

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

(Mark One)

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

For the fiscal year ended December 31, 2023

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM TO

Commission File Number 001-38470

Unity Biotechnology, Inc.

(Exact name of Registrant as specified in its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)
285 East Grand Ave.
South San Francisco, CA
(Address of principal executive offices)

26-4726035
(I.R.S. Employer
Identification No.)

94080
(Zip Code)

Registrant's telephone number, including area code: (650) 416-1192

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.0001	UBX	The Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES NO

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. YES NO

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

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

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

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

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

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

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

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

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES NO

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant, based on the closing price of the shares of common stock on The Nasdaq Global Select Market on June 30, 2023 was \$34,108,688.

The number of shares of Registrant's Common Stock outstanding as of April 11, 2024 was 16,786,647.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Definitive Proxy Statement relating to the 2024 Annual Meeting of Shareholders, scheduled to be held on June 21, 2024, are incorporated by reference into Part III of this Report. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the end of the fiscal year covered by this Annual Report on Form 10-K.

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Forward-Looking Statements

This Annual Report on Form 10-K contains “forward-looking statements” within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical facts contained in this Annual Report on Form 10-K are statements that could be deemed forward-looking statements reflecting the current beliefs and expectations of management with respect to future events or to our future 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. These statements are often identified by the use of words such as “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “due,” “estimate,” “expect,” “goal,” “if,” “intend,” “may,” “objective,” “plan,” “predict,” “potential,” “positioned,” “seek,” “should,” “target,” “will,” “would,” “until,” and similar expressions or variations. Forward-looking statements contained in this Annual Report on Form 10-K include, but are not limited to, statements about:

- our plans to develop and commercialize UBX1325 or any future product candidates;
- our expectations regarding the potential benefits, activity, effectiveness, and safety of our drug candidates;
- our ongoing and planned clinical trials, including expectations with regard to the results of our clinical studies, preclinical studies and research and development programs, including the timing and availability of data from such studies;
- our predictions about the results of future or ongoing clinical trials, including predictions based on results from a clinical trial;
- our preclinical, clinical and regulatory development plans for our drug candidates, including the timing or likelihood of regulatory filings and approvals for our drug candidates;
- our expectations with regard to our ability to acquire, discover and develop additional drug candidates and advance such drug candidates into, and successfully complete, clinical studies;
- our expectations regarding the potential market size and size of the potential patient populations for our drug candidates, if approved for commercial use;
- our intentions and our ability to establish collaborations and/or partnerships;
- the timing and amount of any milestone payments we are obligated to make pursuant to our existing license agreements and any future license or collaboration agreements that we may enter into;
- our commercialization, marketing and manufacturing capabilities and expectations;
- our intentions with respect to the commercialization of our drug candidates;
- the pricing and reimbursement of our drug candidates, if approved;
- the implementation of our business model and strategic plans for our business and drug candidates, including additional indications that we may pursue;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our drug candidates, including the projected terms of patent protection;
- estimates of our expenses, future revenue, capital requirements, our needs for additional financing, and our ability to obtain additional capital;
- our ability to maintain compliance with the minimum required closing bid price for continued listing on the Nasdaq Global Select Market;
- our ability to remediate a material weakness in our internal control over financial reporting;
- developments and projections relating to our competitors and our industry, including competing therapies;
- our financial performance;

- macroeconomic trends and uncertainty, including high interest rates, rising inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions, and the potential for local and/or global economic recession; and
- other risks and uncertainties, including those listed under the caption “Risk Factors.”

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Annual Report on Form 10-K.

Forward-looking statements 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 the forward-looking statements. We discuss these risks in greater detail in “Risk Factors” and elsewhere in this Annual Report on Form 10-K. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our management’s beliefs and assumptions only as of the date of this Annual Report on Form 10-K. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

This Annual Report on Form 10-K also contains estimates, projections, and other information concerning our industry, our business and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates, and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections or similar methodologies is inherently subject to uncertainties, and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from reports, research surveys, studies, and similar data prepared by third parties, industry, medical and general publications, government data, and similar sources. 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.

Trademarks

This Annual Report on Form 10-K includes trademarks, service marks, and trade names owned by us or other companies. All trademarks, service marks and trade names included in this Annual Report on Form 10-K are the property of their respective owners.

Risk Factor Summary

Below is a summary of the principal factors that make an investment in our common stock speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found below under the heading “Risk Factors” and should be carefully considered, together with other information in this Annual Report on Form 10-K and our other filings with the Securities and Exchange Commission, or SEC, before making investment decisions regarding our common stock.

- We are a clinical-stage biopharmaceutical company with a limited operating history and no products approved for commercial sale. We have incurred significant losses since our inception, and we anticipate that we will continue to incur losses for the foreseeable future, which, together with our limited operating history, make it difficult to assess our future viability.
- We will require substantial additional financing to achieve our goals, and a failure to obtain this capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product development programs, other operations or commercialization efforts.
- In recent fiscal periods, our financial condition has raised substantial doubt as to our ability to continue as a going concern.

- We may not be able to maintain compliance with the continued listing requirements of Nasdaq and, if so, we would be subject to delisting.
- Our core therapeutic approach to slow, halt, or reverse diseases of aging is based on our understanding of cellular senescence. Utilizing senolytic molecules to treat diseases of aging is a novel therapeutic approach, which exposes us to unforeseen risks and makes it difficult to predict the time and cost of drug development and potential for regulatory approval.
- Our business is currently dependent on the successful development and regulatory approval of UBX1325.
- Other than UBX1325, all of our other programs are preclinical and face significant development risk.
- We rely on third-party suppliers to manufacture preclinical and clinical supplies of our drug candidates and we intend to continue to rely on third parties to produce such preclinical and clinical supplies as well as commercial supplies of any approved product. The loss of these suppliers, costs and availability of inputs or supplies, supply issues, or the failure of those manufacturers or suppliers to comply with applicable regulatory requirements or to provide us with sufficient quantities at acceptable quality levels or prices, or at all, would materially and adversely affect our business.
- We face significant competition in an environment of rapid technological and scientific change, and our drug candidates, if approved, will face significant competition and our failure to effectively compete may prevent us from achieving significant market penetration. Most of our competitors have significantly greater resources than we do, and we may not be able to successfully compete.
- Our senolytic medicine platform and any future products that we commercialize could be alleged to infringe patent rights and other proprietary rights of third parties, which may require costly litigation and, if we are not successful, could cause us to pay substantial damages and/or limit our ability to commercialize our products. Even if we obtain regulatory approval for a drug candidate, our products will remain subject to regulatory scrutiny.
- We have identified a material weakness in our internal control over financial reporting. This material weakness could continue to adversely affect our results of operations and financial condition accurately. In the future, we may identify additional material weaknesses or otherwise fail to maintain an effective system of internal control over financial reporting or adequate disclosure controls and procedures, which may result in material errors in our financial statements or cause us to fail to meet our period reporting obligations.

PART I

Item 1. Business.

Overview

Our mission is to slow, halt, or reverse diseases of aging. Our initial focus is on creating senolytic medicines to selectively eliminate senescent cells and thereby treat diseases of aging, such as ophthalmologic diseases, with the opportunity to explore neurology and other therapeutic areas.

Diseases of aging cause considerable economic, personal, and societal burden. As individuals age, the prevalence of chronic disease increases, with 80% of older Americans having at least one chronic disease and 50% having two or more. Diseases of aging negatively impact quality of life, are typically chronic, and progress from the time of onset until death. It is estimated that providing healthcare for people over the age of 65 costs four to five times more than for younger individuals. According to the United States Census Bureau, this elderly population of Americans is expected to increase nearly 50% by 2050, increasing the economic burden of aging dramatically. Any success increasing longevity without treating underlying diseases of aging would only serve to increase this burden.

We believe that by creating medicines that target fundamental aging mechanisms, we can reduce the economic, personal, and societal burden of aging and enhance quality of life.

In February 2022 and in May 2023, we announced restructuring efforts to align resources to focus on our ongoing clinical programs and deliver on key development milestones. These actions to prioritize our ophthalmology programs and implement cost saving measures were designed to enable us to achieve multiple key clinical data readouts for UBX1325 with all other pipeline programs paused to focus resources on these advanced programs.

Targeting Cellular Senescence and Other Biologies of Aging

We believe that the accumulation of senescent cells is a fundamental mechanism of aging and a driver of many common diseases of aging and beyond. Cellular senescence can also occur independent of age and be triggered by factors such as cellular damage provoked by stressors such as hyperglycemia (elevated glucose), uncontrolled cellular division (such as cancer), irradiation and non-resolving inflammation. Cells that become senescent remain alive and keep residing in a tissue yet are no longer able to properly communicate with neighboring cells and can no longer contribute to tissue function. Senescent cells secrete large quantities of more than 100 proteins, including inflammatory factors, proteases, fibrotic factors, and growth factors, that disturb the tissue micro-environment. This collection of secreted proteins is referred to as the Senescence Associated Secretory Phenotype, or SASP. In addition to its effects on tissue function, the SASP contains factors that induce senescence in neighboring cells, setting off a cascade of events that culminates in the formation of the functionally aged and/or diseased tissue that underlies a variety of age-related diseases.

We are developing senolytic medicines to eliminate senescent cells from organs damaged by old age or damaged by diseases such as diabetes. By removing senescent cells from a sick tissue, we believe we can allow healthy cells to regenerate and potentially repair the affected organs and as well as lower the production of the SASP, which we believe addresses a root cause of age-related diseases. Many existing therapeutics, such as antibodies, target single SASP factors, but fail to remove the cells that continually produce these factors. By stopping the production of the SASP at its source, we believe senolytic medicines could have a more durable impact by slowing, halting, or reversing particular diseases of aging, and shift the treatment paradigm from chronic to intermittent dosing. Less frequent dosing may also improve drug tolerability and patient adherence.

