credit or loan facilities, potentially other capital resources, or a combination of one or more of these funding sources. The terms of any financing may adversely affect the holdings or the rights of the Company's stockholders. The Company's failure to raise capital as and when needed could have a negative impact on its financial condition and its ability to pursue its business strategies. If adequate funds are not available to the Company, the Company may be required to delay, reduce or eliminate clinical programs, obtain funds through arrangements with collaborators on terms unfavorable to the Company or pursue merger or acquisition strategies. There can be no assurances the Company will be able to obtain additional funding. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Basis of presentation

The accompanying consolidated financial statements reflect the operations of the Company. Intercompany balances and transactions have been eliminated in consolidation. The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative U.S. GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB").

Revision of prior year financial statements

In connection with the preparation of its consolidated financial statements for the year ended December 31, 2023, the Company identified a $0.8 million error related to changes in fair value of the preferred stock tranche right liabilities in connection with the October 2022 closing of its Series A Preferred Stock during the year ended December 31, 2022 (Note 8). The Company determined that the related impact was not material to its consolidated financial statements for the year ended December 31, 2022. Accordingly, the Company revised the previously issued consolidated statement of operations and comprehensive loss, consolidated balance sheet, and statement of redeemable convertible preferred stock and stockholders' deficit as of and for the year ended December 31, 2022.

Upstream Bio, Inc.
Notes to consolidated financial statements

2. Summary of Significant Accounting Policies

Use of estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. The Company bases estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates. Significant estimates and assumptions reflected within these consolidated financial statements include, but are not limited to, prepaid and accrued research and development expenses, including those related to contract research organizations ("CROs"), contract manufacturing organizations ("CMOs") and other third-party vendors, the valuation of the Company's common stock and stock-based awards and the valuation of the preferred stock tranche right liabilities. Changes in estimates are recorded in the period in which they become known.

Concentration of credit risk and of significant suppliers

Financial instruments that potentially subject the Company to significant concentration of credit risk consist primarily of cash, cash equivalents and short-term investments. The Company deposits its cash and cash equivalents in financial institutions in amounts that may exceed federally insured limits, and has not experienced any losses on such accounts and does not believe it is exposed to any unusual credit risk beyond the normal credit risk associated with commercial banking relationships. The Company's short-term investments consist of U.S. treasury bills and U.S. government agency bonds which the Company believes represent minimal credit risk.

The Company is dependent on third-party manufacturers to supply products for research and development activities related to verekitug, including preclinical and clinical studies and testing. In particular, the Company relies and expects to continue to rely on a small number of manufacturers for the supply of verekitug. The Company's preclinical and clinical studies and testing could be adversely affected by a significant interruption in the supply.

Foreign currency gains and losses

The functional currency and the reporting currency of the Company is the U.S. dollar. Adjustments that arise from exchange rate changes on transactions denominated in a currency other than the functional currency are included as foreign exchange gains and losses in other expense, net in the consolidated statements of operations and comprehensive loss. The Company has not recognized material foreign currency transaction gains or losses during the years ended December 31, 2023 and 2022.

Cash and cash equivalents

The Company considers all short-term, highly liquid investments, with an original maturity of three months or less, to be cash equivalents, and includes amounts held in money market funds in the amount of $23.3 million and $10.0 million as of December 31, 2023 and 2022, respectively.

Short-term investments

Available-for-sale securities consist of investments with original maturities greater than 90 days at acquisition date. The Company classifies any investments with maturities beyond one year as short term, based on their highly liquid nature and because such available-for-sale securities represent the investment of cash that is available for current operations.

Upstream Bio, Inc.
Notes to consolidated financial statements

The Company's debt security investments are classified as available-for-sale and are carried at fair value, with the unrealized gains and losses reported as a component of accumulated other comprehensive income in stockholders' deficit. Realized gains and losses and declines in fair value due to credit-related factors are based on the specific identification method and are included as other expense, net in the consolidated statements of operations and comprehensive loss. The Company recorded interest income on available-for-sale investments of $4.2 million and $0.2 million during the years ended December 31, 2023 and 2022, respectively, which is classified as interest income in the consolidated statements of operations and comprehensive loss.

At each balance sheet date, the Company assesses available-for-sale debt securities in an unrealized loss position to determine whether the unrealized loss or any potential credit losses should be recognized in other expense, net. The Company evaluates whether it intends to sell, or it is more likely than not that it will be required to sell, the security before recovery of its amortized cost basis. The Company also evaluates whether the decline in fair value has resulted from credit losses or other factors. In making this assessment, the Company considers the severity of the impairment, any changes in interest rates, changes to the underlying credit ratings and forecasted recovery, among other factors. The credit-related portion of unrealized losses, and any subsequent improvements, are recorded in other expense, net. The portion that is not credit-related is treated in accordance with other unrealized losses as a component of accumulated other comprehensive income in stockholders' deficit. There have been no impairment or credit losses recognized during any of the periods presented.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in process equity financings as deferred offering costs until such financings are consummated. After consummation of the equity financing, these costs are recorded as a reduction of the proceeds from the offering, either as a reduction of the carrying value of the Preferred Stock or in stockholders' deficit as a reduction of additional paid-in-capital generated as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the consolidated statements of operations and comprehensive loss. The Company did not record any deferred offering costs as of December 31, 2023 and 2022.

Fair value measurements

Certain assets and liabilities of the Company are carried at fair value under U.S. GAAP. 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	Quoted prices in active markets for identical assets or liabilities.
Level 2	Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.
Level 3	Unobservable inputs that are supported by little or no market activity that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

Upstream Bio, Inc.
Notes to consolidated financial statements

The carrying values of the Company's prepaid expenses and other current assets, accounts payable and accrued expenses and other current liabilities approximate their fair values due to the short-term nature of these assets and liabilities. The Company's cash equivalents, short-term investments and preferred stock tranche right liabilities are carried at fair value (Note 3).

Property and equipment

The Company records property and equipment at cost less accumulated depreciation and amortization. Depreciation and amortization expense is recognized using the straight-line method over the estimated useful life of each asset, as follows:

	Estimated Useful Life
Computer equipment	3 years
Office equipment	5 years
Leasehold improvements	Shorter of remaining lease term or estimated useful life

Estimated useful lives are periodically assessed to determine if changes are appropriate. Leasehold improvements are amortized using the straight-line method over the lesser of the lease term or its estimated economic useful life. Lease terms are based upon the initial lease agreement and do not consider potential renewals or extensions until such time that the renewals or extensions are contracted. Expenditures for maintenance and repairs that do not improve or extend the life of the respective assets are expensed as incurred. When assets are retired or otherwise disposed of, the cost of these assets and related accumulated depreciation or amortization are eliminated from the consolidated balance sheets and any resulting gains or losses are included in the consolidated statements of operations and comprehensive loss in the period of disposal. Costs for capital assets not yet placed into service are capitalized as construction-in-progress and depreciated once placed into service.

Impairment of long-lived assets

The Company evaluates its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Factors that the Company considers in deciding when to perform an impairment review include significant underperformance of the business in relation to expectations, significant negative industry or economic trends and significant changes or planned changes in the use of the assets. If an impairment review is performed to evaluate a long-lived asset group for recoverability, the Company compares forecasts of undiscounted cash flows expected to result from the use and eventual disposition of the long-lived asset group to its carrying value. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of an asset group are less than its carrying amount. The impairment loss would be based on the excess of the carrying value of the impaired asset group over its fair value. For the years ended December 31, 2023 and 2022, the Company did not record any impairment losses on long-lived assets.

Operating leases

The Company determines if an arrangement is or contains a lease, as defined by ASU 2016-02, *Leases* (Topic 842) ("ASC 842"), at the lease inception date by evaluating whether the arrangement conveys the right to use an identified asset and whether the Company obtains substantially all of the economic benefits from and has the ability to direct the use of the asset. If an arrangement is determined to be or contain a lease, the lease is assessed for classification as either an operating or finance lease at the lease commencement date, defined as the date on which the leased asset is made available for use by the Company, based on the economic characteristics of the lease.

Upstream Bio, Inc.
Notes to consolidated financial statements

ASC 842 includes certain practical expedients that can be elected for new leases that are executed after the adoption of the new requirements. The Company elected the practical expedient to not separate lease and non-lease components. The Company also elected to apply the short-term lease recognition exemption which eliminates the requirement to present on the consolidated balance sheets leases with a term of 12 months or less. These two practical expedients were elected for all classes of underlying assets.

At the lease commencement date, the Company recognizes a lease liability and a right-of-use ("ROU") asset representing its right to use the underlying asset over the lease term. The initial measurement of the lease liability is calculated as the present value of the future lease payments in the contract and the ROU asset is measured as the lease liability plus initial direct costs and prepaid lease payments, less lease incentives granted by the lessor. The subsequent measurement of a lease is dependent on whether the lease is classified as an operating lease or a finance lease. Operating lease cost is recognized on a straight-line basis over the lease term in the consolidated statements of operations and comprehensive loss.

The Company's leases require other payments such as costs related to taxes, insurance, maintenance, and other expenses. These costs are generally variable in nature and based on the actual costs incurred and required by the lease. As the Company has elected to not separate lease and non-lease components for all classes of underlying asset, all variable costs associated with the lease are expensed in the period incurred and presented and disclosed as variable lease costs. The Company's lease agreements do not contain any material residual value guarantees or material restrictive financial covenants.

ASC 842 requires that a lessee use the rate implicit in the lease when measuring the lease liability and ROU asset. If the rate implicit in the lease is not readily determinable, the Company is permitted to use its incremental borrowing rate, which is defined as the rate of interest that the Company would have to pay to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment. Since the rate implicit in the lease is not readily determinable, the Company uses its incremental borrowing rate when measuring its leases. The incremental borrowing rate is calculated by considering the Company's credit standing, the lease term and the impact of collateral.

Most leases include options to renew and, or, terminate the lease, which can impact the lease term. The exercise of these options is at the Company's discretion. Periods covered by an option to extend a lease are not included in the lease term as the Company is not reasonably certain it will exercise this option. Additionally, periods covered by an option to terminate the lease are included in the lease term as it is reasonably certain that the Company will not exercise this option.

Segment information

Operating segments are defined as components of an enterprise for which separate discrete financial information is available for evaluation by the chief operating decision maker ("CODM") in deciding how to allocate resources and assess performance. The Company's CODM, its Chief Executive Officer, views the Company's operations and manages its business as a single operating segment, which is the business of developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. Revenue is generated exclusively from transactions with a related party located in Japan, and all assets are held in the United States.

Classification and accretion of redeemable convertible preferred stock

The holders of Preferred Stock have certain redemption rights in the event of a deemed liquidation event that, in certain situations, are not solely within the control of the Company and would call for the redemption of the then outstanding Preferred Stock (Note 8). Therefore, the Preferred Stock is classified as mezzanine equity outside of

stockholders' deficit on the consolidated balance sheets. The Company recorded the Preferred Stock at fair value upon issuance, net of tranche right liabilities (Note 8) and associated issuance costs. The Preferred Stock is not currently redeemable, and a deemed liquidation event is not currently probable. As such, the carrying values of the Preferred Stock are not being accreted to the redemption values. Subsequent adjustments to the carrying values of the Preferred Stock would be made only when a deemed liquidation event becomes probable.

Preferred stock tranche right liabilities

The purchase agreements for the Company's Preferred Stock provide the Company an obligation to issue additional Preferred Stock in subsequent closings upon the satisfaction of certain conditions (the "preferred stock tranche rights") (Note 8).

The Company classified such preferred stock tranche rights as liabilities on its consolidated balance sheets (the "preferred stock tranche right liabilities") as each preferred stock tranche right was determined to be a freestanding financial instrument that may require the Company to transfer assets to settle its obligation upon events outside of its control. The preferred stock tranche right liabilities were initially recorded at fair value upon the issuance date and are subsequently remeasured to fair value at each reporting date and immediately prior to being settled. Changes in fair value of the preferred stock tranche right liabilities are recognized as a component of other income, net in the consolidated statements of operations and comprehensive loss. Upon settlement of the tranche rights, the Company derecognized the related liability, and stopped recognizing changes in the fair value of the preferred stock tranche right liability. Any issuance costs allocated to the preferred stock tranche right liabilities were immediately expensed.

Revenue recognition

The Company enters into license arrangements, pursuant to which it may provide research and development services for third parties.

To determine revenue recognition for arrangements that the Company determines are within the scope of ASC 606, Revenue from Contracts with Customers, ("ASC 606"), the Company performs the following five steps: (i) identify the promised goods or services in the contract; (ii) determine whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measure the transaction price, including the constraint on variable consideration; (iv) allocate the transaction price to the performance obligations; and (v) recognize revenue when, or as, the Company satisfies each performance obligation. At contract inception, the Company assesses whether the goods or services promised within each contract are a separate performance obligation. Goods and services that are determined not to be distinct are combined with other promised goods and services until a distinct bundle is identified. The Company then allocates the transaction price, the amount of consideration the Company expects to be entitled to from a customer in exchange for the promised goods or services, to each performance obligation and recognizes the associated revenue when each performance obligation is satisfied.

In determining the appropriate amount of revenue to be recognized, the Company uses judgment to determine: (a) the number of performance obligations; (b) the transaction price; (c) the stand-alone selling price for each performance obligation identified in the contract; and (d) the contract term and pattern of satisfaction of the performance obligations. The Company uses judgment to determine whether milestones or other variable consideration should be included in the transaction price. The transaction price is allocated to the identified performance obligations on a relative stand-alone selling price basis, for which the Company recognizes revenue as or when the performance obligations under the contract are satisfied. At contract inception, the Company estimates the total costs required to satisfy the performance obligation and subsequently updates the estimate at

each reporting period. Accordingly, the Company's estimates may change in the future and those changes could result in a change in amounts of revenue recognized and could be material.

During the years ended December 31, 2023 and 2022, the Company generated revenue from a research and development arrangement with Maruho Co., Ltd ("Maruho"), a related party, which is accounted for under ASC 606. Pursuant to the agreement, the Company provides to Maruho research and development services related to verekitug in Japan, and Maruho reimburses the Company for these costs incurred in performing the research and development services (Note 15).

The Company records accounts receivable when its right to receive consideration is solely based on the passage of time. Amounts received prior to satisfying the revenue recognition criteria are recorded as deferred revenue in the Company's consolidated balance sheets. Amounts expected to be recognized as revenue within one year following the balance sheet date are classified as current deferred revenue. Amounts not expected to be recognized as revenue within one year following the balance sheet date are classified as deferred revenue, net of current portion. Payment terms and conditions generally require payment within 60 days of invoicing.

Research and development expenses

Research and development expenses are expensed as incurred. Research and development expenses include salaries and benefits, stock-based compensation expense, licensed technology, external costs of third-party vendors that conduct research and development activity on behalf of the Company, and other operational costs related to the Company's research and development activities including costs related to a research and development arrangement with Maruho.

Prepaid and accrued research and development expenses

The Company recognizes research and development expense and records accruals for estimated costs of research and development activities conducted by third-party service providers, which include CROs that conduct research, preclinical studies and clinical trials on the Company's behalf, including in connection with the Company's research and development arrangement, and CMOs that manufacture the Company's product candidate for use in preclinical and clinical trials. The majority of the Company's service providers invoice in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advanced payments. The Company makes estimates of the accrued expenses and includes these costs in accrued liabilities in the consolidated balance sheets and within research and development expense in the consolidated statements of operations and comprehensive loss based on facts and circumstances known to the Company at that time. These costs are a significant component of the Company's research and development expenses.