While our primary focus is on programs targeting cellular senescence, we are exploring other biologies of aging that may have a major impact on diseases of aging. For instance, we have a preclinical program targeting Tie2 signaling. Tie2 is a receptor tyrosine kinase that is implicated in regulating barrier function in blood vessels of the eye, which are affected in several prevalent eye diseases. Tie2 is also implicated in kidney disease. We also have a preclinical program targeting both Tie2 and VEGF (Tie2/VEGF bispecific) designed to neutralize VEGF and activate Tie2, two major pathways involved in retinal disease. We have outlicensed our program in α -Klotho, a protein that has been implicated in human cognition and may provide benefits in age-related cognitive dysfunctions.

Our Pipeline

We are targeting specific biological mechanisms implicated in diseases of aging. Our core therapeutic approach targets cellular senescence, and we are currently advancing senolytic programs primarily in ophthalmologic disorders. In addition, we have other programs based on other biologies of aging to include an agonistic antibody to the Tie2 receptor and a Tie2/VEGF bispecific to treat vascular eye disease.

Ophthalmology Program

UBX1325 is our most advanced lead drug candidate for age-related diseases of the eye, including diabetic macular edema, or DME. UBX1967 is our back-up compound to UBX1325. Each of these drug candidates are potent small molecule inhibitors of Bcl-xL, a member of the Bcl-2 family of apoptosis regulating proteins, and have shown distinct tissue residence time profiles in preclinical studies. UBX1325 and UBX1967 are designed to inhibit the function of proteins that senescent cells rely on for survival. In our preclinical studies, we have demonstrated that targeting Bcl-xL with UBX1325 and UBX1967 preferentially eliminated senescent cells from diseased tissue while sparing cells in healthy tissue.

In July 2020, we filed an Investigational New Drug application, or IND, to commence a Phase 1, first-in-human, open-label, single-ascending dose study of UBX1325 (foselutoclax) in patients with advanced diabetic macular edema, or DME, and neovascular age-related macular degeneration, or nAMD. Our current goal with UBX1325 is to transformationally improve outcomes for patients with DME. In October 2020, the Phase 1, first-in-human, clinical study of UBX1325 commenced. That study, an open-label, single ascending dose clinical trial, evaluated doses from 0.5 – 10 µg administered as a single intra-vitreous injection in up to 8 patients with DME and 11 patients with nAMD all of whom had been off all anti-VEGF treatment due to lack of benefit for at least 6 months. The results of this study demonstrated acceptable safety and tolerability without any dose-limiting toxicities; no evidence of intraocular inflammation; and mean improvement in Best Corrected Visual Acuity (BCVA) of up to 9.5 ETDRS letters in those patients with DME receiving higher doses (5 and 10 µg) and a mean improvement in BCVA of 3.2 ETDRS letters in evaluable patients with nAMD at all doses, both at 24 weeks after treatment with UBX1325.

In May 2021, we initiated our Phase 2 BEHOLD study of UBX1325 in patients with DME and dosed our first patient in June 2021. This study was a multi-center, randomized, double-masked, sham-controlled study designed to evaluate the safety, tolerability, efficacy and durability of a single 10 µg dose of UBX1325 (foselutoclax) in patients with DME evaluated through 24 weeks. Patients had the option of rolling over to a 48-week long term extension and a majority of patients who completed their 24-week visits opted to remain in the study. A total of 65 patients were enrolled, randomized evenly between UBX1325 and sham-injected patients. These patients were being actively treated with anti-VEGF for at least 6 months prior to being randomized into the BEHOLD study (mean of 4.03 injections in the 6 months preceding randomization), and had persistent visual acuity deficits (73 ETDRS letters or worse, approximately 20/40 or worse, mean of 61.4 letters at baseline) and residual retinal fluid (≥ 300 µm of central subfield thickness on optical coherence tomography, mean of approximately 439.6 µm). At the time of randomization, patients were taken off of their anti-VEGF treatment, and instead treated with UBX1325 or a sham procedure. Endpoints explored in the study included safety and tolerability, changes in BCVA, CST, SRF/IRF, proportion of patients requiring rescue treatment, and durability of effects.

In August 2022, we announced positive 12- and 18-week data in our Phase 2 BEHOLD study, including that a single injection of UBX1325 led to a progressive, statistically significant, and clinically meaningful improvement in mean best-corrected visual acuity compared to sham treatment. At Week 18, the mean change from baseline of BCVA for UBX1325-treated subjects was an increase of 6.1 ETDRS letters that represented a difference of +5.0 ETDRS letters compared to sham-treated subjects ($p=0.0368$). In addition, patients treated with UBX1325 maintained central subfield thickness (CST) (+3.2 microns) compared to sham-treated patients who had progressive worsening (increase) in CST through 18 weeks (+53.5 microns) ($p=0.0719$).

In November 2022, we announced positive 24-week data in our BEHOLD study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in BCVA of +6.2 ETDRS letters from baseline and +7.6 ETDRS letters compared to sham treatment ($p=0.0084$). Inclusive of rescue data, patients treated with UBX1325 had a mean improvement in BCVA of +6.4 ETDRS letters from baseline and +5.2 ETDRS letters compared to sham ($p=0.0068$). At 24 weeks, patients treated with UBX1325 had a mean change in CST of -5.4 microns from baseline compared to a worsening (increase) of +34.6 microns in sham-treated patients

($p=0.1244$). The proportion of rescue-free patients at 24 weeks was greater on UBX1325 (59.4%) as compared to sham (37.5%) with fewer total rescues and longer time-to-rescue in UBX1325-treated patients as compared to sham. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis. Patients were followed through 48 weeks post-treatment in a long-term follow-up.

In April 2023, we announced positive 48-week data from this long-term follow-up in our BEHOLD study in 50 patients who participated in the 48-week extension study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in vision lasting for the duration of the study (48 weeks), marked by a gain of +6.2 ETDRS letters from baseline, representing a difference of +5.6 ETDRS letters compared to sham-treated patients. In addition, patients treated with UBX1325 maintained stable CST compared to worsening in sham-treated patients ($p=0.1198$). Approximately 50% of UBX1325-treated patients did not require any additional injections through 48 weeks, compared to only 22% of patients in the sham arm. Retinal structure, as measured by central subfield thickness (CST), was maintained in UBX1325-treated patients throughout the duration of the study. UBX1325 continued to show a favorable safety and tolerability profile with no evidence of intraocular inflammation.

In December 2023, we announced that the first patients have been dosed in our Phase 2b ASPIRE study, designed to evaluate UBX1325 (foselutoclax) head-to-head against aflibercept in previously treated patients with active DME who are not achieving optimal benefit from standard of care. We are currently enrolling patients into the ASPIRE study in DME, which is a multi-center, randomized, double-masked, active-controlled study designed to evaluate the safety and efficacy of UBX1325 in comparison to aflibercept. Patients are expected to be randomized 1:1 to receive either 10 μg UBX1325, or 2 mg of aflibercept control injections every eight weeks for six months. We expect to enroll approximately 50 participants with DME who have residual visual acuity deficits and excess fluid in the retina despite having received at least three anti-VEGF injections in the preceding six months. All participants will receive three doses of 2 mg aflibercept as a “run-in” prior to randomization. The primary efficacy endpoint will be mean change from baseline in BCVA to week 24. Secondary endpoints will include change in BCVA over time, and CST change from baseline to week 24, and percentage of participants with one or more treatment-emergent ocular adverse events during the course of the study. We currently anticipate our 16-week data readout in the fourth quarter of 2024 and our 24-week data readout in the first quarter of 2025.

On age-related macular degeneration (AMD), in March 2022, we enrolled our first patient in the Phase 2 ENVISION study. In September 2022, the study completed enrollment of patients with nAMD who have had at least two intravitreal injections of anti-VEGF therapy in the preceding six months and who still have active choroidal neovascularization and residual sub- or intra-retinal fluid. Patients were to have received their last anti-VEGF treatment approximately 4-8 weeks prior to screening, and all patients were followed for approximately 24 weeks after dosing with either UBX1325 or aflibercept.

In March 2023, we announced 16-week and 24-week data in Part A of our ENVISION study, in which UBX1325 monotherapy did not achieve non-inferiority through 24 weeks due, in part, to an unexpected 3.5 letter gain at week two in the anti-VEGF control arm. UBX1325 maintained visual acuity in patients with ongoing active disease through 24 weeks with less than one letter mean decrease from baseline (-0.8 ETDRS letters at 24 weeks compared to +3.1 ETDRS letters in the aflibercept control arm). Of UBX1325-treated patients, 52% did not require anti-VEGF treatment through 24 weeks. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis.

In September 2023, we announced 48-week data in Part B of our ENVISION study, in which UBX1325 demonstrated a favorable safety and tolerability profile in the combination and monotherapy arms with no cases of significant intraocular inflammation, retinal artery occlusion or endophthalmitis. Patients switched from every 8-week aflibercept to a combination of aflibercept and UBX1325 at week 24 maintained vision gains achieved with aflibercept alone through week 48. Patients in a pre-specified subgroup with poor visual acuity at baseline (≤ 60 ETDRS letters) gained 3.2 ETDRS letters on combination treatment between weeks 24 and 48. In the UBX1325 monotherapy arm, patients maintained visual acuity for the duration of the study, with a mean change of +0.1 ETDRS letters at the 24-week time point and a mean change of -1.5 ETDRS letters at 48 weeks. 40% of UBX1325-treated patients did not need anti-VEGF rescue through 48 weeks and 64% of the patients achieved an anti-VEGF treatment-free period of over 24-weeks. The median time to first anti-VEGF rescue was 32 weeks.

Under our current amended license agreement with Ascentage Pharma Group Corp. Limited, or Ascentage, we have, among other things, exclusive worldwide development and commercialization rights and non-exclusive manufacturing rights to UBX1325 outside of Greater China (China, Hong Kong, Macau and Taiwan) in all non-oncology indications. Inside Greater China, we have the right to negotiate a joint venture with Ascentage to develop, manufacture and commercialize UBX1325. See “Licenses and Collaborations.”