The Company accrues for these costs based on factors such as estimates of the amount of work completed through discussions with internal personnel and external service providers as to the progress or stage of completion of the services and in accordance with agreements established with its third-party service providers for such services. The Company makes significant judgments and estimates in determining the accrued research and development liabilities balance at each reporting period. As actual costs become known, the Company adjusts its accrued estimates. To date, there have been no material adjustments to the Company's estimates of accrued research and development expenses. The Company records advance payments to service providers as prepaid expenses and other current assets, which are expensed as the contracted services are performed. If the actual timing of the performance of services varies from the estimate, then the Company adjusts the amount of the accrued expense or the prepaid expense accordingly.

Upstream Bio, Inc.
Notes to consolidated financial statements

Asset acquisition and acquired in-process research and development expenses

The Company accounts for acquisitions of assets or a group of assets as asset acquisitions when substantially all of the fair value of the gross assets acquired are concentrated in a single asset or group of assets or when the definition of a business is not met. The Company accounts for asset acquisitions based on the cost to acquire the asset or group of assets, which include certain transaction costs. In an asset acquisition, the cost to acquire is allocated to the identifiable assets acquired and liabilities assumed based on their relative fair values as of the acquisition date. No goodwill is recorded in an asset acquisition. Assets that are acquired in an asset acquisition for use in research and development activities that have an alternative future use are capitalized as in-process research and development ("IPR&D") assets. Acquired IPR&D that has no alternative future use as of the acquisition date is recognized as acquired research and development expense as of the acquisition date.

General and administrative expenses

General and administrative expenses consist primarily of salaries and benefits, including stock-based compensation expense; professional fees for legal, accounting, auditing, tax and consulting services; travel expenses; and facility-related expenses, which include expenses for rent and maintenance of facilities and other operating costs. The Company expenses all general and administrative expenses as incurred.

Patent and trademarks

Costs to secure, defend and maintain patents, including those in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses.

Stock-based compensation expense

The Company measures all stock-based awards granted to employees, directors, and non-employee service providers based on fair value on the date of the grant, and recognizes the resulting fair value over the requisite service period. The Company uses the Black-Scholes option-pricing model to estimate the fair value of stock options granted. The Company has elected to recognize stock-based compensation expense for service-based stock options with graded vesting on a straight-line basis over the requisite service period, which is generally the vesting period. The Company recognizes expense related to stock options that contain performance conditions only when it is considered probable that the performance condition will be achieved. Stock-based compensation expense for stock options with performance conditions is recognized using graded vesting. The Company accounts for forfeitures as they occur.

The Company classifies stock-based compensation expense in its consolidated statements of operations and comprehensive loss in the same manner in which the award recipient's payroll costs are classified or in which the award recipient's service payments are classified.

Comprehensive loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from nonowner sources, including unrealized gains and losses on marketable securities held as available for sale. There was no difference between net loss and comprehensive loss for the year ended December 31, 2022. For the year ended December 31, 2023, comprehensive loss includes net loss and unrealized gains (losses) on short-term investments.

Upstream Bio, Inc.
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Net loss per share

The Company calculated basic and diluted net loss per share attributable to common stockholders in conformity with the two-class method required for companies with participating securities. The Company's Preferred Stock is considered to be a participating security as the holders are entitled to receive dividends at a dividend rate payable in preference and priority to the holders of common stock. The two-class method determines net loss per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires income available to common stockholders for the period to be allocated between common and participating securities based upon their respective rights to receive dividends as if all income for the period has been distributed. There is no allocation required under the two-class method during periods of loss since the participating securities do not have a contractual obligation to share in the losses of the Company.

Under the two-class method, basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share attributable to common stockholders is computed by (i) adjusting net loss attributable to common stockholders to reallocate undistributed earnings based on the potential impact of dilutive securities and (ii) dividing the diluted net loss attributable to common stockholders by the weighted-average number of common shares outstanding for the period, including potential dilutive common shares. For purposes of this calculation, Preferred Stock and stock options to purchase common stock are considered potential dilutive common shares.

The Company has generated a net loss for each of the periods presented. Accordingly, basic and diluted net loss per share attributable to common stockholders are the same because the inclusion of the potentially dilutive securities would be anti-dilutive.

Income taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and tax reporting bases of assets and liabilities and are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. Realization of deferred tax assets is dependent upon future earnings, the timing and amount of which are uncertain. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income and, to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of the deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future taxable profits expected and considering prudent and feasible tax planning strategies.

The Company utilizes a two-step approach to recognize and measure uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained upon tax authority examination, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement.

Recently adopted accounting pronouncements

In August 2020, the FASB issued ASU 2020-06, *Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging-Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible*

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Instruments and Contracts in an Entity's Own Equity ("ASU 2020-06"), which is intended to simplify the accounting for certain financial instruments with characteristics of liabilities and equity, including convertible instruments and contracts on an entity's own equity. The guidance allows for either full retrospective adoption or modified retrospective adoption. For public entities except smaller reporting companies, the guidance is effective for annual reporting periods beginning after December 15, 2021, and for interim periods within those fiscal years. Early adoption is allowed. The Company adopted ASU 2020-06 effective April 21, 2021 and it did not have a material impact on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases, which requires lessees to recognize most leases on their balance sheet as a ROU asset and a lease liability. The standard, including subsequently issued amendments, collectively referred to as ASC 842, established principles of recognition, measurement, presentation and disclosure of lease arrangements applicable to lessees and lessors in order to enhance the transparency and compatibility of financial reporting related to the arrangements, including with respect to the amount, timing and uncertainty of cash flows arising from a lease. The Company adopted ASU 2016-02 using a modified retrospective transition approach effective January 1, 2022 and it did not have a material impact on the Company's consolidated financial statements.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740)—Simplifying the Accounting for Income Taxes* ("ASU 2019-12"), which simplifies the accounting for income taxes by removing certain exceptions to the general principles of ASC 740, Income Taxes. The amendments also improve consistent application of and simplify U.S. GAAP for other areas of ASC 740 by clarifying and amending existing guidance. ASU 2019-12 is effective for fiscal years and interim periods beginning after December 15, 2020 for public companies and for fiscal years beginning after December 15, 2021 for nonpublic companies, with early adoption permitted. Depending on the amendment, adoption may be applied on a retrospective, modified retrospective, or prospective basis. The Company adopted ASU 2019-12 effective January 1, 2022 and it did not have a material impact on the Company's consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326)* ("ASU 2016-13"). The new standard changes the accounting for assets held at amortized costs basis, including marketable securities accounted for as available-for-sale, and trade receivables. The standard eliminates the probable initial recognition threshold and requires an entity to reflect its current estimate of all expected credit losses. The allowance for credit losses is a valuation account that is deducted from the amortized cost basis of the financial assets to present the net amount expected to be collected. For public entities except smaller reporting companies, the guidance is effective for annual reporting periods beginning after December 15, 2019, and for interim periods within those fiscal years. In November 2019, the FASB issued ASU 2019-10, which deferred the effective date for non-public entities to annual reporting periods beginning after December 15, 2022, including interim periods within those fiscal years. Early application is allowed. The Company adopted ASU 2016-13 effective January 1, 2023 and it did not have a material impact on its consolidated financial statements.

Recently issued accounting pronouncements not yet adopted

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. The Company qualifies as an ''emerging growth company'' as defined in the Jumpstart Our Business Startups Act of 2012 and has elected not to ''opt out'' of the extended transition related to complying with new or revised accounting standards, which means that when a standard is issued or revised and it has different application dates for public and non-public companies, the Company can adopt the new or revised standard at the time non-public companies adopt the new or revised standard and can do so until such time that the Company either (i) irrevocably elects to ''opt out'' of such extended transition period or (ii) no longer qualifies as an emerging growth company. The Company may choose

to early adopt any new or revised accounting standards whenever such early adoption is permitted for non-public companies.

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* ("ASU 2023-07"). ASU 2023-07 expands public entities' segment disclosures by requiring disclosure of significant segment expenses that are regularly provided to the chief operating decision maker and included within each reported measure of segment profit or loss, an amount and description of its composition for other segment items, and interim disclosures of a reportable segment's profit or loss and assets. All disclosure requirements under ASU 2023-07 are also required for public entities with a single reportable segment. ASU 2023-07 is effective for public business entities with fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. The Company is currently evaluating the impact of adopting ASU 2023-07 on its consolidated financial statements and related disclosures.

In December 2023, the FASB issued ASU 2023-09, *Improvements to Income Tax Disclosures* ("ASU 2023-09"). ASU 2023-09 requires public business entities to disclose additional information in specified categories with respect to the reconciliation of the effective tax rate to the statutory rate (the rate reconciliation) for federal, state, and foreign income taxes. It also requires greater detail about individual reconciling items in the rate reconciliation to the extent the impact of those items exceeds a specified threshold (if the effect of those reconciling items is equal to or greater than 5% of the amount computed by multiplying pretax income or loss by the applicable statutory income tax rate). In addition to new disclosures associated with the rate reconciliation, ASU 2023-09 requires information pertaining to taxes paid (net of refunds received) to be disaggregated for federal, state, and foreign taxes and further disaggregated for specific jurisdictions to the extent the related amounts exceed a quantitative threshold. The amendments are effective for public business entities for annual periods beginning after December 15, 2024. For entities other than public business entities, the amendments are effective for annual periods beginning after December 15, 2025. Early adoption is permitted. The Company is currently evaluating the impact of adopting ASU 2023-09 on its consolidated financial statements and related disclosures.

3. Fair value measurements

The following tables present information about the Company's financial assets and liabilities measured at fair value on a recurring basis and indicate the level of the fair value hierarchy used to determine such fair values (in thousands):

	Fair Value Measurements at December 31, 2023 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 23,314	$ —	$ —	$ 23,314
Short-term investments:				
U.S. treasury bills	—	45,864	—	45,864
U.S. government agency bonds	—	38,113	—	38,113
	$ 23,314	$ 83,977	$ —	$ 107,291
Liabilities:				
Preferred stock tranche right liability (Series B)	$ —	$ —	$ 2,874	$ 2,874

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	Fair Value Measurements at December 31, 2022 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 10,043	$ —	$ —	$ 10,043
Liabilities:				
Preferred stock tranche right liability (Series A)	$ —	$ —	$ 6,947	$ 6,947

There were no transfers between Level 1, Level 2 and Level 3 during the years ended December 31, 2023 and 2022.

The Company classifies its U.S. treasury bills and U.S. government agency bonds as short-term based on each instrument's availability for use in current operations. The fair value of the Company's U.S. treasury bills and U.S. government agency bonds are classified as Level 2 because they are valued using observable inputs to quoted market prices, benchmark yields, reported trades, broker/dealer quotes or alternative pricing sources with reasonable levels of price transparency and U.S. treasury bills.

Short-term investments consisted of the following (in thousands):

	December 31, 2023			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Short-term investments:				
U.S. treasury bills	$ 45,863	$ 9	$ (8)	$ 45,864
U.S. government agency bonds	38,093	23	(3)	38,113
Total short-term investments:	$ 83,956	$ 32	(11)	$ 83,977

The Company did not have short-term investments during the year ended December 31, 2022.

The contractual maturities of the Company's short-term investments in available-for-sale securities held were as follows (in thousands):

	December 31, 2023
Due within one year	$ 83,977

Valuation of preferred stock tranche right liabilities

The preferred stock tranche right liabilities in the table above are composed of the fair value of obligations to issue Series A and Series B Preferred Stock (Note 8). The fair value of the preferred stock tranche right liabilities was based on significant inputs not observable in the market, which represented a Level 3 measurement within the fair value hierarchy.

Series A preferred stock tranche right liability

The fair value of the Series A preferred stock tranche right liability was determined using a probability-weighted expected return method as it represents a contingent commitment for the Milestone Shares (as defined in Note 8).

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The valuation considered as inputs the fair value per share of the Series A Preferred Stock as of each measurement date, the fair value per share of the Series A Preferred Stock if the milestone is not met, probability of meeting certain milestone events, the expected time until certain milestone events would be met, and the discount rate.

The most significant assumptions in the valuation model impacting the fair value of the preferred stock tranche right liability were the fair value of the Company's Series A Preferred Stock and the probability and expected timing of achieving certain milestone events as of the measurement dates. The Company determined the fair value per share of the underlying Series A Preferred Stock by taking into consideration the most recent sales of its Series A Preferred Stock, results obtained from third-party valuations and additional factors the Company deemed relevant. In October 2022, the interim second closing of the Series A Preferred Stock was completed and the fair value of each share of Series A Preferred Stock was $8.80 per share. As of December 31, 2022, the fair value of the Series A Preferred Stock was $9.53 per share. In February 2023, upon satisfaction of certain conditions, the second closing of the Series A Preferred Stock was completed and the associated Series A preferred stock tranche right liability was settled. The fair value of Series A Preferred Stock was $10.04 per share upon the second closing. Changes in these inputs can have a significant impact on the fair value of the preferred stock tranche right liability.

The following table presents the assumptions used in the probability-weighted expected return model to determine the fair value of the Series A preferred stock tranche right liability during the years presented:

	2023	2022	
	February	October	December
Probability of achieving milestone	100.0%	74.0%	82.0%
Value of Preferred Stock if milestone not met	N/A	$2.64	$2.85
Estimated time until milestone is achieved (in years)	N/A	0.25	0.13
Discount rate	N/A	3.3%	4.4%

Series B preferred stock tranche right liability

The fair value of the Series B preferred stock tranche right liability was determined using an option pricing model as it represents an option for the Series B Option Shares (as defined in Note 8). The valuation considered as inputs the estimated fair value of the Series B Preferred Stock as of each valuation date, the risk-free interest rate, volatility, expected dividends, and estimated time to the tranche closing.

The most significant assumption in the valuation model impacting the fair value of the preferred stock tranche right liability is the fair value of the Company's Series B Preferred Stock as of each measurement date. The Company determined the fair value per share of the underlying Series B Preferred Stock by taking into consideration the most recent sales of its Series B Preferred Stock, results obtained from third-party valuations and additional factors the Company deemed relevant. In June 2023, the initial tranche of the Series B Preferred Stock closed with a fair value of $13.00 per share. As of December 31, 2023, the fair value of Series B Preferred Stock was $15.86 per share. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining estimated time to the tranche closing. The volatility is based on the historical volatility of publicly traded peer companies adjusted for the seniority of the Series B Preferred Stock. The expected dividend yield is based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future. Changes in these inputs can have a significant impact on the fair value of the preferred stock tranche right liability.

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The following table presents the assumptions used in the option-pricing model to determine the fair value of the Series B preferred stock tranche right liability during the year presented:

	2023	
	June	December
Expected volatility	51.0%	21.2%
Expected dividends	0.0%	0.0%
Expected term (in years)	0.80	0.25
Risk-free rate	5.3%	5.4%

The following table presents a roll-forward of the aggregate fair value of the Series A and Series B preferred stock tranche right liabilities, for which fair value is determined using Level 3 inputs (in thousands):

	Preferred Stock Tranche Right Liability	
	Series A	Series B
Fair value at December 31, 2021	$ 7,652	$ -
Change in fair value of preferred stock tranche right liability	77	-
Partial settlement of the Series A preferred stock tranche right liability	(782)	-
Fair value at December 31, 2022	6,947	-
Fair value of Series B preferred stock tranche right liability at issuance	-	11,774
Change in fair value of preferred stock tranche right liabilities	(6,627)	(8,900)
Final settlement of Series A preferred stock tranche right liability	(320)	-
Fair value at December 31, 2023	$ -	$ 2,874

4. Prepaid expenses and other current assets

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

	December 31,	
	2023	2022
Prepaid research and development expense	$ 6,436	$ 521
Interest receivable	138	-
Prepaid employee-related costs	123	90
Other	391	233
	$ 7,088	$ 844

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5. Property and equipment, net

Property and equipment, net consisted of the following (in thousands):

	December 31,	
	2023	2022
Office equipment	$ 163	$ -
Computer equipment	36	22
Leasehold improvements	27	18
Construction in progress	-	42
	226	82
Less: Accumulated depreciation and amortization	(67)	(7)
Property and equipment, net	$ 159	$ 75

Depreciation and amortization expense related to property and equipment, net was less than $0.1 million for each of the years ended December 31, 2023 and 2022.

6. Accrued expenses and other current liabilities

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

	December 31,	
	2023	2022
Accrued employee compensation and benefits	$ 2,168	$ 893
Accrued external research and development expenses	1,437	2,982
Accrued consultant and professional fees	875	182
	$ 4,480	$ 4,057

7. Leases

As of December 31, 2023, the Company was a party to a lease related to commercial real estate under a non-cancelable lease term and a short-term lease related to commercial real estate. The Company does not have any leases that have not yet commenced that create significant rights and obligations for the lessee.

The Company has an operating lease for office space at 460 Totten Pond Road, Waltham, Massachusetts. The lease expires on June 30, 2024, after which the Company will continue to pay rent on a month-to-month basis until either party provides notice of termination. Under its lease, the Company pays a proportional share of operating expenses. Such operating expenses are subject to annual adjustment and are accounted for as variable payments in the period in which they are incurred.

The components of lease cost, which are included in the consolidated statement of operations and comprehensive loss, were as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Lease Cost:		
Operating lease cost	$ 88	$ 86
Short-term lease cost	202	17
Variable lease cost	9	12
Total lease cost	$ 299	$ 115

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Supplemental disclosure of cash flow information related to leases was as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Cash paid for amounts included in the measurement of lease liabilities	$ 92	$ 81
Right-of-use assets obtained in exchange for new operating lease liabilities	36	161

The weighted-average discount rate and remaining lease term were as follows:

	Year Ended December 31,	
	2023	2022
Weighted-average discount rate — operating leases	15.7%	10.8%
Weighted-average remaining lease term — operating leases	0.5	1.1

The maturities of operating lease liabilities were as follows (in thousands):

Year Ended December 31,	Amount
2024	$ 46
Total lease payments	46
Less: imputed interest	1
Present value of lease liabilities	45
Less: operating lease liabilities, current portion	45
Operating lease liabilities, net of current portion	$ -

8. Redeemable convertible preferred stock

The Company has issued Series A Preferred Stock and Series B Preferred Stock, which are collectively referred to as the Preferred Stock. As of December 31, 2023, the Company authorized the issuance of 31,764,693 shares of Preferred Stock, par value of $0.001 per share, of which 20,000,000 have been designated Series A Preferred Stock and 11,764,693 have been designated Series B Preferred Stock. As of December 31, 2022, the Company authorized the issuance of 20,000,000 shares of Preferred Stock, par value of $0.001 per share, all of which were designated Series A Preferred Stock.

Issuance and sale of Series A redeemable convertible preferred stock

In October 2021, the Company executed the Series A Preferred Stock Purchase Agreement (the "Series A Agreement") to issue and sell up to 20,000,000 shares of Series A Preferred Stock at a price of $10.00 per share. In the initial closing in October 2021, the Company issued 11,000,000 shares of Series A Preferred Stock resulting in gross cash proceeds of $110.0 million and incurred $0.2 million of issuance costs. Pursuant to the Series A Agreement, the Company was obligated to issue and the Series A investors were obligated to purchase an additional 9,000,000 shares of Series A Preferred Stock ("Milestone Shares") at the same purchase price of $10.00 per share (the "Series A preferred stock tranche right"), after the initial closing and upon the satisfaction of certain conditions at a date which would occur at the earlier of (i) immediately prior to the Company's first underwritten public offering of its common stock under the Securities Act; (ii) the resolution of the board of directors that the pharmacokinetics, pharmacodynamics, immunogenicity and safety profile of verekitug (formerly referred to as ASP7266), when administered as multiple ascending doses, supports further clinical development ("Second Closing Milestone") has been achieved; or (iii) the written consent of the purchasers

holding a majority of the Series A Preferred Stock that the Second Closing Milestone has been waived (collectively, the "Second Closing"). The board of directors may determine at any time prior to the Second Closing to issue and sell up to 1,000,000 of the Milestone Shares at a price of $10.00 per share for gross cash proceeds of $10.0 million ("Interim Second Closing") and the number of Milestone Shares to be issued in the Second Closing will be reduced accordingly. Upon the initial closing of the Series A Preferred Stock, the Company recorded a preferred stock tranche right liability of $7.8 million. The fair value of the Series A preferred stock tranche right was allocated from the gross cash proceeds of $110.0 million of the Series A Preferred Stock issuance, and the residual value was then allocated to the Series A Preferred Stock.

In October 2022, the Interim Second Closing was completed and 1,000,000 of the Milestone Shares on a pro-rata basis to the purchasers of the Series A Preferred Stock were issued at a price of $10.00 per share, which resulted in gross cash proceeds of $10.0 million and partial settlement of the Series A preferred stock tranche right liability of $0.8 million (Note 3). As a result of this issuance, the related Series A Preferred Stock was recorded at its fair value of $10.8 million.

In February 2023, upon the satisfaction of the Second Closing Milestone, the remaining 8,000,000 of the Milestone Shares on a pro-rata basis to the purchasers of the Series A Preferred Stock were issued at a price of $10.00 per share, which resulted in gross cash proceeds of $80.0 million. As a result of this issuance, the Series A preferred stock tranche right liability of $0.3 million was settled and the Series A Preferred Stock was recorded at its fair value of $80.3 million.

Issuance and sale of Series B redeemable convertible preferred stock

In June 2023, the Company executed the Series B Agreement to issue and sell up to 11,764,693 shares of Series B Preferred Stock at a price of $17.00 per share. In the initial closing in June 2023, the Company issued 2,941,170 shares of Series B Preferred Stock resulting in gross cash proceeds of $50.0 million and incurred $0.6 million of issuance costs, of which $0.1 million was allocated to the preferred stock tranche right liability and recognized in the consolidated statement of operations and comprehensive loss as general and administrative expense. Pursuant to the Series B Agreement, the Company has the right ("Series B Option") to issue and sell an additional 8,823,523 shares of Series B Preferred Stock ("Series B Option Shares") at the same price of $17.00 per share after the initial closing but prior to March 31, 2024 upon approval of at least six (6) board of directors of which at least one (1) has to be appointed by the holders of Series B Preferred Stock. If the Company does not exercise the Series B Option prior or at a date which would occur at the earlier of (i) March 31, 2024 or (ii) the closing of an acquisition agreement signed prior to March 31, 2024, the holders of Series B Preferred Stock will have the right but not obligation to require the Company to issue and sell the Series B Option Shares at the same purchase price of $17.00 per share (the "Series B preferred stock tranche right"). Upon the initial closing of the Series B Preferred Stock, the Company recorded a preferred stock tranche right liability of $11.8 million and a corresponding reduction to the carrying value of the Series B Preferred Stock. The fair value of the Series B preferred stock tranche right was allocated from the gross cash proceeds of $50.0 million of the Series B Preferred Stock issuance, and the residual value was then allocated to the Series B Preferred Stock. As of December 31, 2023, none of the Series B preferred stock tranche right had been settled.

Upon issuance of the Preferred Stock, the Company assessed the embedded conversion and liquidation features of the securities and determined that such features did not require the Company to separately account for these features.

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Preferred Stock consisted of the following (dollar amounts in thousands):

	December 31, 2023				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	20,000,000	20,000,000	$ 193,143	$ 216,293	20,980,000
Series B Preferred Stock	11,764,693	2,941,170	37,792	51,425	3,085,280
	31,764,693	22,941,170	$ 230,935	$ 267,718	24,065,280

	December 31, 2022				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	20,000,000	12,000,000	$ 112,823	$ 126,886	12,588,000
	20,000,000	12,000,000	$ 112,823	$ 126,886	12,588,000

The holders of the Preferred Stock have the following rights and preferences:

Dividends

The holders of Preferred Stock are entitled to a cumulative dividend from and after the date of the share issuance at the rate per annum of 5% of the Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock), provided that the total accrued amount will not exceed 15% of the Original Issue Price in aggregate (the "Accruing Dividend"). Such dividends shall be accrued, whether or not declared.

In the event of any dividend being payable to common stockholders, the holders of Preferred Stock shall be entitled to receive, prior to any such dividend being paid to the common stockholders, the greater of (i) the Accruing Dividend then accrued and not previously paid, and (ii) the amount of any dividend being paid to the common stockholders (determined on an as-converted basis with respect to the holders of Preferred Stock).

Voting rights

The holders of the Preferred Stock are entitled to vote together with all other classes and series of stock as a single class on all matters, except those matters requiring a separate class vote, and are entitled to the number of votes equal to the number of shares of common stock into which each share of the applicable series of Preferred Stock is then convertible. The holders of Series A Preferred Stock as a separate class are entitled to elect four (4) board of directors, and the holders of Series B Preferred Stock as a separate class are entitled to elect two (2) board of directors.

Liquidation preference

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or in the event of a Deemed Liquidation Event ("DLE") which is defined as a merger or consolidation in which the Company issues shares of its capital stock (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation), and the sale, lease, transfer, exclusive license or other disposition of substantially all of the Company's assets, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Company available for

distribution to its shareholders or consideration payable to stockholders in such DLE or out of the available proceeds as follows:

- Before any payment is made to the holders of Series A Preferred Stock and common stock, an amount equal to any Accruing Dividends on the Series B Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends that are declared but unpaid ("Series B Dividend Payment");
- If the assets available are not sufficient for the Company to pay the Series B Dividend Payment to the holders of Series B Preferred Stock in full, holders of Series B Preferred Stock will share ratably in the assets available for distribution;
- After the Series B Dividend Payment is paid in full, holders of Preferred Stock will be entitled to be paid out of the assets of the Company available for distribution to its stockholders before any payment is made to the holders of common stock, on a pari passu basis, an amount per share equal to (i) with respect to the Series A Preferred Stock, the greater of (a) the Original Issue Price, plus any Accruing Dividends on the Series A Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends declared but unpaid, or (b) such amount per share as would have been payable had all shares of Series A Preferred Stock been converted in common stock, and (ii) with respect to the Series B Preferred Stock, (1) the greater of (a) the Original Issue Price, plus any Accruing Dividends on the Series B Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends declared but unpaid thereon, or (b) such amount per share as would have been payable had all shares of Series B Preferred Stock been converted in common stock, less (2) Series B Dividend Payment that was paid. ("Liquidation Amount");
- If the assets available are not sufficient for the Company to pay holders of Preferred Stock the Liquidation Amount in full, holders of Preferred Stock will share ratably in the assets available for distribution;
- After payment of Liquidation Amounts is paid in full to the holders of Preferred Stock, the remaining assets of the Company available for distribution to its stockholders, or in the case of a DLE, the consideration not payable to the holders of shares of Preferred Stock or the remaining available proceeds, will be distributed among the holders of the shares of common stock on a pro rata basis.

The "Original Issue Price" is defined as (i) with respect to the Series A Preferred Stock, $10.00 per share, and (ii) with respect to the Series B Preferred Stock, $17.00 per share.

Conversion

Optional conversion

Each share of Preferred Stock is convertible at the option of the holder and at any time into common stock as determined by dividing the Preferred Stock Original Issue Price by the Preferred Stock Conversion Price. "Conversion Price" is defined as initially the applicable Original Issue Price for the applicable series of Preferred Stock, subject to certain adjustments in the event of any down round, stock dividend, stock split, combination or other similar recapitalization.

Mandatory conversion

Each share of Preferred Stock will automatically be converted into shares of common stock, at the conversion ratio of dividing the Original Issue Price by the Preferred Stock Conversion Price, upon either (a) the closing of the sale of shares of common stock to the public at a price of at least $21.07 per share (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the common stock) in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $100.0 million of gross

proceeds to the Company and after which the common stock is listed on the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange or (b) the date and time, or the occurrence of an event specified by vote or written consent of the Requisite Holders (which is defined as at least a majority of the outstanding shares of Preferred Stock, voting together as a single class on an as converted to common stock basis, which majority must include holders of at least a majority of the outstanding shares of Series B Preferred Stock) voting together as a single class on an as converted to common stock basis, then all outstanding shares of Preferred Stock will automatically be converted into shares of common stock, at the then effective conversion rate and such shares of Preferred Stock may not be reissued by the Company.

Special mandatory conversion

Pursuant to the terms of the Series A Agreement, if a Series A Preferred Shareholder fails to purchase all of the Milestone Shares allocated to such shareholder at or prior to the Second Closing Milestone or breaches its obligations set forth in the Series A Agreement, then such investor will be deemed a Defaulting Purchaser. As of December 31, 2023, all of the Milestone Shares had been issued without triggering the special mandatory conversion provision under the Series A Agreement.

Pursuant to the terms of the Series B Agreement, if a Series B Preferred Shareholder fails to purchase all of the Series B Option Shares allocated to such shareholder at or prior to the closing of the Series B Option or breaches its obligations set forth in the Series B Agreement, then such investor will be deemed a Defaulting Purchaser. Each ten shares of Preferred Stock held by the Defaulting Purchaser will automatically, and without any further action on the part of such holder, be converted into one share of common stock. In April 2024, all of the Series B Option Shares had been issued without triggering the special mandatory conversion provision under the Series B Agreement (Note 18).

Modification to Series A preferred stock

In June 2023, in connection with the issuance of the Company's Series B Preferred Stock, the rights of the Company's Series A Preferred Stock were amended to entitle holders to a cumulative dividend from and after the date of the share issuance at the rate per annum of 5% of the Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock), provided that the total accrued amount will not exceed 15% of the Original Issue Price in aggregate. The dividend replaced the original accrued return definition within the liquidation preference terms of the Series A Preferred Stock. Previously, holders were entitled to a liquidation preference per share equal to the greater of (a) the Original Issue Price, plus an accrued return of 5% of the Original Issue Price per annum, provided that the total of such accrued return shall not exceed 15% of the Original Issue Price in the aggregate, or (b) such amount per share as would have been payable had all shares of Series A Preferred Stock been converted in common stock.

The changes to the rights of the Company's Series A Preferred Stock were not considered to be a significant change to the contractual terms of the Company's Series A Preferred Stock because the accrued return of the liquidation preference and the cumulative dividend definitions will result in the same amount to be received in a liquidation event, and accordingly, the Company accounted for the change as a modification.

9. Common stock

Each share of common stock entitles the holder to one vote on all matters submitted to a vote of the Company's stockholders. Common stockholders are entitled to receive dividends, as may be declared by the board of directors, if any, subject to the preferential dividend rights of the Preferred Stock. When dividends are declared

on shares of common stock, the Company must declare at the same time a dividend payable to the holders of Preferred Stock equivalent to the dividend amount they would receive if each share of Preferred Stock were converted into common stock. The Company may not pay dividends to common stockholders until all dividends accrued or declared but unpaid on the Preferred Stock have been paid in full. As of December 31, 2023 and 2022, no dividends were declared.

As of December 31, 2023 and 2022, the Company's amended and restated certificate of incorporation authorized the issuance of 40,664,346 and 28,000,000 shares, respectively, of $0.001 par value common stock. As of December 31, 2023 and 2022, there were 2,992,479 shares and 2,937,197 shares of common stock issued and outstanding, respectively.

In November 2023, the Company issued 20,980 shares of common stock to a related party investor. The Company recorded stock-based compensation expense of $0.1 million in connection with the issuance of these shares (Note 16).

As of December 31, 2023 and 2022, the Company had reserved 38,051,952 and 25,200,664 shares of common stock, respectively, for the conversion of shares of Preferred Stock into common stock (including committed but unissued shares under future tranche obligations for the Preferred Stock), the exercise of outstanding stock options for common stock, and the issuance of common stock options remaining available for grant under its equity incentive plan.