We also have a Tie2/VEGF bispecific program. Tie2 is a receptor tyrosine kinase that is implicated in regulating barrier function in blood vessels of the eye, which are affected in several prevalent eye diseases. Tie2 is an important key regulator of the vascular endothelium in the eye and dysregulation of this pathway leads to loss of barrier integrity and healthy vasculature. Preliminary studies suggest that cellular senescence in aging eyes may induce Ang-2 and therefore deactivate Tie2, leading to ocular edema.

The Tie2/VEGF bispecific has dual functionality on two validated targets for retinal diseases. In addition to direct activation of Tie2, the bispecific candidate is designed to neutralize VEGF-A and VEGF-B. We believe that direct agonism of Tie2 may be superior to antagonism of Ang2 which relies on adequate levels of endogenous Ang1 to activate the Tie2 pathway. We have identified Tie2/VEGF bispecific molecules that have pharmacological activity on Tie2 and VEGF with potencies relevant for clinical benefit. Based on supporting preclinical data, we designated an Advanced Candidate in July 2022. The program is currently paused to focus our development efforts on UBX1325.

UBX2050 is our investigational, fully human anti-Tie2 agonist monoclonal antibody. Tie2 dysregulation is implicated in eye disease as well as other indications. UBX2050 is derived from an asset that was acquired from Achaogen, Inc. in June 2020 through an Asset Purchase Agreement. UBX2050 was selected based on its potential to activate the Tie2 receptor in vitro and has demonstrated encouraging activity in preclinical models of ocular disease. We believe UBX2050 may be an orthogonal approach to restoring barrier function and vascular function and have explored a number of indications for UBX2050. The program is currently paused to focus our development efforts on UBX1325.

Neurology Program

We believe cellular senescence may play a fundamental role in neurodegeneration. Multiple lines of evidence suggest that senescent cells accumulate in the nervous system during normal aging and neurodegenerative diseases. Several third-party preclinical proof of concept studies in mouse models of aging and neurodegeneration have provided preliminary evidence that the removal of senescent cells via senolytic drugs or genetic methods have the potential to improve brain function.

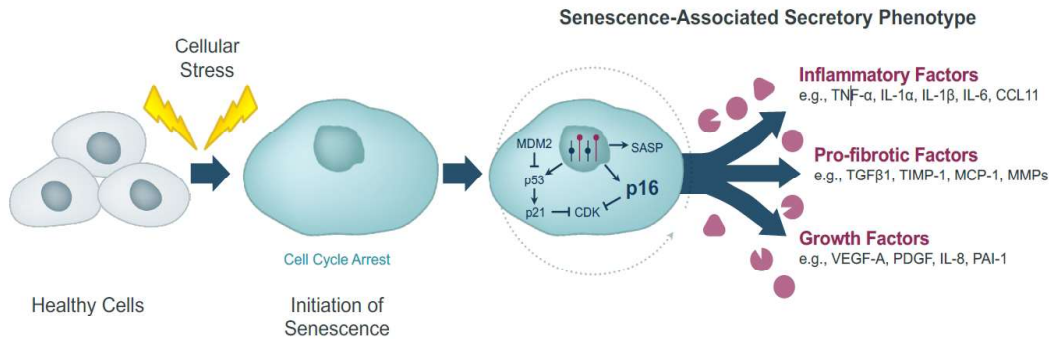
UBX2089, an α -Klotho hormone drug candidate, is a circulating hormone primarily produced in the kidneys and choroid plexus of the brain, which is being researched for multiple neurology indications. Human genetic evidence links α -Klotho to cognitive function, and we have observed pro-cognitive activity of recombinant α -Klotho in multiple preclinical rodent and non-human primate models. Our work focused on investigating the effect of UBX2089 on engaging CNS circuits in preclinical animal models with the intent of advancement to clinical studies, and in December 2021, we announced an exclusive licensing agreement of our α -Klotho asset to Jocasta Neuroscience, Inc. for development and commercialization.

Our Approach to Slowing, Halting, or Reversing Diseases of Aging

Targeting Cellular Senescence

Cellular senescence is a natural biological state in which a cell permanently halts division or loses its ability to function properly subsequent to some form of unresolvable cellular stress. These cellular stress events result in the activation of the tumor suppressor protein p53, which drives the production of two cell-cycle dependent kinase inhibitors, or CDK inhibitors, p21 and p16. These two molecules are required for the establishment and subsequent maintenance of the senescent cell state. The first CDK inhibitor to be produced is p21, which works through subsequent pathways to block the production of numerous proteins that cells need to divide. The initial p21-driven signal is an acute response to cell damage and eventually decreases. In contrast, p16 permanently locks the cell into a non-dividing state and the production of p16 continues as long as the cell lives. Given that p16 production, in most cases, continues indefinitely and is believed to be produced almost exclusively in senescent cells, it is a widely used marker to identify and quantify senescent cells.

The process through which stress mechanisms can induce cells to become senescent is illustrated in the figure below.



Coppe et al. Annu Rev Pathol 2010;5:99-118

Figure 1: Illustration of induction of the senescent state and secretion of factors that can damage the microenvironment

How Senescent Cells Drive Diseases of Aging

Once cells become senescent, they begin secreting large quantities of proteins, including pro-inflammatory factors that recruit the immune system, proteases that remodel the extra-cellular matrix, pro-fibrotic factors that drive the formation of dysfunctional matrix, and growth factors that perturb the function of the tissue micro-environment. This collection of secreted proteins is referred to as the Senescence Associated Secretory Phenotype, or SASP. In addition to affecting normal tissue function, the SASP contains factors that induce senescence in neighboring cells, setting off a cascade of events that ultimately culminates in the formation of a functionally aged and/or diseased tissue that underlies a variety of age-related diseases.

Numerous SASP factors have been implicated as potentially contributing to human disease and it is now believed that the SASP is the primary means by which senescent cells drive specific diseases of aging. For example, a variety of single SASP factors (e.g., TNF- α and VEGF-A) have been demonstrated to drive human diseases by themselves and have been the target of well-known antibody therapeutics, including HUMIRA[®] and EYLEA[®]. While these antibodies are able to modify human disease by removing the activity of a single factor, we believe the clearance of senescent cells will remove the source of numerous SASP factors, providing improvement in both efficacy and duration-of-effect.

Our Therapeutic Paradigm

We were founded on the principle that the selective elimination of senescent cells and their accompanying SASP has the potential to slow, halt, or reverse diseases of aging. Our insights into senescent cell biology allow us to

identify senescence-driven diseases, target the senescent cells driving a particular disease, and selectively eliminate these cells. The figure below illustrates this process.

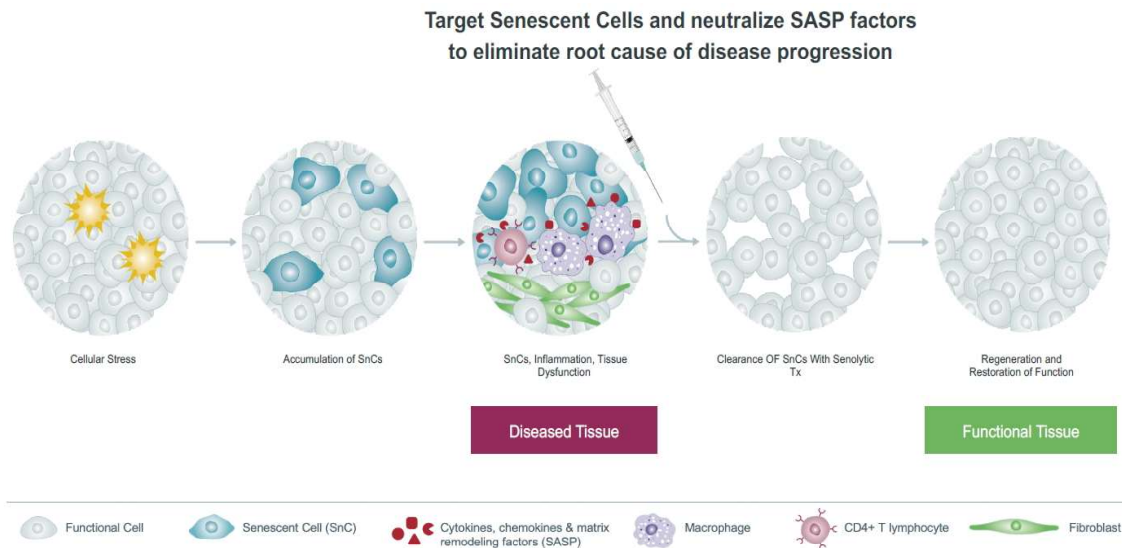


Figure 2: Illustration of the senolytic therapeutic hypothesis

In developing this approach, we have acquired significant expertise with respect to senescent cell survival pathways, which are the signaling systems that senescent cells rely on for survival. When these pathways are targeted with specifically designed molecules, senescent cells undergo programmed cell death. Through our research, we have identified several of these mechanistically distinct survival pathways, which differ depending on cell type and the tissue in which the senescent cells reside.

Advantages of Our Approach

We believe that senolytic medicines that selectively eliminate senescent cells from diseased tissues may have several advantages over other efforts to treat diseases of aging:

- ***Senolytic medicines target a root cause of diseases of aging.*** We believe that the accumulation of senescent cells is a root cause of many diseases of aging. Unlike treatments that inhibit the activity of a single factor (such as antibodies targeting single pro-inflammatory proteins), we believe a senolytic medicine that eliminates accumulated senescent cells and consequently also their associated SASP, could blunt the activity of numerous factors contributing to disease. As a result, senolytic medicines could have improved efficacy because they target diseases at their source and therefore may be able to normalize tissue levels of numerous disease-causing factors simultaneously.
- ***Senolytic medicines can be dosed intermittently.*** The administration of senolytic medicines would remove senescent cells from diseased tissue. As new senescent cells may take months or perhaps years to re-accumulate, senolytic medicines could potentially be dosed infrequently. Intermittent dosing may also improve drug tolerability and patient adherence when compared to chronic therapies.
- ***Senolytic medicines restore tissues to a healthy state.*** We believe senescent cells generally do not accumulate in young individuals and that the accumulation of senescent cells in older individuals interferes with normal tissue function. Our goal for the administration of senolytic medicines is to restore tissue to a functionally younger state.