10. Stock-based compensation

Stock incentive plan

In December 2021, the board of directors approved the 2021 Stock Option and Grant Plan (the "2021 Plan") under which the Company may grant incentive stock options, nonqualified stock options, restricted stock awards, unrestricted stock awards and restricted stock units (collectively, the "Awards") to among others, members of the board of directors, employees, consultants and other key persons to the Company and its affiliates. The 2021 Plan is administered by the board of directors, or at the discretion of the board of directors, by a committee of the board.

As of December 31, 2023 and 2022, the total number of shares of common stock reserved for issuance under the 2021 Plan was 4,765,105 shares and 4,220,664 shares, respectively. Shares of unused common stock underlying any Awards that are forfeited, canceled or reacquired by the Company prior to vesting will again be available for the grant of awards under the 2021 Plan. Shares underlying any awards that are forfeited, canceled, or reacquired by the Company prior to vesting, satisfied without the issuance of stock or otherwise terminated and shares that are withheld upon exercise of an option of settlement of an award to cover the exercise price or tax withholding shall be added back to the shares available for issuance under the 2021 Plan. As of December 31, 2023 and 2022, the Company had 564,696 shares and 991,180, respectively, remaining available for grant under the 2021 Plan.

The exercise price for stock options granted may not be less than the fair market value of the Company's common stock on the date of grant, as determined by the board of directors, or at least 110% of the fair market value of the Company's common stock on the date of grant in the case of an incentive stock option granted to an employee who owns stock representing more than 10% of the voting power of all classes of stock as determined by the board of directors as of the date of grant ("10% Owner"). The Company's board of directors determines the fair value the Company's common stock, taking into consideration its most recently available valuation of common stock performed by third parties as well as additional factors which may have changed since the date of the most recent contemporaneous valuation through the date of grant. Stock options granted under the 2021 Plan

expire after ten years, or 5 years for a 10% Owner, and typically vest over a four-year period with the first 25% vesting upon the first anniversary of a specified vesting commencement date and the remainder vesting in 36 equal monthly installments over the succeeding three years, contingent on the recipient's continued employment or service.

Fair value inputs

The fair value of stock option grants is estimated using the Black-Scholes option-pricing model. The Company historically has been a private company and lacks company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies and expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price. The expected option term is calculated based on the simplified method for awards with service-based conditions, which uses the midpoint between the vesting date and the contractual term, as the Company does not have sufficient historical data to develop an estimate based on participant behavior. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

The following table presents, on a weighted-average basis, the assumptions used in the Black-Scholes option-pricing model to determine the fair value of stock options granted:

	Year Ended December 31,	
	2023	2022
Per share fair value of common stock	$ 4.52	$ 3.43
Expected volatility	77.0%	78.3%
Expected dividends	0%	0%
Expected term (in years)	6.3	6.4
Risk-free rate	1.94%	0.82%

Stock options

The Company generally grants stock-based awards with service-based vesting. During the year ended December 31, 2022, the Company granted performance-based stock options to certain employees and directors for the purchase of an aggregate 1,061,316 shares of common stock with a vesting commencement date contingent upon the achievement of the Second Closing Milestone of the Series A Preferred Stock, which was achieved in February 2023. The Company determined that it met all the conditions to establish a grant date for these performance-based stock options at the original issuance date. The vesting of the performance-based stock options is also subject to the grantees' continued service until the fourth anniversary of the Second Closing Milestone.

There was no compensation expense related to these performance-based options recognized during the year ended December 31, 2022, as the achievement of the Second Closing Milestone was not considered probable for accounting purposes on the date of grant and through the year ended December 31, 2022.

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The following table summarizes the activity of stock options with service-based and performance-based vesting conditions during the year ended December 31, 2023:

	Number of Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Intrinsic Value (In Thousands)
Outstanding as of December 31, 2022	3,229,484	$ 3.43	9.1	$ 33
Granted	1,275,621	4.52		
Exercised	(34,302)	3.45		
Forfeited or expired	(304,696)	3.58		
Outstanding as of December 31, 2023	4,166,107	$ 3.75	8.5	$ 4,648
Options exercisable as of December 31, 2023	1,707,241	$ 3.44	8.1	$ 2,439
Vested and expected to vest as of December 31, 2023	4,166,107	$ 3.75	8.5	$ 4,648

The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying stock options and the estimated fair value of the Company's common stock for those stock options that had exercise prices lower than the estimated fair value of the Company's common stock. The aggregate intrinsic value of stock options exercised during the year ended December 31, 2023 was less than $0.1 million. There were no stock options exercised during the year ended December 31, 2022.

The weighted-average grant-date fair value of options granted during the years ended December 31, 2023 and 2022 was $3.08 and $2.35, respectively.

As of December 31, 2023, there was $6.2 million of total unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted-average period of 2.9 years.

The following table illustrates the classification of stock-based compensation in the consolidated statements of operations and comprehensive loss (in thousands):

	Year Ended December 31,	
	2023	2022
General and administrative[(1)]	$ 2,354	$ 887
Research and development	1,073	392
	$ 3,427	$ 1,279

(1) Includes related party amounts of $0.1 million for the year ended December 31, 2023 (Note 16)

11. Income taxes

During the years ended December 31, 2023 and 2022, the Company did not record a provision for income taxes because it has incurred net operating losses since inception and maintains a full valuation allowance against its deferred tax assets.

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A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31,	
	2023	2022
US Federal statutory income tax rate	(21.0)%	(21.0)%
State income taxes, net of federal benefit	(12.6)	(5.9)
Change in fair value of financial instruments	(15.9)	(0.6)
Research and development tax credits	(3.1)	—
Change in deferred tax asset valuation allowance	51.6	27.0
Stock-based compensation	1.2	0.4
Other permanent differences	(0.2)	0.1
Effective income tax rate	(0)%	(0)%

The significant components of the Company's deferred tax assets and liabilities are summarized as follows (in thousands):

	December 31,	
	2023	2022
Deferred tax assets:		
Net operating loss carryforwards	$ 6,985	$ 3,975
Research and development tax credit carryforward	736	7
Operating lease liability	12	26
Accrued expenses	590	254
Stock-based compensation	861	228
Capitalized research and development expense	11,618	4,338
Amortization of acquired IPR&D	18,905	20,282
Total deferred tax assets before valuation allowance	39,707	29,110
Valuation allowance	(39,695)	(29,086)
Total deferred tax assets - net of valuation allowance	12	24
Deferred tax liabilities:		
ROU asset	(12)	(24)
Total deferred tax liabilities	(12)	(24)
Net deferred tax asset (liability)	-	-

As of December 31, 2023, the Company had federal and state net operating loss ("NOLs") carryforwards of $25.0 million and $27.6 million, respectively. As of December 31, 2022, the Company had federal and state NOLs carryforwards of $14.5 million and $14.6 million, respectively. The federal NOLs are not subject to expiration and are limited in utilization to 80% of taxable income and the state NOLs begin to expire in 2041. The Company also has federal and state research and development credits of $0.8 million which will begin to expire in 2043 and 2037, respectively.

Management of the Company has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets. Under the applicable accounting standards, management has considered the Company's history of losses and concluded that it is more likely than not that the Company will not recognize the benefits of its federal and state deferred tax assets. Accordingly, a full valuation allowance of $39.7 million and $29.1 million has been established as of December 31, 2023 and 2022, respectively.

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Changes in valuation allowance for deferred tax assets during the years ended December 31, 2023 and 2022 related primarily to the increase in NOL carryforwards and capitalized research and development expenditures offset by amortization of acquired IPR&D in 2023 and were as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Valuation allowance at beginning of year	$ (29,086)	$ (22,859)
Increases recorded to income tax provision	(10,609)	(6,227)
Valuation allowance at end of year	$ (39,695)	$ (29,086)

Utilization of the NOL 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 NOL 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 NOL carryforwards and credits.

As of December 31, 2023, the Company has not recorded any amounts for uncertain tax positions. The Company's policy is to recognize interest and penalties accrued on any uncertain tax positions as a component of income tax expense, if any, in its consolidated statements of operations and comprehensive loss. For the years ended December 31, 2023 and 2022, no estimated interest or penalties were recognized on uncertain tax positions.

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 years are still open under statute from December 31, 2020, to the present.

12. Net loss per share

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (dollar amounts in thousands):

	Year Ended December 31,	
	2023	2022
Numerator:		
Net loss	$ (20,537)	$ (23,868)
Preferred Stock cumulative dividends	(17,718)	-
Net loss attributable to common stockholders	$ (38,255)	$ (23,868)
Denominator:		
Weighted-average common shares outstanding, basic and diluted	2,953,756	2,937,197
Net loss per share attributable to common stockholders, basic and diluted	$ (12.95)	$ (8.13)

Prior to June 2023, the Company's Series A Preferred Stock holders were not entitled to cumulative dividends. In connection with the Series B Agreement in June 2023, the Company modified the dividend rights for its Series A

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Preferred Stock holders such that they became entitled to cumulative dividends based on the original issuance dates of the respective Series A Preferred Stock (Note 8). As such, the Company calculated its net loss attributable to common stockholders for the year ended December 31, 2023 by adjusting its net loss for the aggregate cumulative dividends that had accrued since the original issuances dates in the period in which the Preferred Stock holders became legally entitled to such dividends. No such adjustment was made for the year ended December 31, 2022 as the holders of Series A Preferred Stock were not legally entitled to cumulative dividends until June 2023. Similarly, cumulative dividends for the Series B Preferred Stock were included in the net loss attributable to common stockholders for the year ended December 31, 2023 based on the issuance date for the Series B Preferred Stock.

The Company's potentially dilutive securities, which include stock options to purchase common stock and Preferred Stock, have been excluded from the computation of diluted net loss per share as the effect would be anti-dilutive. Therefore, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same.

The following potentially dilutive securities have been excluded from the calculation of diluted net loss per share due to their anti-dilutive effect:

	Year Ended December 31,	
	2023	2022
Preferred Stock (as converted to common stock)(1)	24,065,280	12,588,000
Stock options to purchase common stock	4,166,107	3,229,484
	28,231,387	15,817,484

(1) As of December 31, 2023, the Preferred Stock excludes 8,823,523 shares of Series B Preferred Stock (or 9,255,869 shares as converted to common stock) that were contingently issuable upon settlement of the Series B preferred stock tranche right liability (Note 8). As of December 31, 2022, the Preferred Stock excludes 8,000,000 shares of Series A Preferred Stock (or 8,392,000 shares as converted to common stock) that were contingently issuable upon settlement of the Series A preferred stock tranche right liability (Note 8).

13. Commitments and contingencies

Legal matters

The Company is subject to contingent liabilities, such as legal proceedings and claims, that arise in the ordinary course of business activities. The Company accrues for loss contingencies when losses become probable and are reasonably estimable. If the reasonable estimate of the loss is a range and no amount within the range is a better estimate, the minimum amount of the range is recorded as a liability on the consolidated balance sheets. The Company does not accrue for contingent losses that, in its judgment, are considered to be reasonably possible, but not probable; however, it discloses the range of reasonably possible losses. As of December 31, 2023 and 2022, the Company was not a party to any material legal proceedings or claims and no liabilities were recorded for loss contingencies.

Contracts

The Company enters into contracts in the normal course of business with various third parties for preclinical research studies, clinical trials, testing, manufacturing, and other services. These contracts generally provide for termination upon notice and are cancellable without significant penalty or payment, and do not contain any minimum purchase commitments.

Guarantees and indemnifications

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with all board of directors that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any material costs as a result of such indemnifications. The Company is not aware of any claims under indemnification arrangements that could have a material effect on its financial position, results of operations or cash flows, and it has not accrued any liabilities related to such obligations in its consolidated financial statements as of December 31, 2023 and 2022.

14. Asset purchase and license agreements

Asset acquisition from Astellas Pharma, Inc.

In October 2021, the Company and Astellas Pharma, Inc. ("Astellas") entered into an asset purchase agreement (the "Astellas Asset Purchase Agreement"). Pursuant to the Astellas Asset Purchase Agreement, the Company purchased from Astellas the compound designated by Astellas as ASP7266 (the "Compound"), the corresponding patent rights and any unregistered intellectual property rights, inventory related to the Compound, documents, data and copies of all filings and material correspondence with regulatory agencies (and the data included therein), and obtained an exclusive license under certain processes and methods of manufacture, testing, qualifying and use of the Compound to manufacture the Compound, with an upfront cash payment of $81.1 million. The Compound was renamed by the Company as verekitug (UPB-101).

As a result, the Company will be solely responsible for conducting the global research and development of the Compound. In connection with the Astellas Asset Purchase Agreement, Maruho, co-founder of the Company and a related party, obtained from the Company an exclusive, irrevocable, perpetual, royalty-free, sublicensable license to research, develop, manufacture, and commercialize verekitug with respect to Japan at its sole expense (Note 15). There are no future payments owed to Astellas under the Astellas Asset Purchase Agreement.

Letter agreement with Astellas and Regeneron

In October 2021, in connection with the Astellas Asset Purchase Agreement, the Company, Astellas and Regeneron Pharmaceuticals, Inc. ("Regeneron") entered into a letter agreement (the "Regeneron Letter Agreement").

The Regeneron Letter Agreement relates to a prior Non-Exclusive License and Material Transfer Agreement (the "Terminated Regeneron License Agreement") that Regeneron and Astellas entered into in March 2007, as amended in July 2010 and subsequently terminated in June 2018, subject to certain surviving rights and obligations of both Regeneron and Astellas. Under the Terminated Regeneron License Agreement, Astellas utilized Regeneron's human antibody technology in its internal research programs to discover certain product candidates, including the Compound, which it sold to the Company under the Astellas Asset Purchase Agreement.

Under the Regeneron Letter Agreement, Astellas assigned and transferred to the Company and the Company assumed and accepted certain of Astellas' surviving rights and obligations under the Terminated Regeneron License Agreement, including Astellas' royalty payment, reporting and indemnification obligations in connection with activities conducted by or on behalf of the Company with respect to the Compound. By assuming and

accepting Astellas' surviving obligations under the Terminated Regeneron License Agreement, the Company is required to pay Regeneron mid-single-digit percentage royalties on aggregate worldwide net sales of any product developed by or on behalf of the Company that contains the Compound as an ingredient or component of the materials sold (a "Royalty Product") during the royalty term. The royalties are determined on a product-by-product and country-by-country basis and expire on the later of (i) a specified number of years after the launch of a given Royalty Product in a given country and (ii) the expiration of the last valid claim of royalty bearing company patent rights claiming or covering such Royalty Product in such country.

There were no payments made to Regeneron pursuant to the Regeneron Letter Agreement during the years ended December 31, 2023 and 2022.

License agreement with Lonza

In October 2021, in connection with the Astellas Asset Purchase Agreement, the Company and Lonza Sales AG ("Lonza") entered into a license agreement (as amended, the "Lonza License Agreement"). Pursuant to the Lonza License Agreement, the Company obtained a worldwide, non-exclusive, sublicensable (subject to Lonza's right of pre-approval with respect to any sublicense of manufacturing activities) license to certain intellectual property rights owned by Lonza. Lonza was the originator of the master cell bank for the Compound developed by Astellas.

As consideration for the rights and licenses granted to the Company under the Lonza License Agreement, the Company agreed to pay Lonza certain royalties and annual payments, both payable in swiss francs, in respect of the manufacturing and sale of the Compound, such amounts to be determined by the party manufacturing the Compound, and range from no annual payment to up to a mid-six-figure annual payment, and a less-than-one percent to a low-single-digit percentage royalty on net sales of the Compound. In accordance with the Lonza License Agreement, the Company entered into a sublicense with Wuxi Biologics (Hong Kong) Limited to manufacture the Compound, requiring the Company to pay a mid-six-figure annual fee to Lonza pursuant to this provision.

Any royalties due under the Lonza License Agreement are payable on a country-by-country basis until ten years from the first commercial sale of the Compound in that particular country.