Our Programs

Ophthalmology Programs Targeting Cellular Senescence

Unmet Need and Therapeutic Rationale

The majority of significant eye diseases are age-related, with the prevalence of vision-threatening disease increasing significantly over the age of 75. Of the 285 million individuals worldwide living with visual impairment, 65% are over the age of 50. The individual diseases that are associated with these figures include age-related macular degeneration, diabetic macular edema, and diabetic eye diseases, all of which have a high prevalence and significant unmet need in either prevention or therapeutic options. The diseases we are evaluating as initial target indications for local administration of senolytic therapy in the eye include diabetic macular edema and diabetic retinopathy.

Diabetic Macular Edema

Diabetic macular edema is a condition in which the metabolic abnormalities associated with diabetes, including high levels of blood glucose, or hyperglycemia, damage blood vessels in the central portion of the retina, or the macula, causing those vessels to leak fluid. The leaking fluid leads to swelling and subsequently to abnormalities of vision. The prevalence of diabetic macular edema, or DME, in the United States ranges from approximately 4.0% to 6.8% of people with diabetes who are 40 years of age or older. In 2019, it was estimated that more than 20 million people worldwide are affected by DME. There is a high burden of DME among non-Hispanic blacks and robust associations with higher hemoglobin A1c and longer duration of underlying diabetes.

Despite the success achieved with anti-VEGF treatment for retinal disease like AMD that involve the proliferation of abnormal blood vessels, or neovascularization, the impact of such treatment in DME has been more limited. This is due to the challenging nature of the therapeutic regimen (which entails monthly and or bimonthly IVT injections for up to two years), the number of cases that are refractory to anti-VEGF treatment (approximately 50% of DME patients), and the long-term complications of increased ischemia and retinal fibrosis associated with long-term treatment with anti-VEGF injections. As a result, there is an unmet need in this group of patients. Although VEGF has been identified as a major factor for neovascular disease, other factors, which we believe include SASP factors, are present in DME, including IL-1 β , TNF- α , IL-6, and TGF- β , among others. Due to the multifactorial nature of the disease, a significant opportunity exists to develop a more comprehensive approach to the treatment of DME, such as senolysis, that targets the root cause of the disease.

Diabetic Retinopathy

Diabetic retinopathy, or DR, is estimated to affect over 90 million people globally and approximately 28 million have vision-threatening stages of disease. It is a leading cause of vision loss in middle-aged and elderly people and impacts 8% of the U.S. population over age 65. Due to the increasing diabetic population arising from lifestyle changes in developing countries, the disease incidence is predicted to climb.

Diabetic retinopathy is a complex multifactorial disease, characterized by progression through a series of stages of increasing severity. The metabolic abnormalities associated with diabetes incite a variety of inflammatory and metabolic stress-induced events which leads to proliferation of new blood vessels and subsequent bleeding and swelling, which in turn causes scarring and vision loss or may lead to blood vessel occlusion, limiting blood flow and leading to damage to the retinal photoreceptors and nerves supplied by those vessels. The risk of developing diabetic retinopathy and its severity increases with the duration of underlying diabetes. It is also associated with poor glycemic control and the presence of additional coexistent diseases, such as high blood pressure, high cholesterol levels, and impaired kidney function.

Current standard of care for diabetic retinopathy, which includes blood sugar control, anti-VEGF drugs, steroid injections, and laser therapy, is modestly effective. The limitations of existing therapy include general challenges with achieving diabetes control, the need for frequent intravitreal injections for the administration of anti-VEGF therapy, a significant percentage of patients not completing or being non-responsive to anti-VEGF therapy, and tissue destruction

with permanent side effects from laser therapy. This presents a significant opportunity to design and develop a treatment paradigm, such as senolytic medications like UBX1325, that treats a root cause of the disease.

Evidence suggests that diabetic retinopathy is driven by the accumulation of senescent cells that are a direct result of elevated glucose levels in patients with diabetes. These senescent cells are triggered by local stresses in the retina and their accumulation drives the production of the accompanying ocular SASP factors, VEGF and platelet-derived growth factor, or PDGF. Overproduction of VEGF and IL-6 leads to ocular inflammation and abnormal blood vessel growth, key signatures of diabetic retinopathy. In addition, senescent cells within vascular units of the retina are unable to form proper junctions and thus blood vessels with heavy senescence burden are more prone to leak. Thus, a senolytic approach could target multiple aspects of the underlying causes of diabetic retinopathy and ideally lead to greater therapeutic coverage in a wider range of patients. This elimination of senescent cell accumulation and accompanying SASP factors could limit further disease progression, reduce vessel leakage and inflammation, and prevent vision loss.

Evidence for Senescence Burden in Human Disease and Human Biomarker Discovery: AMD, DR and DME

We evaluated the presence of senescent cells by IHC staining for p16 in post-mortem retinal donor tissue from individuals who carried a pre-mortem diagnosis of AMD, DR/DME, or neither. We believe the resulting data support our hypothesis that the accumulation of senescent cells is linked to AMD and DR/DME. Quantification of IHC images indicated a significant increase in senescent cell burden (as measured by p16⁺ cells) in both AMD and DR patient globes (Figure 3).

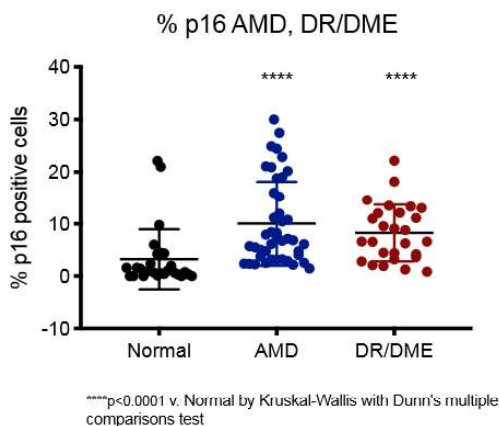


Figure 3: *Quantification of senescent cell burden in AMD and DR/DME*

We also compared the presence of senescence in human retinal microvascular endothelial cells, or HRMEC, versus retinal donor tissue from human DME/DR patients by evaluating the gene expression of several disease-relevant factors. Quantitative polymerase chain reaction, or qPCR, demonstrated elevations in the SASP factors VEGF, PDGF, IL1B, and TNF in senescent HRMEC, relative to non-senescent cells. These disease-relevant mediators have been reported to be elevated in DME/DR patients. We believe this data is consistent with our hypothesis that senescent cell accumulation and SASP factors play a central role in both DME and DR.

Mechanism of Action of UBX1325 (Inhibitors of the Bcl-2 Family)

UBX1325, our lead drug candidate (along with our backup compound in our ophthalmology program, UBX1967) is a potent and selective small molecule inhibitor of Bcl-xL, a specific member of the Bcl-2 family of apoptosis regulating proteins. The B-cell lymphoma 2, or Bcl-2, gene family encodes more than 20 proteins that regulate the intrinsic apoptosis pathway and are fundamental to the balance between cell survival and cell death. Inhibition of certain Bcl-2 family proteins results in cell death in certain cell types. Targeting this pathway has been studied extensively in connection with the search for new oncology medicines.

In Vitro and In Vivo Pharmacology Studies with UBX1325

We conducted an *in vitro* assessment of binding and efficacy of UBX1325 to determine both its potency for the Bcl-2 family protein targets and its potency at eliminating senescent cells. Biochemical assays for Bcl-2, Bcl-xL, and Bcl-w yielded binding affinities in the sub-nanomolar range, but with a higher affinity for Bcl-xL. UBX1325 is a phosphate pro-drug that releases the active parent molecule known as UBX0601. In order to assess the activity of UBX0601 on senescent cells, we used a cell-based assay with radiation-induced senescence. Senescent cells were exposed to increasing concentrations of UBX0601 for 72 hours. In this study, UBX0601 showed potent, concentration-dependent senolytic activity against human fetal lung cells, or IMR90, primary human umbilical vein endothelial cells, or HUVEC, and HRMEC as measured by reduction of senescent cell survival. UBX0601 also demonstrated selectivity for elimination of senescent HRMEC over non-senescent HRMEC which is observed as decreased potency in the non-senescent HRMEC (Figure 4).

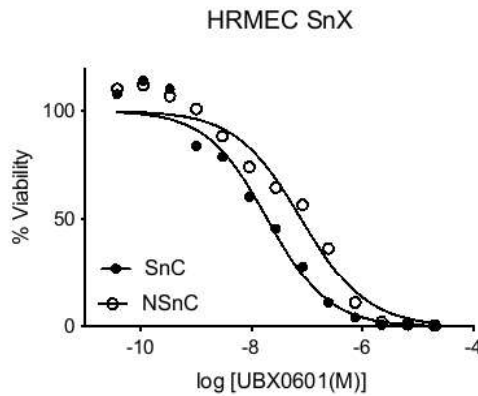


Figure 4: Concentration-dependent induction of apoptosis in HRMEC cells by UBX0601 *in vitro*

We next studied the effects of UBX1325 in the retina in an *in vivo* model. We employed the mouse oxygen-induced retinopathy, or OIR, model, which provides an *in vivo* model of retinopathy of prematurity, or ROP, and DR. In this model, UBX1325 demonstrated a statistically significant improvement in the degree of retinal neovascularization (Figure 5).