During the years ended December 31, 2023 and 2022, the Company did not make any royalty payments to Lonza under the Lonza License Agreement. The Lonza agreement continues for an indefinite period of time unless otherwise terminated. The Company has the right to terminate the Lonza License Agreement at any time by providing prior written notice to Lonza.

During each of the years ended December 31, 2023 and 2022, the Company made an annual payment in the amount of $0.4 million to Lonza pursuant to the Lonza License Agreement and recognized it as research and development expense in the consolidated statements of operations and comprehensive loss.

15. Revenue

Maruho agreement

In October 2021, in connection with the Astellas Asset Purchase Agreement (Note 14), the Company entered into an agreement (as amended, the "Maruho Agreement"), under which it granted Maruho an exclusive, irrevocable, perpetual, royalty-free, sublicensable (subject to its right of first negotiation) license. Pursuant to the Maruho Agreement, the Company maintains its responsibility for and controls the global research and development of the Maruho license product, including in Japan. The Company will conduct specified clinical trial activities for Japan as part of its global research and development plan. Maruho will reimburse the Company for the costs of these research and development activities, including the cost of drug supply. Maruho has the right to terminate the Maruho Agreement at any time by providing 60 days prior written notice to the Company with no substantial penalty.

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The Company concluded that Maruho is a customer under the Maruho Agreement, and as such, the Maruho Agreement falls within the scope of ASC 606. The Company identified one performance obligation under the Maruho Agreement related to the performance of research and development services, which are an output of the Company's ordinary activities, in Japan. The Company determined that the transaction price of the Maruho Agreement as of December 31, 2023 consisted solely of variable consideration. The variable consideration was estimated using the expected value method based on the Company's experience and best judgment of the total reimbursable costs expected to be incurred through the period of performance.

The transaction price is being recognized as revenue over time using the cost-to-cost input method, which the Company believes best depicts the transfer of control to the customer. Under the cost-to-cost input method, the extent of progress towards completion is measured based on the ratio of actual costs incurred in Japan to the total estimated costs expected to satisfy the performance obligation. The calculation of the total estimated costs to fulfill the performance obligation includes costs associated with employees, clinical and development, manufacturing, and out-of-pocket costs expected to be paid to third parties. The estimate of the Company's measure of progress and estimate of variable consideration to be included in the transaction price will be updated at each reporting period as a change in estimate. The Company excludes disclosures related to the aggregate amount of the transaction price allocated to the performance obligation that are unsatisfied as of the end of the reporting period because the contract has an initial expected term of one year or less. The Company currently expects to continue providing research and development services to Maruho under the Maruho Agreement through the completion of its Phase 2 clinical trials, and if successful, through any Phase 3 clinical trials.

During the years ended December 31, 2023 and 2022, the Company received prepayments of $2.4 million and $0.8 million, respectively, from Maruho for research and development services to be provided by the Company under the Maruho Agreement. During the years ended December 31, 2023 and 2022, the Company recognized all of the related revenue from the prepayments, resulting in no deferred revenue as of December 31, 2023 and 2022.

16. Related parties

In October 2021, the Company entered into the Maruho Agreement (Note 15). Maruho is considered to be a related party because it is one of the co-founders of the Company and has representation on the Company's board of directors. During the years ended December 31, 2023 and 2022, the Company received payments of $2.7 million and $0.8 million, respectively, in cost reimbursements from Maruho. The Company recorded related party collaboration revenue of $2.4 million and $1.2 million during the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023 and 2022, there was $0.1 million and $0.4 million in related party accounts receivable, respectively, representing amounts due for qualifying reimbursable expenses related to the Maruho Agreement.

In February 2023 and October 2022, the Company issued 1,000,000 shares and 125,000 shares, respectively, of Series A Preferred Stock to Maruho for gross proceeds of $10.0 million and $1.3 million, respectively.

In November 2023, the Company issued 20,980 shares of common stock to a related party investor. The Company recorded stock-based compensation expense of $0.1 million in connection with the issuance of these shares (Note 9).

17. Employee benefit plan

The Company established a defined contribution savings plan under Section 401(k) of the Code. This plan covers all employees who meet minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pre-tax basis. Matching contributions to the plan may be made at the discretion of the Company's board of directors. The Company made $0.2 million in contributions to the plan during the year ended December 31, 2023. The Company did not make contributions to the plan during the year ended December 31, 2022.

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18. Subsequent events

The Company has evaluated all events subsequent to December 31, 2023, and through June 12, 2024, which represents the date these consolidated financial statements were available to be issued, and, only with respect to the stock split, through October 7, 2024, the date the consolidated financial statements were available to be reissued. The Company has concluded that no subsequent events have occurred that require disclosure except as disclosed below.

Modification of certain stock-based compensation awards

In February 2024, the Company entered into a separation agreement with the Company's former Chief Operating Officer ("COO"), effective March 2024. Under the terms of the separation agreement, stock options for the purchase of 142,935 shares of common stock, representing all of the vested options held by the former COO as of the date of her termination, became exercisable for one year following her termination.

In March 2024, the Company entered into a separation agreement with the Company's former Chief Executive Officer ("CEO"), effective March 2024. Under the terms of the separation agreement, vesting of options for the purchase of 38,245 shares of common stock held by the former CEO were accelerated with no change to the exercise price of such options. In addition, stock options for the purchase of 532,553 shares of common stock, representing all of the vested options held by the former CEO as of the date of her termination, became exercisable for two years following her termination.

As a result of these modifications, the Company expects to recognize approximately $0.7 million of stock-based compensation in the first quarter of 2024.

Series B option closing

In April 2024, pursuant to the satisfaction of the Series B Option contemplated in the Series B Agreement, the Company issued and sold 8,823,523 shares of Series B Preferred Stock at a price of $17.00 per share, which resulted in gross cash proceeds of $150.0 million. The Company incurred less than $0.1 million of issuance costs in connection with the Series B Option closing.

Increase in Shares Reserved for Issuance under the 2021 Plan

In connection with the Series B Option, the Company's board of directors effected an increase of 1,595,521 in the total number of shares of common stock reserved for issuance under the 2021 Plan.

Grant of options to employees

In March and April 2024, the Company granted options for the purchase of an aggregate of 1,645,671 shares of common stock, at an exercise price of $5.68 per share, to certain employees, including the CEO and Chief Financial Officer. The aggregate grant-date fair value of these options has not yet been determined but is expected to be recognized as stock-based compensation expense over a period of four years.

In April and May 2024, the Company granted options for the purchase of an aggregate of 1,505,754 shares of common stock, at an exercise price of $6.59 per share, to certain employees, including the CEO. The aggregate grant-date fair value of these options has not yet been determined but is expected to be recognized as stock-based compensation expense over a period of four years.

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Notes to consolidated financial statements

Stock split

On October 4, 2024, the Company effected a 1.049-for-one stock split of its issued and outstanding shares of common stock and a proportional adjustment to the existing conversion ratios of each series of the Company's preferred stock (see Note 8). Accordingly, all share and per share amounts for all periods presented in the accompanying consolidated financial statements and notes thereto have been adjusted retroactively, where applicable, to reflect this stock split and adjustment of the preferred stock conversion ratios.

Upstream Bio, Inc.
Condensed consolidated balance sheets
(Amounts in thousands, except share and per share amounts)
(Unaudited)

	June 30, 2024	December 31, 2023
Assets		
Current assets:		
Cash and cash equivalents	$ 47,336	$ 25,833
Short-term investments	188,468	83,977
Accounts receivable - related party	510	98
Prepaid expenses and other current assets	6,717	7,088
Total current assets	243,031	116,996
Property and equipment, net	133	159
Operating lease right-of-use assets	-	43
Deferred offering costs	1,347	-
Total assets	$ 244,511	$ 117,198
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities:		
Accounts payable	$ 5,560	$ 1,990
Accrued expenses and other current liabilities	4,684	4,480
Operating lease liabilities, current portion	-	45
Total current liabilities	10,244	6,515
Preferred stock tranche right liability	-	2,874
Total liabilities	10,244	9,389
Commitments and contingencies (Note 13)		
Redeemable convertible preferred stock (Series A, B), $0.001 par value; 31,764,693 shares authorized at June 30, 2024 and December 31, 2023; 31,764,693 shares and 22,941,170 shares issued and outstanding at June 30, 2024 and December 31, 2023, respectively; aggregate liquidation preference of $425,718 and $267,718 at June 30, 2024 and December 31, 2023, respectively	380,874	230,935
Stockholders' deficit:		
Common stock, $0.001 par value; 40,684,346 shares and 40,664,346 shares authorized at June 30, 2024 and December 31, 2023, respectively; 3,020,546 and 2,992,479 shares issued and outstanding at June 30, 2024 and December 31, 2023, respectively	3	3
Additional paid-in capital	6,991	4,824
Accumulated other comprehensive income (loss)	(55)	21
Accumulated deficit	(153,546)	(127,974)
Total stockholders' deficit	(146,607)	(123,126)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 244,511	$ 117,198

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

Upstream Bio, Inc.
Condensed consolidated statements of operations and comprehensive loss
(Amounts in thousands, except share and per share amounts)
(Unaudited)

	Six Months Ended June 30,	
	2024	2023
Collaboration revenue - related party	$ 1,150	$ 1,309
Operating expenses:		
Research and development	25,760	12,457
General and administrative	7,943	5,250
Total operating expenses	33,703	17,707
Loss from operations	(32,553)	(16,398)
Other income (expense):		
Change in fair value of preferred stock tranche right liabilities	2,859	9,769
Interest income	4,143	1,119
Other expense, net	(21)	(92)
Total other income, net	6,981	10,796
Net loss	$ (25,572)	$ (5,602)
Redeemable convertible preferred stock cumulative dividends	(8,000)	(11,416)
Net loss attributable to common stockholders	$ (33,572)	$ (17,018)
Net loss per share attributable to common stockholders, basic and diluted	$ (11.18)	$ (5.79)
Weighted-average common shares outstanding, basic and diluted	3,002,173	2,937,809
Comprehensive loss:		
Net loss	$ (25,572)	$ (5,602)
Unrealized loss on investments, net of tax	(76)	(58)
Comprehensive loss	$ (25,648)	$ (5,660)

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

Upstream Bio, Inc.
Condensed consolidated statements of redeemable convertible preferred stock and stockholders' deficit
(Amounts in thousands, except share amounts)
(Unaudited)

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balances at December 31, 2022	12,000,000	$ 112,823	2,937,197	$ 3	$ 1,279	$ (107,437)	$ -	$ (106,155)
Issuance of Series A redeemable convertible preferred stock in connection with the settlement of the tranche right liability	8,000,000	80,320	-	-	-	-	-	-
Issuance of Series B redeemable convertible preferred stock, net of preferred stock tranche right liability of $11,774 and issuance costs of $385	2,941,170	37,842	-	-	-	-	-	-
Exercise of stock options, net of tax withholding	-	-	5,245	-	18	-	-	18
Stock-based compensation expense	-	-	-	-	1,931	-	-	1,931
Unrealized loss on available-for-sale securities, net of tax	-	-	-	-	-	-	(58)	(58)
Net loss	-	-	-	-	-	(5,602)	-	(5,602)
Balances at June 30, 2023	22,941,170	$ 230,985	2,942,442	$ 3	$ 3,228	$ (113,039)	$ (58)	$ (109,866)

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balances at December 31, 2023	22,941,170	$ 230,935	2,992,479	$ 3	$ 4,824	$ (127,974)	$ 21	$ (123,126)
Issuance of Series B redeemable convertible preferred stock in connection with the settlement of the tranche right liability, net of issuance costs of $75	8,823,523	149,939	-	-	-	-	-	-
Exercise of stock options, net of tax withholding	-	-	28,067	-	112		-	112
Stock-based compensation expense	-	-	-	-	2,055	-	-	2,055
Unrealized loss on available-for-sale securities, net of tax	-	-	-	-	-	-	(76)	(76)
Net loss	-	-	-	-	-	(25,572)	-	(25,572)
Balances at June 30, 2024	31,764,693	$ 380,874	3,020,546	$ 3	$ 6,991	$ (153,546)	$ (55)	$ (146,607)

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

Upstream Bio, Inc.
Condensed consolidated statements of cash flows
(Amounts in thousands)
(Unaudited)

	Six Months Ended June 30,	
	2024	2023
Cash flows from operating activities:		
Net loss	$ (25,572)	$ (5,602)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	26	29
Stock-based compensation expense	2,055	1,931
Change in fair value of preferred stock tranche right liabilities	(2,859)	(9,769)
Net amortization of premiums and accretion of discounts on short-term investments	(1,765)	(258)
Non-cash lease expense	43	6
Changes in operating assets and liabilities:		
Accounts receivable - related party	(412)	323
Prepaid expenses and other assets	371	(3,223)
Accounts payable	3,062	54
Accrued expenses and other current liabilities	(502)	(1,542)
Deferred revenue - related party	-	1,062
Operating lease liabilities	(45)	(8)
Net cash used in operating activities	(25,598)	(16,997)
Cash flows from investing activities:		
Purchases of short-term investments	(174,999)	(89,705)
Maturities of short-term investments	72,197	-
Purchases of property and equipment	-	(144)
Net cash used in investing activities	(102,802)	(89,849)
Cash flows from financing activities:		
Proceeds from the issuance of Series A redeemable convertible preferred stock[(1)]	-	80,000
Proceeds from the issuance of Series B redeemable convertible preferred stock including tranche right, net of issuance costs paid	-	49,615
Proceeds from the issuance of Series B redeemable convertible preferred stock, net of issuance costs paid	149,924	-
Proceeds from exercises of stock options, net of tax withholding	112	18
Payments of deferred offering costs	(133)	-
Net cash provided by financing activities	149,903	129,633
Net increase in cash and cash equivalents	21,503	22,787
Cash and cash equivalents at beginning of period	25,833	17,051
Cash and cash equivalents at end of period	$ 47,336	$ 39,838
Supplemental cash flow information:		
Right-of-use asset obtained in exchange for operating lease liability	$ -	$ 33
Supplemental disclosure of non-cash investing and financing activities:		
Settlement of Series A preferred stock tranche right liability	$ -	$ 320
Settlement of Series B preferred stock tranche right liability	$ 15	$ -
Deferred offering costs included in accounts payable and accrued expenses	$ 1,214	$ -

(1) Includes related party amount of $10.0 million for the six months ended June 30, 2023 (Note 16).

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

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

1. Nature of the business and basis of presentation

Upstream Bio, Inc. was incorporated in April 2021, under the laws of the State of Delaware, and along with its consolidated subsidiary (collectively, the "Company" or "Upstream"), is focused on developing treatments for inflammatory diseases, with an initial focus on severe respiratory disorders. Since its inception, the Company has devoted substantially all of its efforts to raising capital and incurring research and development expenses related to advancing verekitug, a clinical-stage monoclonal antibody that targets and inhibits the Thymic Stromal Lymphopoietin receptor.

Risks and uncertainties

The global economy has experienced extreme volatility and disruptions due to the military conflict between Russia and Ukraine and the war between Israel and Hamas. These conditions have impacted, and may continue to impact, the capital and credit markets, which may reduce the Company's ability to raise additional capital through equity, equity-linked instruments or debt financings which could negatively impact the Company's short-term and long-term liquidity. Additionally, the Company's results of operations could be adversely affected by general conditions in the global economy and financial markets. A severe or prolonged economic downturn could result in a variety of risks to the Company's business, including a reduced ability to raise additional capital when needed on favorable terms, if at all. The Federal Reserve has raised interest rates multiple times in response to concerns about inflation and it 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. Any of the foregoing could harm the Company's business, and it cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact its ability to raise capital, business, results of operations and financial condition.