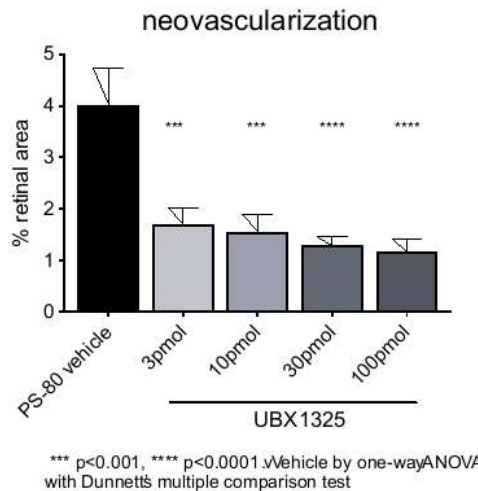


Figure 5: Intravitreal injection of UBX1325 reduced retinal neovascularization in the mouse OIR model

Based on these results in this key OIR model, we believe a single ocular injection of UBX1325 has the potential to functionally inhibit neovascularization and promote vascular repair. We believe the efficacy of UBX1325 in this OIR model is due to elimination of senescent cells and accompanying SASP that propagates senescence in retinal cells and promotes neovascularization of retinal vessels.

We then studied the *in vivo* efficacy of UBX1325 in a streptozotocin-induced diabetic mouse, or STZ, model to understand its effects in a diabetic retina, which shows phenotypes similar to the human diseased condition. In this STZ model, UBX1325 demonstrated a significant reduction in vascular leakage as measured by Evans Blue dye permeation (Figure 6A). UBX1325 also demonstrated an improvement in the electroretinogram, or ERG, as a measure of retinal/photoreceptor function (Figure 6B). At a dose of 200 pmol delivered per eye, UBX1325 led to significant increase in the amplitude of both the A- and B-waves ($p < 0.01$ and $p < 0.0001$, respectively) of the ERG when compared to the vehicle control group. Lastly, the expression of several disease-relevant cytokines was elevated in the diabetic retina, but attenuation of those factors was not observed after administration of UBX1325.

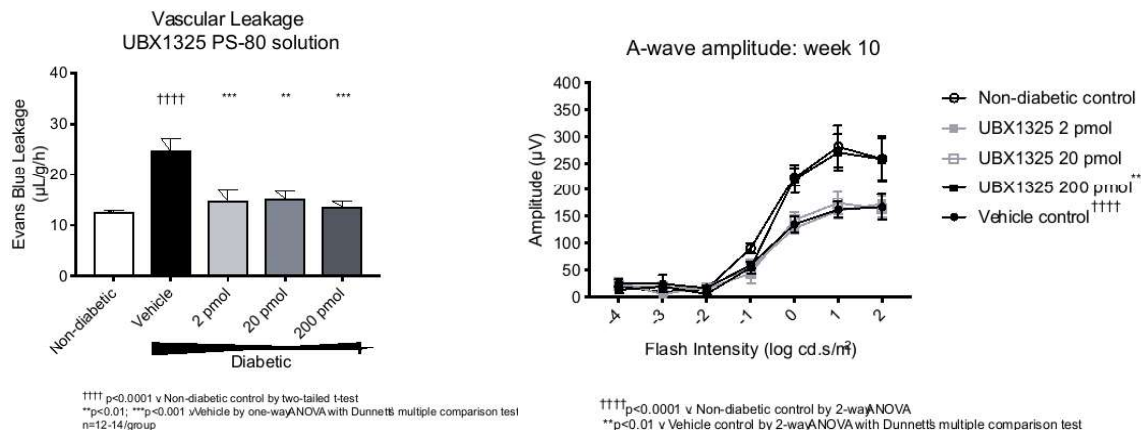


Figure 6: Streptozotocin-induced diabetic mice have increased retinal vascular leakage (6A) and decreased A-wave amplitude in ERG (6B). Administration of UBX1325 attenuated each of these disease-relevant endpoints.

Non-clinical toxicology studies of UBX1325, as well as its manufacturing and associated testing, have been completed to support the evaluation of the safety, tolerability, and pharmacokinetics of this molecule in further clinical studies.

UBX1325 Clinical Data and Development Plan

In July 2020, we filed an IND, to commence a Phase 1, first-in-human, open-label, single-ascending dose study of UBX1325 (foselutoclax) in patients with DME, and nAMD. Our current goal with UBX1325 is to transformationally improve outcomes for patients with DME. In October 2020, the Phase 1, first-in-human, clinical study of UBX1325 commenced. That study, an open-label, single ascending dose clinical trial, evaluated doses from 0.5 – 10 µg administered as a single intra-vitreous injection in up to 8 patients with DME and 11 patients with nAMD all of whom had been off all anti-VEGF treatment due to lack of benefit for at least 6 months. The results of this study demonstrated acceptable safety and tolerability without any dose-limiting toxicities; no evidence of intraocular inflammation; and mean improvement in Best Corrected Visual Acuity (BCVA) of up to 9.5 ETDRS letters in those patients with DME receiving higher doses (5 and 10 µg) and a mean improvement in BCVA of 3.2 ETDRS letters in evaluable patients with nAMD at all doses, both at 24 weeks after treatment with UBX1325.

In May 2021, we initiated our Phase 2 BEHOLD study of UBX1325 in patients with DME and dosed our first patient in June 2021. This study was a multi-center, randomized, double-masked, sham- controlled study designed to evaluate the safety, tolerability, efficacy and durability of a single 10 µg dose of UBX1325 (foselutoclax) in patients with DME evaluated through 24 weeks. Patients have the option of rolling over to a 48-week long term extension and a majority of patients who have completed their 24-week visits have opted to remain in the study. A total of 65 patients were enrolled, randomized evenly between UBX1325 and sham-injected patients. These patients were being actively treated with anti-VEGF for at least 6 months prior to being randomized into the BEHOLD study (mean of 4.03 injections in the 6 months preceding randomization), and had persistent visual acuity deficits (73 ETDRS letters or worse, approximately 20/40 or worse) and residual retinal fluid (≥ 300 µm of central subfield thickness on optical coherence tomography, mean of approximately 439.6 µm). At the time of randomization, patients were taken off of their anti-VEGF treatment, and instead treated with UBX1325 or a sham procedure. Endpoints explored in the study

include safety and tolerability, changes in BCVA, CST, SRF/IRF, proportion of patients requiring rescue treatment, and durability of effects.

In August 2022, we announced positive 12- and 18-week data in our Phase 2 BEHOLD study, including that a single injection of UBX1325 led to a progressive, statistically significant, and clinically meaningful improvement in mean best-corrected visual acuity compared to sham treatment. At Week 18, the mean change from baseline of BCVA for UBX1325-treated subjects was an increase of 6.1 ETDRS letters that represented a difference of +5.0 ETDRS letters compared to sham-treated subjects ($p=0.0368$). In addition, patients treated with UBX1325 maintained central subfield thickness (CST) (+3.2 microns) compared to sham-treated patients who had progressive worsening (increase) in CST through 18 weeks (+53.5 microns) ($p=0.0719$).

In November 2022, we announced positive 24-week data in our BEHOLD study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in BCVA of +6.2 ETDRS letters from baseline and +7.6 ETDRS letters compared to sham treatment ($p=0.0084$). Inclusive of rescue data, patients treated with UBX1325 had a mean improvement in BCVA of +6.4 ETDRS letters from baseline and +5.2 ETDRS letters compared to sham ($p=0.0068$). At 24 weeks, patients treated with UBX1325 had a mean change in CST of -5.4 microns from baseline compared to a worsening (increase) of +34.6 microns in sham-treated patients ($p=0.1244$). The proportion of rescue-free patients at 24 weeks was greater on UBX1325 (59.4%) as compared to sham (37.5%) with fewer total rescues and longer time-to-rescue in UBX1325-treated patients as compared to sham. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis. Patients were followed through 48 weeks post-treatment in a long-term follow-up.

In April 2023, we announced positive 48-week data from this long-term follow-up in our BEHOLD study in 50 patients who participated in the 48-week extension study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in vision lasting for the duration of the study (48 weeks), marked by a gain of +6.2 ETDRS letters from baseline, representing a difference of +5.6 ETDRS letters compared to sham-treated patients. In addition, patients treated with UBX1325 maintained stable CST compared to worsening in sham-treated patients ($p=0.1198$). Approximately 50% of UBX1325-treated patients did not require any additional injections through 48 weeks, compared to only 22% of patients in the sham arm. Retinal structure, as measured by central subfield thickness (CST), was maintained in UBX1325-treated patients throughout the duration of the study. UBX1325 continued to show a favorable safety and tolerability profile with no evidence of intraocular inflammation.

In December 2023, we announced that the first patients have been dosed in our Phase 2b ASPIRE study, designed to evaluate UBX1325 (foselutoclax) head-to-head against aflibercept in previously treated patients with active DME who are not achieving optimal benefit from standard of care. We are currently enrolling patients into the ASPIRE study in DME, which is a multi-center, randomized, double-masked, active-controlled study designed to evaluate the safety and efficacy of UBX1325 in comparison to aflibercept. Patients are expected to be randomized 1:1 to receive either 10 μg UBX1325, or 2 mg of aflibercept control injections every eight weeks for six months. We expect to enroll approximately 50 participants with DME who have residual visual acuity deficits and excess fluid in the retina despite having received at least three anti-VEGF injections in the preceding six months. All participants will receive three doses of 2 mg aflibercept as a “run-in” prior to randomization. The primary efficacy endpoint will be mean change from baseline in BCVA to week 24. Secondary endpoints will include change in BCVA over time, and CST change from baseline to week 24, and percentage of participants with one or more treatment-emergent ocular adverse events during the course of the study. We currently anticipate our 16-week data readout in the fourth quarter of 2024 and our 24-week data readout in the first quarter of 2025.

In March 2022, we enrolled our first patient in Phase 2 of the ENVISION study. In September 2022, the study has completed enrollment of patients with nAMD who have had at least two intravitreal injections of anti-VEGF therapy in the preceding six months and who still have active choroidal neovascularization and residual sub- or intra-retinal fluid. Patients have received their last anti-VEGF treatment approximately 4-8 weeks prior to screening, and all patients will be followed for approximately 24 weeks after dosing with either UBX1325 or aflibercept.

In March 2023, we announced 16-week and 24-week data in Part A of our ENVISION study, in which UBX1325 monotherapy did not achieve non-inferiority through 24 weeks due, in part, to an unexpected 3.5 letter gain

at week two in the anti-VEGF control arm. UBX1325 maintained visual acuity in patients with ongoing active disease through 24 weeks with less than one letter mean decrease from baseline (−0.8 ETDRS letters at 24 weeks compared to +3.1 ETDRS letters in the aflibercept control arm). Of UBX1325-treated patients, 52% did not require anti-VEGF treatment through 24 weeks. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis.

In September 2023, we announced 48-week data in Part B of our ENVISION study, in which UBX1325 demonstrated a favorable safety and tolerability profile in the combination and monotherapy arms with no cases of significant intraocular inflammation, retinal artery occlusion or endophthalmitis. Patients switched from every 8-week aflibercept to a combination of aflibercept and UBX1325 at week 24 maintained vision gains achieved with aflibercept alone through week 48. Patients in a pre-specified subgroup with poor visual acuity at baseline (≤ 60 ETDRS letters) gained 3.2 ETDRS letters on combination treatment between weeks 24 and 48. In the UBX1325 monotherapy arm, patients maintained visual acuity for the duration of the study, with a mean change of +0.1 ETDRS letters at the 24-week time point and a mean change of −1.5 ETDRS letters at 48 weeks. 40% of UBX1325-treated patients did not need anti-VEGF rescue through 48 weeks and 64% of the patients achieved an anti-VEGF treatment-free period of over 24-weeks. The median time to first anti-VEGF rescue was 32 weeks.

In addition to UBX1325, which targets Bcl-xL, we have preclinical stage molecules that target senescent cells via alternate mechanisms and could be the basis of future pipeline programs.

Ophthalmology Program Targeting Tie2 Signaling

The angiopoietin-Tie2 signaling axis is believed to play a fundamental role in vascular biology. Dysregulation of the expression of Tie2-regulating ligands angiopoietin-2 (a context dependent Tie2 antagonist ligand) and angiopoietin-1 (a Tie2 agonist ligand) has been observed in the vitreous of patients with DME, AMD, and other ocular diseases. We believe that a highly specific and potent Tie2-activating antibody will restore Tie2 signaling in ocular tissues, potentially leading to decreased vascular leak, lower levels of pathogenic angiogenesis, and a restoration of healthy blood vessels in ischemic areas of the eye. UBX2050 is an investigational Tie2-specific agonist monoclonal antibody that was selected based on its optimal binding and functional properties observed in *in vitro* assays. In primary human endothelial cells, or HUVECs, UBX2050 treatment activated Tie2 as measured by increased levels of cellular phospho-Tie2, and potently activated downstream signal transduction pathways as measured by increased levels of phospho-Akt and phospho-Erk1/2 by western blotting (Figure 7).

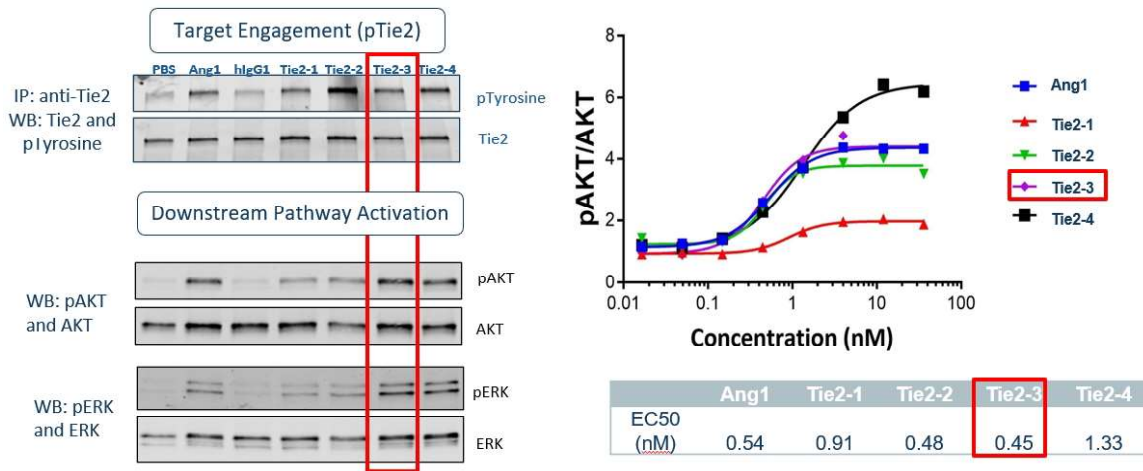


Figure 7. Anti-Tie2 agonist antibody Tie2-3 (UBX2050) activated Tie2 signaling with a potency comparable to angiopoietin-1 in primary endothelial cells *in vitro*.

The *in vivo* activity of UBX2050 has been explored in a laser-induced choroidal neovascularization model in mice. In this model, UBX2050 was administered to mice via the intraperitoneal route at a dose of 10 mg/kg, one day prior to laser-induced rupture of Bruch's membrane. UBX2050 treatment, but not treatment with a non-specific isotype control antibody, significantly inhibited the area of choroidal neovascularization nine days post-injury as measured in retina/choroid flat mounts from treated animals (Figure 8). Based on this data, we believe UBX2050 has the potential to address pathogenic angiogenesis in the eyes of patients with ocular diseases such as AMD and DME.

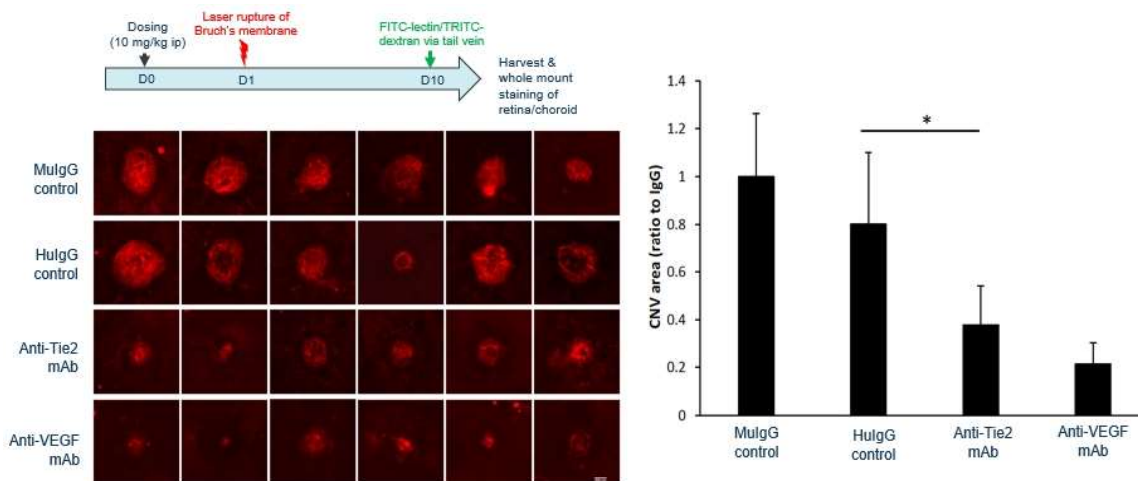


Figure 8. UBX2050 treatment significantly inhibited choroidal neovascularization in a laser-induced injury model in mice.

We believe that the investigational Tie2 antibody (UBX2050) may be an orthogonal approach to restoring barrier function and vascular function; however, this program is currently paused to focus our development efforts on UBX1325.

Tie2/VEGF bispecific program

Tie2 is a receptor tyrosine kinase that is implicated in regulating barrier function in blood vessels of the eye, which are affected in several prevalent eye diseases. Tie2 is an important key regulator of the vascular endothelium in the eye and dysregulation of this pathway leads to loss of barrier integrity and healthy vasculature. Preliminary studies suggest that cellular senescence in aging eyes may induce Ang-2 and therefore deactivate Tie2, leading to ocular edema. The Tie2/VEGF bispecific has dual functionality on two validated targets for retinal diseases. In addition to direct activation of Tie2, the bispecific candidate is designed to neutralize VEGF-A and VEGF-B. We believe that direct agonism of Tie2 may be superior to antagonism of Ang2 which relies on adequate levels of endogenous Ang1 to activate the Tie2 pathway. We have identified Tie2/VEGF bispecific molecules that have pharmacological activity on Tie2 and VEGF with potencies relevant for clinical benefit. Based on supporting preclinical data, we designated an Advanced Candidate in July 2022; however, this program is currently paused to focus our development efforts on UBX1325.

Neurology Program

UBX2089, a α -Klotho hormone drug candidate, is a circulating hormone primarily produced in the kidneys and choroid plexus of the brain, which is being researched for multiple neurology indications. Human genetic evidence links α -Klotho to cognitive function, and we have observed pro-cognitive activity of recombinant α -Klotho in multiple preclinical rodent and non-human primate models. Our work focused on investigating the effect of UBX2089 on engaging CNS circuits in preclinical animal models with the intent of advancement to clinical studies, and in December 2021, we announced an exclusive licensing agreement of our α -Klotho asset to Jocasta Neuroscience, Inc. for development and commercialization.

Manufacturing

Our success will depend on our ability to deliver reliable, high-quality preclinical and clinical drug supply. As we mature and approach commercial stage operations, securing reliable high-quality commercial drug supply will be critical. We contract with third parties for the manufacture of our drug candidates for clinical studies. Because we rely on contract manufacturers, we employ personnel with extensive technical, manufacturing, analytical, and quality experience. Our staff has strong project management discipline to oversee contract manufacturing and testing activities, and to compile manufacturing and quality information for our regulatory submissions.