The Company is subject to risks and uncertainties common to early-stage companies in the biopharmaceutical industry, including, but not limited to, the successful development of verekitug, the development of new technological innovations by competitors, dependence on key personnel, the ability to attract and retain qualified employees, protection of proprietary technology, compliance with governmental regulations and the ability to secure additional capital to fund operations and commercial success of verekitug. There can be no assurance that the Company's research and development will be successfully completed, that adequate protection for the Company's intellectual property will be maintained, that any therapeutic products developed will obtain required regulatory approval or that any approved or consumer products will be commercially viable. Even if the Company's development efforts are successful, it is uncertain when, if ever, the Company will generate significant product sales.

Liquidity

The Company has evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the condensed consolidated financial statements are available to be issued.

The accompanying condensed consolidated financial statements have been prepared on the basis of continuity of operations, realization of assets and the satisfaction of liabilities and commitments in the ordinary course of business. The Company has historically financed its operations principally through the issuance and sale of Series A redeemable convertible preferred stock ("Series A Preferred Stock") and Series B redeemable convertible preferred stock ("Series B Preferred Stock"), which are collectively referred to as the "Preferred Stock." The Company has incurred recurring losses and negative cash flows from operations since its inception

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

and expects to continue to incur losses and negative cash flows for the foreseeable future as it continues the research and development of verekitug. The Company incurred a net loss of $25.6 million and $5.6 million for the six months ended June 30, 2024 and 2023, respectively. As of June 30, 2024, the Company had an accumulated deficit of $153.5 million.

As of the date the condensed consolidated financial statements for the six months ended June 30, 2024 were available to be issued, the Company expects its existing cash, cash equivalents and short-term investments will be sufficient to fund its operating expenses and capital expenditures requirements for at least the next twelve months from the date the condensed consolidated financial statements were available to be issued.

The Company is seeking to complete an initial public offering ("IPO") of its common stock. Upon the completion of a qualified public offering on specified terms (Note 8), the Company's outstanding Preferred Stock will automatically convert into shares of common stock. In the event the Company does not complete an IPO, until such time as the Company can generate significant product revenue, if ever, the Company expects to fund its operations through equity offerings or debt financings, credit or loan facilities, potentially other capital resources, or a combination of one or more of these funding sources. The terms of any financing may adversely affect the holdings or the rights of the Company's stockholders. The Company's failure to raise capital as and when needed could have a negative impact on its financial condition and its ability to pursue its business strategies. If adequate funds are not available to the Company, the Company may be required to delay, reduce or eliminate clinical programs, obtain funds through arrangements with collaborators on terms unfavorable to the Company or pursue merger or acquisition strategies. There can be no assurances the Company will be able to obtain additional funding. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Basis of presentation

The accompanying unaudited condensed consolidated financial statements reflect the operations of the Company. Intercompany balances and transactions have been eliminated in consolidation. The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim financial reporting and as required by Regulation S-X, Rule 10-01. Any reference in these notes to applicable guidance is meant to refer to the authoritative U.S. GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB").

The condensed consolidated interim financial statements have been prepared on the same basis as the audited annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for a fair statement of the Company's financial position as of June 30, 2024 and the results of operations for the six month interim periods ended June 30, 2024 and 2023. The condensed balance sheet as of December 31, 2023 was derived from audited annual financial statements but does not include all disclosures required by U.S. GAAP. The results of operations for the interim periods are not necessarily indicative of results to be expected for the year ending December 31, 2024, any other interim periods, or any future year or period.

2. Summary of Significant Accounting Policies

Other than policies noted below, there have been no significant changes from the significant accounting policies and estimates disclosed in Note 2 of the "Notes to Consolidated Financial Statements" in our audited annual financial statements included elsewhere in this prospectus.

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

Use of estimates

The preparation of condensed consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. The Company bases estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates. Significant estimates and assumptions reflected within these condensed consolidated financial statements include, but are not limited to, prepaid and accrued research and development expenses, including those related to contract research organizations ("CROs"), contract manufacturing organizations ("CMOs") and other third-party vendors, the valuation of the Company's common stock and stock-based awards and the valuation of the preferred stock tranche right liabilities. Changes in estimates are recorded in the period in which they become known.

Concentration of credit risk and of significant suppliers

Financial instruments that potentially subject the Company to significant concentration of credit risk consist primarily of cash, cash equivalents and short-term investments. The Company deposits its cash and cash equivalents in financial institutions in amounts that may exceed federally insured limits, and has not experienced any losses on such accounts and does not believe it is exposed to any unusual credit risk beyond the normal credit risk associated with commercial banking relationships. The Company's short-term investments consist of U.S. treasury bills and U.S. government agency bonds which the Company believes represent minimal credit risk.

The Company is dependent on third-party manufacturers to supply products for research and development activities related to verekitug, including preclinical and clinical studies and testing. In particular, the Company relies and expects to continue to rely on a small number of manufacturers for the supply of verekitug. The Company's preclinical and clinical studies and testing could be adversely affected by a significant interruption in the supply.

Cash and cash equivalents

The Company considers all short-term, highly liquid investments, with an original maturity of three months or less, to be cash equivalents, and includes amounts held in money market funds in the amount of $25.8 million and $23.3 million as of June 30, 2024 and December 31, 2023, respectively.

Short-term investments

Available-for-sale securities consist of investments with original maturities greater than 90 days at acquisition date. The Company classifies any investments with maturities beyond one year as short term, based on their highly liquid nature and because such available-for-sale securities represent the investment of cash that is available for current operations.

The Company's debt security investments are classified as available-for-sale and are carried at fair value, with the unrealized gains and losses reported as a component of accumulated other comprehensive income (loss) in stockholders' deficit. Realized gains and losses and declines in fair value due to credit-related factors are based on the specific identification method and are included as other expense, net in the condensed consolidated statements of operations and comprehensive loss. The Company recorded interest income on available-for-sale investments of $4.1 million and $1.1 million during the six months ended June 30, 2024 and 2023, respectively, which is classified as interest income in the condensed consolidated statements of operations and comprehensive loss.

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

At each balance sheet date, the Company assesses available-for-sale debt securities in an unrealized loss position to determine whether the unrealized loss or any potential credit losses should be recognized in other expense, net. The Company evaluates whether it intends to sell, or it is more likely than not that it will be required to sell, the security before recovery of its amortized cost basis. The Company also evaluates whether the decline in fair value has resulted from credit losses or other factors. In making this assessment, the Company considers the severity of the impairment, any changes in interest rates, changes to the underlying credit ratings and forecasted recovery, among other factors. The credit-related portion of unrealized losses, and any subsequent improvements, are recorded in other expense, net. The portion that is not credit-related is treated in accordance with other unrealized losses as a component of accumulated other comprehensive income (loss) in stockholders' deficit. There have been no impairment or credit losses recognized during any of the periods presented.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation of the equity financing, these costs are recorded as a reduction of the proceeds from the offering, either as a reduction of the carrying value of the Preferred Stock or in stockholders' deficit as a reduction of additional paid-in-capital generated as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the condensed consolidated statements of operations and comprehensive loss. The Company recorded deferred offering costs of $1.3 million and $0 as of June 30, 2024 and December 31, 2023.

Recently issued accounting pronouncements not yet adopted

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* ("ASU 2023-07"). ASU 2023-07 expands public entities' segment disclosures by requiring disclosure of significant segment expenses that are regularly provided to the chief operating decision maker and included within each reported measure of segment profit or loss, an amount and description of its composition for other segment items, and interim disclosures of a reportable segment's profit or loss and assets. All disclosure requirements under ASU 2023-07 are also required for public entities with a single reportable segment. ASU 2023-07 is effective for public business entities with fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. The Company is currently evaluating the impact of adopting ASU 2023-07 on its consolidated financial statements and related disclosures.

In December 2023, the FASB issued ASU 2023-09, *Improvements to Income Tax Disclosures* ("ASU 2023-09"). ASU 2023-09 requires entities to disclose additional information in specified categories with respect to the reconciliation of the effective tax rate to the statutory rate (the rate reconciliation) for federal, state, and foreign income taxes. It also requires greater detail about individual reconciling items in the rate reconciliation to the extent the impact of those items exceeds a specified threshold (if the effect of those reconciling items is equal to or greater than 5% of the amount computed by multiplying pretax income or loss by the applicable statutory income tax rate). In addition to new disclosures associated with the rate reconciliation, ASU 2023-09 requires information pertaining to taxes paid (net of refunds received) to be disaggregated for federal, state, and foreign taxes and further disaggregated for specific jurisdictions to the extent the related amounts exceed a quantitative threshold. The amendments are effective for public business entities for annual periods beginning after December 15, 2024. For entities other than public business entities, the amendments are effective for annual periods beginning after December 15, 2025. Early adoption is permitted. The Company is currently evaluating the timing and impact of adopting ASU 2023-09 on its consolidated financial statements and related disclosures.

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

3. Fair value measurements

The following tables present information about the Company's financial assets and liabilities measured at fair value on a recurring basis and indicate the level of the fair value hierarchy used to determine such fair values (in thousands):

	Fair Value Measurements at June 30, 2024 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 25,758	$ —	$ —	$ 25,758
Short-term investments:				
U.S. treasury bills	—	106,141	—	106,141
U.S. government agency bonds	—	82,327	—	82,327
	$ 25,758	$ 188,468	$ —	$ 214,226

	Fair Value Measurements at December 31, 2023 Using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 23,314	$ —	$ —	$ 23,314
Short-term investments:				
U.S. treasury bills	—	45,864	—	45,864
U.S. government agency bonds	—	38,113	—	38,113
	$ 23,314	$ 83,977	$ —	$ 107,291
Liabilities:				
Preferred stock tranche right liability (Series B)	$ —	$ —	$ 2,874	$ 2,874

For the six months ended June 30, 2024 and for the year ended December 31, 2023, there were no transfers between Level 1, Level 2 and Level 3.

The Company classifies its U.S. treasury bills and U.S. government agency bonds as short-term based on each instrument's availability for use in current operations. The fair value of the Company's U.S. treasury bills and U.S. government agency bonds are classified as Level 2 because they are valued using observable inputs to quoted market prices, benchmark yields, reported trades, broker/dealer quotes or alternative pricing sources with reasonable levels of price transparency and U.S. treasury bills.

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

Short-term investments consisted of the following (in thousands):

	June 30, 2024			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Short-term investments:				
U.S. treasury bills	$ 106,159	$ 1	$ (19)	$ 106,141
U.S. government agency bonds	82,364	—	(37)	82,327
Total short-term investments:	$ 188,523	$ 1	$ (56)	$ 188,468

	December 31, 2023			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Short-term investments:				
U.S. treasury bills	$ 45,863	$ 9	$ (8)	$ 45,864
U.S. government agency bonds	38,093	23	(3)	38,113
Total short-term investments:	$ 83,956	$ 32	$ (11)	$ 83,977

The contractual maturities of the Company's short-term investments in available-for-sale securities held were as follows (in thousands):

	June 30, 2024	December 31, 2023
Due within one year	$ 188,468	$ 83,977

Valuation of preferred stock tranche right liabilities

As of December 31, 2023, the preferred stock tranche right liability in the table above is composed of the fair value of the obligation to issue Series B Preferred Stock (Note 8). The fair value of the preferred stock tranche right liabilities was based on significant inputs not observable in the market, which represented a Level 3 measurement within the fair value hierarchy.

Series A preferred stock tranche right liability

In February 2023, upon satisfaction of certain conditions, the second closing of the Series A Preferred Stock was completed. The Company issued and sold 8,000,000 shares of Series A Preferred Stock at a price of $10.00 per share, which resulted in the settlement of the associated Series A preferred stock tranche right liability. The fair value of Series A Preferred Stock was $10.04 per share upon the second closing.

Series B preferred stock tranche right liability

The fair value of the Series B preferred stock tranche right liability was determined using an option pricing model as it represents an option for the Series B Option Shares (as defined in Note 8). The valuation considered as inputs the estimated fair value of the Series B Preferred Stock as of each valuation date, the risk-free interest rate, volatility, expected dividends, and estimated time to the tranche closing.

The most significant assumption in the valuation model impacting the fair value of the preferred stock tranche right liability is the fair value of the Company's Series B Preferred Stock as of each measurement date. The Company determined the fair value per share of the underlying Series B Preferred Stock by taking into

consideration the most recent sales of its Series B Preferred Stock, results obtained from third-party valuations and additional factors the Company deemed relevant. In June 2023, the initial tranche of the Series B Preferred Stock closed with a fair value of $13.00 per share. As of December 31, 2023, the fair value of Series B Preferred Stock was $15.86 per share. In April 2024, upon satisfaction of certain conditions, the Company issued and sold 8,823,523 shares of Series B Preferred Stock at a price of $17.00 per share, which resulted in the settlement of the associated Series B preferred stock tranche right liability. The fair value of Series B Preferred Stock was $17.002 per share upon the closing. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining estimated time to the tranche closing. The volatility is based on the historical volatility of publicly traded peer companies adjusted for the seniority of the Series B Preferred Stock. The expected dividend yield is based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future. Changes in these inputs can have a significant impact on the fair value of the preferred stock tranche right liability.

The following table presents the assumptions used in the option-pricing model to determine the fair value of the Series B preferred stock tranche right liability during the periods presented:

	2023		
	June *(Issuance Date)*	June 30	December
Expected volatility	51.0%	36.2%	21.2%
Expected dividends	0.0%	0.0%	0.0%
Expected term (in years)	0.80	0.75	0.25
Risk-free rate	5.3%	5.4%	5.4%

The following table presents a roll-forward of the fair value of the Series B preferred stock tranche right liability during the six months ended June 30, 2024, for which fair value is determined using Level 3 inputs (in thousands):

	Series B Preferred Stock Tranche Right Liability
Fair value at December 31, 2023	$ 2,874
Change in fair value of Series B preferred stock tranche right liability	(2,859)
Final settlement of Series B preferred stock tranche right liability	(15)
Fair value at June 30, 2024	$ -

The following table presents a roll-forward of the fair value of the Series A and Series B preferred stock tranche right liabilities during the six months ended June 30, 2023, for which fair value is determined using Level 3 inputs (in thousands):

	Preferred Stock Tranche Right Liability	
	Series A	Series B
Fair value at December 31, 2022	$ 6,947	$ -
Fair value of Series B preferred stock tranche right liability at issuance	-	11,774
Change in fair value of preferred stock tranche right liabilities	(6,627)	(3,142)
Final settlement of Series A preferred stock tranche right liability	(320)	-
Fair value at June 30, 2023	$ -	$ 8,632

Upstream Bio, Inc.
Notes to condensed consolidated financial statements
(Unaudited)

4. Prepaid expenses and other current assets

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

	June 30, 2024	December 31, 2023
Prepaid research and development expense	$ 5,653	$ 6,436
Interest receivable	397	138
Prepaid employee-related costs	57	123
Other	610	391
	$ 6,717	$ 7,088

5. Property and equipment, net

Property and equipment, net consisted of the following (in thousands):

	June 30, 2024	December 31, 2023
Office equipment	$ 163	$ 163
Computer equipment	36	36
Leasehold improvements	27	27
Construction in progress	-	-
	226	226
Less: Accumulated depreciation and amortization	(93)	(67)
Property and equipment, net	$ 133	$ 159

Depreciation and amortization expense related to property and equipment, net was less than $0.1 million for each of the six months ended June 30, 2024 and 2023.

6. Accrued expenses and other current liabilities

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

	June 30, 2024	December 31, 2023
Accrued employee compensation and benefits	$ 1,591	$ 2,168
Accrued consultant and professional fees	1,316	875
Accrued external research and development expenses	1,043	1,437
Accrued offering costs	706	-
Other	28	-
	$ 4,684	$ 4,480

7. Leases

As of December 31, 2023, the Company was a party to a lease related to commercial real estate under a non-cancelable lease term and a short-term lease related to commercial real estate. In July 2024, the Company entered into a lease for office space which has not yet commenced (Note 17).

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The Company has an operating lease for office space at 460 Totten Pond Road, Waltham, Massachusetts. The lease expired on June 30, 2024, after which the Company will continue to pay rent on a month-to-month basis until either party provides notice of termination. Under its lease, the Company pays a proportional share of operating expenses. Such operating expenses are subject to annual adjustment and are accounted for as variable payments in the period in which they are incurred.

8. Redeemable convertible preferred stock

The Company has issued Series A Preferred Stock and Series B Preferred Stock, which are collectively referred to as the Preferred Stock. As of June 30, 2024 and December 31, 2023, the Company authorized the issuance of 31,764,693 shares of Preferred Stock, par value of $0.001 per share, of which 20,000,000 have been designated Series A Preferred Stock and 11,764,693 have been designated Series B Preferred Stock.

Issuance and sale of Series A redeemable convertible preferred stock

In October 2021, the Company issued and sold 11,000,000 shares of Series A Preferred Stock at $10.00 per share. Pursuant to the Series A Preferred Stock Purchase Agreement (the "Series A Agreement"), the Company was obligated to issue and the Series A investors were obligated to purchase an additional 9,000,000 shares of Series A Preferred Stock ("Milestone Shares") at the same purchase price of $10.00 per share (the "Series A preferred stock tranche right"), after the initial closing and upon the satisfaction of certain conditions at a date which would occur at the earlier of (i) immediately prior to the Company's first underwritten public offering of its common stock under the Securities Act; (ii) the resolution of the board of directors that the pharmacokinetics, pharmacodynamics, immunogenicity and safety profile of verekitug (formerly referred to as ASP7266), when administered as multiple ascending doses, supports further clinical development ("Second Closing Milestone") has been achieved; or (iii) the written consent of the purchasers holding a majority of the Series A Preferred Stock that the Second Closing Milestone has been waived (collectively, the "Second Closing").

The board of directors may determine at any time prior to the Second Closing to issue and sell up to 1,000,000 of the Milestone Shares at a price of $10.00 per share for gross cash proceeds of $10.0 million ("Interim Second Closing") and the number of Milestone Shares to be issued in the Second Closing will be reduced accordingly. In October 2022, the Interim Second Closing was completed and 1,000,000 of the Milestone Shares on a pro-rata basis to the purchasers of the Series A Preferred Stock were issued at a price of $10.00 per share.

In February 2023, upon the satisfaction of the Second Closing Milestone, the remaining 8,000,000 of the Milestone Shares on a pro-rata basis to the purchasers of the Series A Preferred Stock were issued at a price of $10.00 per share, which resulted in gross cash proceeds of $80.0 million. As a result of this issuance, the Series A preferred stock tranche right liability of $0.3 million was settled and the Series A Preferred Stock was recorded at its fair value of $80.3 million.

Issuance and sale of Series B redeemable convertible preferred stock

In June 2023, the Company executed the Series B Stock Preferred Purchase Agreement (the "Series B Agreement") to issue and sell up to 11,764,693 shares of Series B Preferred Stock at a price of $17.00 per share. In the initial closing in June 2023, the Company issued 2,941,170 shares of Series B Preferred Stock resulting in gross cash proceeds of $50.0 million and incurred $0.6 million of issuance costs, of which $0.1 million was allocated to the preferred stock tranche right liability and recognized in the condensed consolidated statement of operations and comprehensive loss as general and administrative expense. Pursuant to the Series B Agreement, the Company has the right ("Series B Option") to issue and sell an additional 8,823,523 shares of Series B

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Preferred Stock ("Series B Option Shares") at the same price of $17.00 per share after the initial closing but prior to March 31, 2024 upon approval of at least six (6) board of directors of which at least one (1) has to be appointed by the holders of Series B Preferred Stock. If the Company does not exercise the Series B Option prior or at a date which would occur at the earlier of (i) March 31, 2024 or (ii) the closing of an acquisition agreement signed prior to March 31, 2024, the holders of Series B Preferred Stock will have the right but not obligation to require the Company to issue and sell the Series B Option Shares at the same purchase price of $17.00 per share (the "Series B preferred stock tranche right"). Upon the initial closing of the Series B Preferred Stock, the Company recorded a preferred stock tranche right liability of $11.8 million and a corresponding reduction to the carrying value of the Series B Preferred Stock. The fair value of the Series B preferred stock tranche right was allocated from the gross cash proceeds of $50.0 million of the Series B Preferred Stock issuance, and the residual value was then allocated to the Series B Preferred Stock.

In April 2024, pursuant to the satisfaction of the Series B Option contemplated in the Series B Agreement, the Company issued and sold 8,823,523 shares of Series B Preferred Stock at a price of $17.00 per share, which resulted in gross cash proceeds of $150.0 million. As a result of this issuance, the Series B preferred stock tranche right liability of less than $0.1 million was settled and the Series B Preferred Stock was recorded at its fair value of $150.0 million. The Company incurred less than $0.1 million of issuance costs in connection with the Series B Option closing.

Upon issuance of the Preferred Stock, the Company assessed the embedded conversion and liquidation features of the securities and determined that such features did not require the Company to separately account for these features.

Preferred Stock consisted of the following (dollar amounts in thousands):

	June 30, 2024				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	20,000,000	20,000,000	$ 193,143	$ 221,280	20,980,000
Series B Preferred Stock	11,764,693	11,764,693	187,731	204,438	12,341,149
	31,764,693	31,764,693	$ 380,874	$ 425,718	33,321,149

	December 31, 2023				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	20,000,000	20,000,000	$ 193,143	$ 216,293	20,980,000
Series B Preferred Stock	11,764,693	2,941,170	37,792	51,425	3,085,280
	31,764,693	22,941,170	$ 230,935	$ 267,718	24,065,280

The holders of the Preferred Stock have the following rights and preferences:

Dividends

The holders of Preferred Stock are entitled to a cumulative dividend from and after the date of the share issuance at the rate per annum of 5% of the Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock),

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provided that the total accrued amount will not exceed 15% of the Original Issue Price in aggregate (the "Accruing Dividend"). Such dividends shall be accrued, whether or not declared.

In the event of any dividend being payable to common stockholders, the holders of Preferred Stock shall be entitled to receive, prior to any such dividend being paid to the common stockholders, the greater of (i) the Accruing Dividend then accrued and not previously paid, and (ii) the amount of any dividend being paid to the common stockholders (determined on an as-converted basis with respect to the holders of Preferred Stock).

Voting rights

The holders of the Preferred Stock are entitled to vote together with all other classes and series of stock as a single class on all matters, except those matters requiring a separate class vote, and are entitled to the number of votes equal to the number of shares of common stock into which each share of the applicable series of Preferred Stock is then convertible. The holders of Series A Preferred Stock as a separate class are entitled to elect four (4) board of directors, and the holders of Series B Preferred Stock as a separate class are entitled to elect two (2) board of directors.

Liquidation preference

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or in the event of a Deemed Liquidation Event ("DLE") which is defined as a merger or consolidation in which the Company issues shares of its capital stock (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation), and the sale, lease, transfer, exclusive license or other disposition of substantially all of the Company's assets, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Company available for distribution to its shareholders or consideration payable to stockholders in such DLE or out of the available proceeds as follows:

- Before any payment is made to the holders of Series A Preferred Stock and common stock, an amount equal to any Accruing Dividends on the Series B Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends that are declared but unpaid ("Series B Dividend Payment");
- If the assets available are not sufficient for the Company to pay the Series B Dividend Payment to the holders of Series B Preferred Stock in full, holders of Series B Preferred Stock will share ratably in the assets available for distribution;
- After the Series B Dividend Payment is paid in full, holders of Preferred Stock will be entitled to be paid out of the assets of the Company available for distribution to its stockholders before any payment is made to the holders of common stock, on a pari passu basis, an amount per share equal to (i) with respect to the Series A Preferred Stock, the greater of (a) the Original Issue Price, plus any Accruing Dividends on the Series A Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends declared but unpaid, or (b) such amount per share as would have been payable had all shares of Series A Preferred Stock been converted in common stock, and (ii) with respect to the Series B Preferred Stock, (1) the greater of (a) the Original Issue Price, plus any Accruing Dividends on the Series B Preferred Stock accrued but unpaid, whether or not declared, together with any other dividends declared but unpaid thereon, or (b) such amount per share as would have been payable had all shares of Series B Preferred Stock been converted in common stock, less (2) Series B Dividend Payment that was paid. ("Liquidation Amount");
- If the assets available are not sufficient for the Company to pay holders of Preferred Stock the Liquidation Amount in full, holders of Preferred Stock will share ratably in the assets available for distribution;

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- After payment of Liquidation Amounts is paid in full to the holders of Preferred Stock, the remaining assets of the Company available for distribution to its stockholders, or in the case of a DLE, the consideration not payable to the holders of shares of Preferred Stock or the remaining available proceeds, will be distributed among the holders of the shares of common stock on a pro rata basis.

The "Original Issue Price" is defined as (i) with respect to the Series A Preferred Stock, $10.00 per share, and (ii) with respect to the Series B Preferred Stock, $17.00 per share.

Conversion

Optional conversion

Each share of Preferred Stock is convertible at the option of the holder and at any time into common stock as determined by dividing the Preferred Stock Original Issue Price by the Preferred Stock Conversion Price. "Conversion Price" is defined as initially the applicable Original Issue Price for the applicable series of Preferred Stock, subject to certain adjustments in the event of any down round, stock dividend, stock split, combination or other similar recapitalization.

Mandatory conversion

Each share of Preferred Stock will automatically be converted into shares of common stock, at the conversion ratio of dividing the Original Issue Price by the Preferred Stock Conversion Price, upon either (a) the closing of the sale of shares of common stock to the public at a price of at least $21.07 per share (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the common stock) in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $100.0 million of gross proceeds to the Company and after which the common stock is listed on the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange or (b) the date and time, or the occurrence of an event specified by vote or written consent of the Requisite Holders (which is defined as at least a majority of the outstanding shares of Preferred Stock, voting together as a single class on an as converted to common stock basis, which majority must include holders of at least a majority of the outstanding shares of Series B Preferred Stock) voting together as a single class on an as converted to common stock basis, then all outstanding shares of Preferred Stock will automatically be converted into shares of common stock, at the then effective conversion rate and such shares of Preferred Stock may not be reissued by the Company.

Special mandatory conversion

Pursuant to the terms of the Series A Agreement, if a Series A Preferred Shareholder fails to purchase all of the Milestone Shares allocated to such shareholder at or prior to the Second Closing Milestone or breaches its obligations set forth in the Series A Agreement, then such investor will be deemed a Defaulting Purchaser. As of December 31, 2023, all of the Milestone Shares had been issued without triggering the special mandatory conversion provision under the Series A Agreement.

Pursuant to the terms of the Series B Agreement, if a Series B Preferred Shareholder fails to purchase all of the Series B Option Shares allocated to such shareholder at or prior to the closing of the Series B Option or breaches its obligations set forth in the Series B Agreement, then such investor will be deemed a Defaulting Purchaser. Each ten shares of Preferred Stock held by the Defaulting Purchaser will automatically, and without any further action on the part of such holder, be converted into one share of common stock. In April 2024, all of the Series B Option Shares had been issued without triggering the special mandatory conversion provision under the Series B Agreement.

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Modification to Series A preferred stock

In June 2023, in connection with the issuance of the Company's Series B Preferred Stock, the rights of the Company's Series A Preferred Stock were amended to entitle holders to a cumulative dividend from and after the date of the share issuance at the rate per annum of 5% of the Original Issue Price (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock), provided that the total accrued amount will not exceed 15% of the Original Issue Price in aggregate. The dividend replaced the original accrued return definition within the liquidation preference terms of the Series A Preferred Stock. Previously, holders were entitled to a liquidation preference per share equal to the greater of (a) the Original Issue Price, plus an accrued return of 5% of the Original Issue Price per annum, provided that the total of such accrued return shall not exceed 15% of the Original Issue Price in the aggregate, or (b) such amount per share as would have been payable had all shares of Series A Preferred Stock been converted in common stock.

The changes to the rights of the Company's Series A Preferred Stock were not considered to be a significant change to the contractual terms of the Company's Series A Preferred Stock because the accrued return of the liquidation preference and the cumulative dividend definitions will result in the same amount to be received in a liquidation event, and accordingly, the Company accounted for the change as a modification.

9. Common stock

Each share of common stock entitles the holder to one vote on all matters submitted to a vote of the Company's stockholders. Common stockholders are entitled to receive dividends, as may be declared by the board of directors, if any, subject to the preferential dividend rights of the Preferred Stock. When dividends are declared on shares of common stock, the Company must declare at the same time a dividend payable to the holders of Preferred Stock equivalent to the dividend amount they would receive if each share of Preferred Stock were converted into common stock. The Company may not pay dividends to common stockholders until all dividends accrued or declared but unpaid on the Preferred Stock have been paid in full. As of June 30, 2024 and December 31, 2023, no dividends were declared.

As of June 30, 2024 and December 31, 2023, the Company's amended and restated certificate of incorporation authorized the issuance of 40,684,346 and 40,664,346 shares, respectively, of $0.001 par value common stock. As of June 30, 2024 and December 31, 2023, there were 3,020,546 shares and 2,992,479 shares of common stock issued and outstanding, respectively.

As of June 30, 2024 and December 31, 2023, the Company had reserved 39,619,406 and 38,051,952 shares of common stock, respectively, for the conversion of shares of Preferred Stock into common stock (including committed but unissued shares under future tranche obligations for the Preferred Stock as of December 31, 2023), the exercise of outstanding stock options for common stock, and the issuance of common stock options remaining available for grant under its equity incentive plan.

10. Stock-based compensation

Stock incentive plan

The Company's 2021 Stock Option and Grant Plan (the "2021 Plan") provides for the Company to grant incentive stock options, nonqualified stock options, restricted stock awards, unrestricted stock awards and restricted stock units (collectively, the "Awards") to among others, members of the board of directors, employees, consultants and other key persons to the Company and its affiliates. The 2021 Plan is administered by the board of directors, or at the discretion of the board of directors, by a committee of the board.

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As of June 30, 2024 and December 31, 2023, the total number of shares of common stock reserved for issuance under the 2021 Plan was 6,360,626 shares and 4,765,105 shares, respectively. In April 2024, upon the satisfaction of the Series B Option contemplated in the Series B Agreement, the Company's board of directors increased the number of shares of common stock reserved for issuance under the plan from 4,765,105 to 6,360,626 shares. As of June 30, 2024 and December 31, 2023, 74,027 shares and 564,696 shares remain available for future grants, respectively. Shares of unused common stock underlying any Awards that are forfeited, canceled or reacquired by the Company prior to vesting will again be available for the grant of awards under the 2021 Plan. Shares underlying any awards that are forfeited, canceled, or reacquired by the Company prior to vesting, satisfied without the issuance of stock or otherwise terminated and shares that are withheld upon exercise of an option of settlement of an award to cover the exercise price or tax withholding shall be added back to the shares available for issuance under the 2021 Plan.

Fair value inputs

The following table presents, on a weighted-average basis, the assumptions used in the Black-Scholes option-pricing model to determine the fair value of stock options granted:

	Six Months Ended June 30,	
	2024	2023
Per share fair value of common stock	$ 6.14	$ 4.29
Expected volatility	72.8%	80.4%
Expected dividends	0%	0%
Expected term (in years)	6.3	6.3
Risk-free rate	3.35%	1.94%

Stock options

The Company generally grants stock-based awards with service-based vesting. During the six months ended June 30, 2024, the Company granted performance-based stock options to certain employees and directors for the purchase of an aggregate 1,206,249 shares of common stock with a vesting commencement date contingent upon the achievement of the Series B Option closing, which was achieved in April 2024. The Company determined that it met all the conditions to establish a grant date for these performance-based stock options at the original issuance date and that the performance condition was deemed probable of achievement, as the board of directors had approved the Series B Option closing prior to the grant date. The vesting of the performance-based stock options is also subject to the grantees' continued service until the fourth anniversary of the Series B Option closing.