Manufacturing is subject to extensive regulation that imposes various procedural and documentation requirements and that governs record keeping, manufacturing processes and controls, personnel, quality control and quality assurance, and more. Our systems and our contractors are required to be in compliance with these regulations, and compliance is assessed regularly through monitoring of performance and a formal audit program.

Our current supply chains for our lead drug candidates involve several manufacturers that specialize in specific operations of the manufacturing process, specifically, raw materials manufacturing, drug substance manufacturing, drug product manufacturing, and drug product labeling, packaging, and storage. We currently operate under purchase order programs for our drug candidates with Material Service Agreements in place, and we intend to establish long-term supply agreements in the future. We believe our current manufacturers have the scale, the systems, and the experience to supply all planned clinical studies.

We do not currently require commercial manufacturing capabilities. Should our needs change, we will likely need to scale up our manufacturing processes to enable commercial launch. To ensure continuity in our supply chain, we plan to establish supply arrangements with alternative larger scale suppliers for certain portions of our supply chain, as appropriate.

Commercialization Plan

We do not currently have, nor do we expect to have in the near term, any FDA-approved drugs in our portfolio. Therefore, we have not yet built an infrastructure for sales, marketing, or commercial distribution.

Should any of our drug candidates move into pivotal clinical trials intended to support an application for market authorization, we intend to develop a plan to commercialize them in the United States and other key markets, through an internal infrastructure or external partnerships.

Competition

The biotechnology and pharmaceutical industries, including the field of research in aging, are typically rife with rapid technological developments, bold competition, and dependence on intellectual property. Like any biotechnology company, we face competition from multiple sources, including large or established pharmaceutical, biotechnology, and wellness companies, academic research institutions, government agencies, and private institutions. We believe our drug candidates will prevail amid the competitive landscape through their efficacy, safety, administration methods and convenience, cost, public and institutional demand, intellectual property portfolio, and treatment of the root cause of many diseases of aging.

We are aware of other companies seeking to develop treatments to prevent or treat diseases of aging through various biological pathways, including several large pharmaceutical companies that have exploratory programs as well as a number of earlier-stage companies. Most of these companies are either in early stages of discovery research in senescence or have not yet disclosed pipeline candidates or mechanisms of interest, and those companies that have disclosed pipeline candidates are targeting other pathways. Hence, we believe that we currently have the most advanced program addressing cellular senescence.

Our drug candidates are likely to compete against current therapies from a wide range of companies and technologies, including therapies for ophthalmology diseases: current standard of care treatments include anti-VEGF

antibodies (bevacizumab, ranibizumab, aflibercept, brotacizumab); VEGF/Ang2 bispecific antibodies (faricimab); intravitreal steroid (dexamethasone); pan-retinal photocoagulation by laser for both neovascular AMD, DR, and DME; and complement inhibitors (e.g., pegcetacoplan) for the geographic atrophy form of AMD.

Many of our competitors, either alone or with strategic partners, have substantially greater financial, technical, and human resources than we do. Accordingly, our competitors may be more successful in obtaining approval for treatments and achieving widespread market acceptance, rendering our treatments obsolete or non-competitive. Accelerated merger and acquisition activity in the biotechnology and biopharmaceutical industries may result in even more resources concentrated among a smaller number of our competitors. These companies also compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical study sites, patient registration for clinical studies, and acquiring technologies complementary to, or necessary for, our programs. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. Our commercial opportunity could be substantially limited in the event that our competitors develop and commercialize products that are more effective, safer, more tolerable, more convenient, or less expensive than our comparable products. In geographies that are critical to our commercial success, competitors may also obtain regulatory approvals before us, resulting in our competitors building a strong market position in advance of our products' entry. We believe the factors determining the success of our programs will be the efficacy, safety, and convenience of our drug candidates.

Intellectual Property

Our success depends in large part upon our ability to obtain and maintain proprietary protection for our products and technologies and to operate without infringing the proprietary rights of others. Our policy is to protect our proprietary position by, among other methods, filing U.S. and foreign patent applications that relate to our proprietary technologies, inventions and improvements that are important to the development and implementation of our business. We also rely on trademarks, know-how, continuing technological innovation and licensing opportunities to develop and maintain our proprietary position.

Patent Portfolio

Our patent portfolio consists of a combination of issued and allowed patents and pending patent applications that are owned or co-owned by us and/or licensed to us from third parties. The majority of these patents and applications cover our cellular senescence program, and others pertain to our programs that target aging mechanisms beyond cellular senescence, including the administration of a Tie2 receptor agonist or α -Klotho hormone. As of March 1, 2024, we own, co-own, or have an exclusive license in certain fields of use to more than 170 patents and pending applications in the United States and foreign jurisdictions. This portfolio includes 34 issued and allowed U.S. patents and applications and 63 granted and allowed foreign patents and applications, respectively. A composition of matter patent filing claiming the specific chemical structure of UBX1325 was issued in the U.S. on April 20, 2021, which will extend our loss of exclusivity on this molecule to 2039, not including any patent term adjustment or patent term extensions to which it may be entitled.

In general, patents have a term of 20 years from the earliest claimed non-provisional priority date. The patent term may be extendible by up to five years in certain countries by means of patent term extension depending on the regulatory pathway and the remaining term upon marketing approval. Certain other patents and patent applications directed to our patent portfolio, if they were to issue, may have later expiration dates. Any pending U.S. provisional application is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of filing the related provisional patent application. If we do not timely file any non-provisional patent application, we may lose our priority date with respect to our provisional patent application and any patent protection on the inventions disclosed in our provisional patent application.

Ophthalmology Programs

We have a license with Ascentage to two patent families of issued and pending composition of matter patents directed to specific Bcl-xL inhibitors including UBX0601, the active parent molecule of our lead drug candidate,

UBX1325. This license grants us exclusive development and commercialization rights and non-exclusive manufacturing rights to UBX1325 for all non-oncology indications outside of Greater China (China, Hong Kong, Macau and Taiwan). Inside Greater China, we have the right to negotiate a joint venture with Ascentage to develop, manufacture and commercialize UBX1325. Patents in these two patent families have been granted in the United States, South Korea, New Zealand, South Africa, Australia, Canada, China, India, Singapore, Japan and Europe, and others are pending in India and Singapore. Patents that issue from these two patent families are expected to expire in 2032 and 2034, excluding any patent term adjustments or extensions.

Our license agreement with Ascentage also grants us the right to continue our preclinical development efforts with UBX1967 (our back-up compound to UBX1325) until the time we wish to submit an IND for UBX1967, at which point we would be required to enter into a separate license agreement with Ascentage covering UBX1967.

We co-own a patent family encompassing the use of Bcl-2 and Bcl-xL inhibitors generally to treat various age-related eye diseases by targeting senescent cells (which also covers aspects of our neurology programs) with the Buck Institute and the Mayo Clinic. We have exclusive licenses from each of the Buck Institute and the Mayo Clinic to this patent family in the field of senescence. To date, four U.S. patents and a Canadian, a European, a New Zealand, a Hong Kong, a Mexican, a South Korean, and a South Africa patent have issued in this patent family which are directed to treating age related eye diseases, including age-related macular degeneration. Other patent applications are pending in the United States, Australia, Canada, China, Israel, Japan, and Singapore. Patents that issue from this family are expected to expire in 2035, excluding any patent term adjustments and patent term extensions.

We also solely own a patent family that specifically claims the composition of matter of UBX1325 and closely related compounds, as well as general methods of use of UBX1325. As of March 1, 2024 we have two issued U.S. patents and one pending U.S. application as well as pending applications, and issued patents in Europe and South Korea, as well as pending applications in Australia, Canada, China, Europe, Japan, and Hong Kong. Future patents issued from this family are expected to expire in 2039, excluding any patent term adjustments and patent term extensions.

We solely own a patent family that specifically covers the sequence, epitope, alternative antibody formats, and use of UBX2050 not only for ophthalmic diseases, but also other indications, including kidney. Future patents issuing from this family are expected to expire in 2040, excluding any patent term adjustments and patent term extensions. We also solely own a U.S. provisional patent application that specifically covers the sequences of our Tie2/VEGF bispecific UBX2048 and variants for many indications, including ocular. Future patents issuing from this family are expected to expire in 2043, excluding any patent term adjustments and patent term extensions.

Neurology Program

We have an exclusive license with The Regents of the University of California for a patent family directed to methods of treatment and the use of α -Klotho hormone for the development of human therapeutics to treat cognitive decline. As of March 1, 2024, our patent portfolio includes three issued U.S. patents, an issued patent in Australia, Europe, and Japan, one pending patent application in each of the United States, Australia, Canada, Europe, Hong Kong, and India and two pending patent applications in China. Patents that issue from this family are expected to expire in 2036, excluding any patent term adjustments and patent term extensions. In December 2021, we announced an exclusive agreement licensing our α -Klotho asset to Jocasta Neuroscience, Inc. for development and commercialization.

We co-own a patent family encompassing the use of Bcl-2/xL inhibitors generally to treat neurodegenerative diseases by targeting senescent cells (which also covers aspects of our ophthalmology program) with the Buck Institute and the Mayo Clinic. We have exclusive licenses from each of the Buck Institute and the Mayo Clinic to this patent family in the field of senescence. Currently, we co-own a pending U.S. patent application for the use of Bcl-xL inhibition to eliminate senescent cells to treat neurodegenerative disorders. Patents that issue from this family are expected to expire in 2035, excluding any patent term adjustments and patent term extensions.

Other Intellectual Property

Our continuing research and development, technical know-how, and contractual arrangements supplement our intellectual property protection to maintain our competitive position. Our policy is to require inventors who are identified on any Company-owned patent applications to assign rights to us. We also have confidentiality agreements with our employees, consultants, and other advisors to protect our proprietary information. Our policy is to require third parties that receive material UNITY confidential information to enter into confidentiality agreements with us.