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The following table summarizes the activity of stock options with service-based and performance-based vesting conditions during the six months ended June 30, 2024:

	Number of Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Intrinsic Value (in thousands)
Outstanding as of December 31, 2023	4,166,107	$ 3.75	8.5	$ 4,648
Granted	3,173,454	6.14		
Exercised	(28,067)	4.01		
Forfeited or expired	(1,087,264)	3.82		
Outstanding as of June 30, 2024	6,224,230	$ 4.96	8.3	$ 26,080
Options exercisable as of June 30, 2024	1,674,636	$ 3.57	5.4	$ 9,348
Vested and expected to vest as of June 30, 2024	6,224,230	$ 4.96	8.3	$ 26,080

The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying stock options and the estimated fair value of the Company's common stock for those stock options that had exercise prices lower than the estimated fair value of the Company's common stock.

The weighted-average grant-date fair value of options granted during the six months ended June 30, 2024 and 2023 was $4.14 and $3.01, respectively.

As of June 30, 2024, there was $15.1 million of total unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted-average period of 3.4 years.

Modification of certain stock-based compensation awards

In February 2024, the Company entered into a separation agreement with the Company's former Chief Operating Officer ("COO"), effective March 2024. Under the terms of the separation agreement, stock options for the purchase of 142,935 shares of common stock, representing all of the vested options held by the former COO as of the date of her termination, became exercisable for one year following her termination.

In March 2024, the Company entered into a separation agreement with the Company's former Chief Executive Officer ("CEO"), effective March 2024. Under the terms of the separation agreement, vesting of options for the purchase of 38,245 shares of common stock held by the former CEO were accelerated with no change to the exercise price of such options. In addition, stock options for the purchase of 532,553 shares of common stock, representing all of the vested options held by the former CEO as of the date of her termination, became exercisable for two years following her termination.

As a result of these modifications, the Company recognized $0.7 million of incremental stock-based compensation during the six months ended June 30, 2024.

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The following table illustrates the classification of stock-based compensation in the condensed consolidated statements of operations and comprehensive loss (in thousands):

	Six Months Ended June 30,	
	2024	2023
General and administrative	$ 1,528	$ 1,380
Research and development	527	551
	$ 2,055	$ 1,931

11. Income Taxes

The Company's tax provision for interim periods is determined using an estimate of its annual effective tax rate, adjusted for discrete items, if any, that arise during the period. Each quarter, the Company updates its estimate of the annual effective tax rate and, if the estimated annual effective tax rate changes, the Company makes a cumulative adjustment in such period. No such adjustment was made as of June 30, 2024. The Company's effective federal and state tax rate for the six months ended June 30, 2024 and 2023 was 0%, and the Company did not record any income tax expense or benefit during the six months ended June 30, 2024 and 2023, primarily as a result of estimated net operating losses for the fiscal year to date offset by the increase in the valuation allowance against its deferred tax asset. All losses before income taxes arose in the United States.

12. Net loss per share

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (dollar amounts in thousands):

	Six Months Ended June 30,	
	2024	2023
Numerator:		
Net loss	$ (25,572)	$ (5,602)
Preferred Stock cumulative dividends	(8,000)	(11,416)
Net loss attributable to common stockholders	$ (33,572)	$ (17,018)
Denominator:		
Weighted-average common shares outstanding, basic and diluted	3,002,173	2,937,809
Net loss per share attributable to common stockholders, basic and diluted	$ (11.18)	$ (5.79)

Prior to June 2023, the Company's Series A Preferred Stockholders were not entitled to cumulative dividends. In connection with the Series B Agreement in June 2023, the Company modified the dividend rights for its Series A Preferred Stockholders such that they became entitled to cumulative dividends based on the original issuance dates of the respective Series A Preferred Stock (Note 8). As such for the six months ended June 30, 2023, the Company calculated its net loss attributable to common stockholders by adjusting its net loss for the aggregate cumulative dividends that had accrued since the original issuances dates in the period in which the Preferred Stockholders became legally entitled to such dividends. For the six months ended June 30, 2024, the Company calculated its net loss attributable to common stockholders by adjusting its net loss for the aggregate cumulative dividends that accrued during the period.

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The Company's potentially dilutive securities, which include stock options to purchase common stock and Preferred Stock, have been excluded from the computation of diluted net loss per share as the effect would be anti-dilutive. Therefore, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same.

The following potentially dilutive securities have been excluded from the calculation of diluted net loss per share due to their anti-dilutive effect:

	Six Months Ended June 30,	
	2024	2023
Preferred Stock (as converted to common stock)(1)	33,321,149	24,065,280
Stock options to purchase common stock	6,224,230	3,707,737
	39,545,379	27,773,017

(1) For the six months ended June 30, 2023, the Preferred Stock excludes 8,823,523 shares of Series B Preferred Stock (or 9,255,869 shares as converted to common stock) that were contingently issuable upon settlement of the Series B preferred stock tranche right liability (Note 8).

13. Commitments and contingencies

Legal matters

The Company is subject to contingent liabilities, such as legal proceedings and claims, that arise in the ordinary course of business activities. The Company accrues for loss contingencies when losses become probable and are reasonably estimable. If the reasonable estimate of the loss is a range and no amount within the range is a better estimate, the minimum amount of the range is recorded as a liability on the condensed consolidated balance sheets. The Company does not accrue for contingent losses that, in its judgment, are considered to be reasonably possible, but not probable; however, it discloses the range of reasonably possible losses. As of June 30, 2024 and December 31, 2023, the Company was not a party to any material legal proceedings or claims and no liabilities were recorded for loss contingencies.

Contracts

The Company enters into contracts in the normal course of business with various third parties for preclinical research studies, clinical trials, testing, manufacturing, and other services. These contracts generally provide for termination upon notice and are cancellable without significant penalty or payment, and do not contain any minimum purchase commitments.

Guarantees and indemnifications

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with all board of directors that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any material costs as a result of such indemnifications. The Company is not aware of

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any claims under indemnification arrangements that could have a material effect on its financial position, results of operations or cash flows, and it has not accrued any liabilities related to such obligations in its condensed consolidated financial statements as of June 30, 2024 and December 31, 2023.

14. License agreements

License agreement with Lonza

In October 2021, in connection with an asset purchase agreement entered into with Astellas Pharma, Inc. ("Astellas"), the Company and Lonza Sales AG ("Lonza") entered into a license agreement (as amended, the "Lonza License Agreement"). Pursuant to the Lonza License Agreement, the Company obtained a worldwide, non-exclusive, sublicensable (subject to Lonza's right of pre-approval with respect to any sublicense of manufacturing activities) license to certain intellectual property rights owned by Lonza. Lonza was the originator of the master cell bank for verekitug (formerly referred to as ASP7266 and UPB-101, collectively referred to as "the Compound") developed by Astellas.

As consideration for the rights and licenses granted to the Company under the Lonza License Agreement, the Company agreed to pay Lonza certain royalties and annual payments, both payable in swiss francs, in respect of the manufacturing and sale of the Compound, such amounts to be determined by the party manufacturing the Compound, and range from no annual payment to up to a mid-six-figure annual payment, and a less-than-one percent to a low-single-digit percentage royalty on net sales of the Compound. In accordance with the Lonza License Agreement, the Company entered into a sublicense with Wuxi Biologics (Hong Kong) Limited to manufacture the Compound, requiring the Company to pay a mid-six-figure annual fee to Lonza pursuant to this provision.

Any royalties due under the Lonza License Agreement are payable on a country-by-country basis until ten years from the first commercial sale of the Compound in that particular country.

During the six months ended June 30, 2024 and 2023, the Company did not make any royalty payments to Lonza under the Lonza License Agreement. The Lonza agreement continues for an indefinite period of time unless otherwise terminated. The Company has the right to terminate the Lonza License Agreement at any time by providing prior written notice to Lonza.

During the six months ended June 30, 2024 and 2023, the Company made an annual payment in the amount of $0.5 million and $0.4 million, respectively, to Lonza pursuant to the Lonza License Agreement and recognized it as research and development expense in the condensed consolidated statements of operations and comprehensive loss.

15. Revenue

Maruho agreement

In October 2021, in connection with an asset purchase agreement entered into with Astellas, the Company entered into an agreement (as amended, the "Maruho Agreement"), under which it granted Maruho an exclusive, irrevocable, perpetual, royalty-free, sublicensable (subject to its right of first negotiation) license. Pursuant to the Maruho Agreement, the Company maintains its responsibility for and controls the global research and development of the Maruho license product, including in Japan. The Company will conduct specified clinical trial activities for Japan as part of its global research and development plan. Maruho will reimburse the Company for the costs of these research and development activities, including the cost of drug supply. Maruho has the right to terminate the Maruho Agreement at any time by providing 60 days prior written notice to the Company with no substantial penalty.

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The Company concluded that Maruho is a customer under the Maruho Agreement, and as such, the Maruho Agreement falls within the scope of ASC 606. The Company identified one performance obligation under the Maruho Agreement related to the performance of research and development services, which are an output of the Company's ordinary activities, in Japan. The Company determined that the transaction price of the Maruho Agreement as of June 30, 2024 consisted solely of variable consideration. The variable consideration was estimated using the expected value method based on the Company's experience and best judgment of the total reimbursable costs expected to be incurred through the period of performance.

The transaction price is being recognized as revenue over time using the cost-to-cost input method, which the Company believes best depicts the transfer of control to the customer. Under the cost-to-cost input method, the extent of progress towards completion is measured based on the ratio of actual costs incurred in Japan to the total estimated costs expected to satisfy the performance obligation. The calculation of the total estimated costs to fulfill the performance obligation includes costs associated with employees, clinical and development, manufacturing, and out-of-pocket costs expected to be paid to third parties. The estimate of the Company's measure of progress and estimate of variable consideration to be included in the transaction price will be updated at each reporting period as a change in estimate. The Company excludes disclosures related to the aggregate amount of the transaction price allocated to the performance obligation that are unsatisfied as of the end of the reporting period because the contract has an initial expected term of one year or less. The Company currently expects to continue providing research and development services to Maruho under the Maruho Agreement through the completion of its Phase 2 clinical trials, and if successful, through any Phase 3 clinical trials.

During the six months ended June 30, 2023, the Company received a prepayment of $2.4 million from Maruho for research and development services to be provided by the Company under the Maruho Agreement. During the six months ended June 30, 2023, the Company recognized $1.3 million of related revenue from the prepayments, resulting in $1.1 million in deferred revenue as of June 30, 2023. There was no deferred revenue as of December 31, 2022. The Company did not receive any prepayments or recognize any deferred revenue during the six months ended June 30, 2024.

16. Related parties

In October 2021, the Company entered into the Maruho Agreement (Note 15). Maruho is considered to be a related party because it is one of the co-founders of the Company and has representation on the Company's board of directors. During the six months ended June 30, 2024 and 2023, the Company received payments of $0.7 million and $2.7 million, respectively, in cost reimbursements from Maruho. The Company recorded related party collaboration revenue of $1.2 million and $1.3 million during the six months ended June 30, 2024 and 2023, respectively. As of June 30, 2024 and 2023, there was $0.5 million and $0.1 million in related party accounts receivable, respectively, representing amounts due for qualifying reimbursable expenses related to the Maruho Agreement.

In February 2023, the Company issued 1,000,000 shares of Series A Preferred Stock to Maruho for gross proceeds of $10.0 million.

17. Subsequent events

The Company has evaluated all events subsequent to June 30, 2024, and through August 9, 2024, which represents the date these condensed consolidated financial statements were available to be issued, and through October 7, 2024, the date the condensed consolidated financial statements were available to be reissued. The Company has concluded that no subsequent events have occurred except as disclosed below.

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Waltham Lease

On July 3, 2024, the Company entered into a three-year agreement for office space located at 890 Winter Street in Waltham, Massachusetts. The Company will begin paying monthly rent starting one month after the lease commences. Initial base rent shall be approximately $0.7 million for the first year and approximately $0.8 million for the second and third year. The lease is expected to commence in September 2024.

On July 8, 2024, the Company provided notice of termination of its current operating lease and sublease of office space at 460 Totten Pond Road, Waltham, Massachusetts. This notice is effective on October 9, 2024, after which the Company's rights and obligations under this lease and sublease will cease.

Stock split

On October 4, 2024, the Company effected a 1.049-for-one stock split of its issued and outstanding shares of common stock and a proportional adjustment to the existing conversion ratios of each series of the Company's preferred stock (see Note 8). Accordingly, all share and per share amounts for all periods presented in the accompanying condensed consolidated financial statements and notes thereto have been adjusted retroactively, where applicable, to reflect this stock split and adjustment of the preferred stock conversion ratios.

In connection with the stock split, the Company's board of directors adopted, and its stockholders approved, the third amended and restated certificate of incorporation, which, among other things, increased the number of shares of common stock authorized for issuance to 500,000,000 shares of common stock.

Written consent for the conversion of preferred stock

On October 4, 2024, the Company obtained written consent from the Requisite Holders (as defined in the Company's second amended and restated certificate of incorporation) for the conversion of the preferred stock into common stock in connection with the Company's IPO (see Note 8). Pursuant to such consent, the Company's preferred stock will convert into common stock immediately prior to the completion of the Company's IPO.

2024 Stock option and incentive plan

On August 19, 2024, the Company's board of directors adopted, and on October 4, 2024 its stockholders approved, the 2024 Stock Option and Incentive Plan (the "2024 Plan"), which will become effective upon the date immediately preceding the date on which the registration statement of which this prospectus is a part is declared effective by the Securities and Exchange Commission (the "SEC"). The 2024 Plan allows the Company to make equity-based and cash-based incentive awards to its officers, employees, directors, and consultants. The 2024 Plan provides for the grant of incentive stock options, non-qualified stock options, stock appreciation rights, restricted stock units, restricted shares of common stock and other stock-based awards. The number of shares initially reserved for issuance under the 2024 Plan is 3,180,000 shares. The number of shares reserved under the 2024 Plan is subject to adjustment in the event of a stock split, stock dividend or other change in the Company's capitalization. In addition, the number of shares reserved and available for issuance under the 2024 Plan will automatically increase on January 1, 2025 and each January 1 thereafter, by five percent of the outstanding number of shares of its common stock on the immediately preceding December 31 or such lesser number of shares as determined by the Company's compensation committee.

The shares of common stock underlying any awards under the 2024 Plan and the 2021 Plan that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding,

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reacquired by the Company prior to vesting, satisfied without the issuance of stock, expire or are otherwise terminated (other than by exercise) will be added back to the shares of common stock available for issuance under the 2024 Plan.

2024 Employee stock purchase plan

On August 19, 2024, the Company's board of directors adopted, and on October 4, 2024 its stockholders approved, the 2024 Employee Stock Purchase Plan (the "2024 ESPP"), which will become effective on the date immediately preceding the date on which the registration statement of which this prospectus forms a part is declared effective by the SEC. A total of 488,467 shares of common stock were initially reserved for issuance to participating employees under this plan. The 2024 ESPP provides that the number of shares reserved and available for issuance will automatically increase on January 1, 2025 and each January 1 thereafter through January 1, 2034, by the least of (i) 976,934 shares of common stock, (ii) one percent of the outstanding number of shares of common stock on the immediately preceding December 31, or (iii) such lesser number of shares of common stock as determined by the administrator of the 2024 ESPP. The number of shares reserved under the 2024 ESPP is subject to adjustment in the event of a stock split, stock dividend or other change in the Company's capitalization.

15,000,000 shares

Common stock

Prospectus

J.P. Morgan **TD Cowen** **Piper Sandler** **William Blair**

Through and including November 4, 2024 (the 25th day after the date of this prospectus), all dealers effecting transactions in our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

October 10, 2024