We also protect our brand through procurement of trademark rights. As of March 1, 2024, the mark UNITY BIOTECHNOLOGY® and the UNITY BIOTECHNOLOGY® design logo are registered in the United States, the European Union, or EU, China, and in Japan, as well as other foreign jurisdictions. The mark UNITY® is also registered in the United States and in the EU. In order to supplement protection of our brand, we have also registered several internet domain names.

Licenses and Collaborations

Description of Ascentage Agreements

We were a party to three agreements, or the Commercial Agreements, with Ascentage Pharma: (a) a compound library and option agreement executed in February 2016, the Library Agreement, granting the Company the right to research and nominate an active compound from Ascentage's library of Bcl compounds and subsequently nominate a development candidate from any active compound in order to begin GLP toxicology work for indications outside of oncology, which expired in February 2022; (b) a license agreement executed in February 2016 granting the Company rights to an Ascentage Pharma compound known as APG1252, or the APG1252 License Agreement, which the Company terminated in July 2020 due to the Company's decision to prioritize the progression of UBX1325; and (c) a second license agreement executed in January 2019 granting the Company world-wide rights to develop and commercialize UBX0601, the active parent molecule of our lead drug candidate UBX1325, outside of Greater China, or the Original Bcl Agreement, for indications outside of oncology.

The Commercial Agreements referenced above include cash payments of up to \$70.3 million as well as the equity payments of up to an aggregate of (a) 93,333 shares of common stock in the event there is only one licensed product; and (b) 133,333 shares of common stock in the event there are two or more licensed products, in each case to be issued based on the Company's achievement of certain preclinical and clinical development and sales milestone events. The Company is required to make 80% of all equity payments to Ascentage Pharma and the remaining 20% to an academic institution from whom Ascentage Pharma had previously licensed the technology. The milestones include the advancement of additional compounds into IND, enabling studies, the filing of an IND, the commencement of clinical studies, Food and Drug Administration, or FDA, and/or European Medicines Agency approval, and a net sales threshold. The Original Bcl License Agreement also includes tiered royalties in the low-single digits based on sales of licensed products.

As of December 31, 2023, pursuant to the Commercial Agreements, the Company had issued 126,975 shares of common stock to Ascentage Pharma and 29,194 shares of common stock to the academic institution from whom Ascentage Pharma had previously licensed the technology. The Company had issued no additional shares pursuant to the Commercial Agreements during the year ended December 31, 2023. In May 2021, the Company initiated the BEHOLD study, a Phase 2 proof-of-concept study of UBX1325 in patients with diabetic macular edema. As a result of the first patient dosed in the Phase 2 proof-of-concept UBX1325 study in June 2021, the Company triggered a milestone payment of \$2.0 million for Ascentage Pharma, which the Company elected to settle in shares of the Company's common stock. At the instruction of Ascentage Pharma, the Company issued 29,477 shares of its common stock to Ascentage Pharma as of August 2021 with a fair market value of \$1.1 million net of withholding taxes, and 10,527 shares of its common stock to the academic institution with a fair market value of \$0.4 million at settlement date. The milestone payment was recognized as research and development expense in the Statement of Operations and Comprehensive Loss during the year ended December 31, 2021. The Company had previously issued 36,166 shares of its common stock with a value of \$2.3 million to Ascentage Pharma as of December 31, 2020.

The Commercial Agreements included contingent consideration in the form of additional issuances of shares of the Company's common stock based on the achievement of the specified milestones. Upon the July 2020 termination of the license to APG1252, the Company determined that the contingency no longer applied and adjusted the fair value of the contingent consideration liability to zero. To date, no royalties were due from the sales of licensed products.

Under the terms of the Original Bcl Agreement, Ascentage granted us the following rights for all non-oncology indications outside of Greater China (China, Hong Kong, Macau and Taiwan): (i) exclusive worldwide development rights, and (ii) exclusive commercialization rights. Inside Greater China we have the right to negotiate a joint venture with Ascentage to develop, manufacture and commercialize UBX1325. The Original Bcl Agreement also stipulates that Ascentage has the right to manufacture at least 50% of our supply requirements of the licensed compound, provided they achieve and maintain certain manufacturing quality standards. This Original Bcl Agreement was amended in the fourth quarter of 2019 to remove certain field and territory limitations and to amend the schedule of licensed patents related to UBX1967, and then amended again in the first quarter of 2020 to further amend and restate the schedule of licensed patents. This Original Bcl Agreement was amended a third time in June 2020 to switch the status of UBX1967 from Licensed Compound to back-up compound, and conversely the status of UBX1325 from back-up to Licensed Compound.

Additional License Agreements

We are party to additional license agreements that support our senescence-related patent portfolio. These agreements are with an entity affiliated with the Mayo Clinic, or Mayo, and the Buck Institute for Research on Aging, or Buck, and provide us with a worldwide, exclusive, sublicensable license under those counter-parties' rights to a patent family that is co-owned by Buck, Mayo and us to develop and commercialize licensed products, including for the treatment of senescence-related diseases in therapeutic areas including ophthalmology and neurological diseases.

Under our June 2013 license with Mayo, we may be obligated to make development and sales milestone payments to Mayo of up to \$10.8 million in the aggregate, to pay Mayo a percentage of certain sublicensing revenue that is between the high-single digits and the low-teens, and to pay Mayo running royalty payments ranging from less than 1% to low-single digit percentages on net sales of licensed products. Our obligation to pay running royalties to Mayo under the agreement is subject to a non-material minimum annual royalty and could potentially extend until January 1, 2037. We also issued 67,796 shares of our common stock to Mayo under this agreement. Our agreement with Mayo continues until the later of (i) the expiration of the last valid claim within the licensed patents and (ii) 13 years after first commercial sale of the first licensed product. We may terminate the agreement for convenience, and either party may terminate the agreement for the other party's uncured material breach.

Under our January 2017 license with Buck, which includes similar rights to a second patent family that is co-owned only by Buck and us, we may be obligated to make development and sales milestone payments to Buck of up to \$5.4 million in the aggregate, to pay Buck a mid-single digit percentage of certain sublicensing revenue, and to pay Buck running royalty payments ranging from less than 1% to low-single digit percentages on net sales of licensed products. Our obligation to pay running royalties to Buck under the agreement is subject to a non-material minimum annual royalty and could potentially extend until January 1, 2037. We also issued 13,220 shares of our common stock to Buck under this agreement. The term of our license agreement with Buck continues until the expiration of all our payment obligations to Buck thereunder. We may terminate the agreement for convenience, and either party may terminate the agreement for the other party's uncured material breach.

We are also party to license agreements relating to our α -Klotho program. In May 2019, we entered into an exclusive license with The Regents of the University of California for intellectual property and know-how for the development of human therapeutics to treat cognitive decline in exchange for development and sales milestones and low single-digit percentages on net sales of licensed products. In December 2021, we signed an exclusive license agreement licensing our rights in the α -Klotho asset to Jocasta Neuroscience, Inc. for development and commercialization, under which we received a \$5 million upfront cash payment from Jocasta, and we will also receive additional payments based on development milestones, approval milestones, and sales-based royalties, per indication.

Government Regulation

Government authorities in the United States (including federal, state and local authorities) and in other countries, extensively regulate, among other things, the manufacturing, research and clinical development, marketing, labeling and packaging, storage, distribution, post-approval monitoring and reporting, advertising and promotion, pricing, and export and import of pharmaceutical products, such as those we are developing. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

U.S. Government Regulation

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and its implementing regulations, and biologics under the FDCA and the Public Health Service Act, or PHS Act, and its implementing regulations. FDA approval is required before any new unapproved drug or dosage form, including a new use of a previously approved drug, can be marketed in the United States. Drugs and biologics are also subject to other federal, state and local statutes and regulations. If we fail to comply with applicable FDA or other requirements at any time during the drug development process, clinical testing, the approval process or after approval, we may become subject to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties or criminal prosecution.

The process required by the FDA before drug candidates may be marketed in the United States generally involves the following:

- completion of extensive preclinical laboratory tests and preclinical animal studies, all performed in accordance with GLP regulations;
- submission to the FDA of an IND, which must become effective before human clinical studies may begin;
- approval by an independent institutional review board, or IRB, or ethics committee representing each clinical site before each clinical study may be initiated;
- performance of adequate and well-controlled human clinical studies to establish the safety and efficacy, or in the case of a biologic, the safety, purity and potency, of the drug candidate for each proposed indication;
- preparation of and submission to the FDA of a new drug application, or NDA, or biologics license application, or BLA, after completion of all pivotal clinical studies;
- review of the product application by an FDA advisory committee, where appropriate and if applicable;
- a determination by the FDA within 60 days of its receipt of an NDA or BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities where the drug candidate is produced to assess compliance with current Good Manufacturing Practices, or cGMP; and
- FDA review and approval of an NDA or BLA prior to any commercial marketing or sale of the drug or biologic in the United States.

An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for human studies. The IND also includes results of animal and *in vitro* studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the product; chemistry, manufacturing and controls information; and any available human data or literature to support the use of the investigational new drug. An IND must become effective before human clinical studies may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to the proposed clinical studies. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before clinical studies can begin. Accordingly, submission of an IND may or may not result in the FDA allowing clinical studies to commence.

Clinical Studies

Clinical studies involve the administration of the investigational new drug to human subjects under the supervision of qualified investigators in accordance with Good Clinical Practice regulations, or GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical studies are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the efficacy criteria to be evaluated. A protocol for each clinical study and any subsequent protocol amendments must be submitted to the FDA as part of the IND. Additionally, approval must also be obtained from each clinical study site's IRB before the studies may be initiated, and the IRB must monitor the study until completed. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

The clinical investigation of a drug or biologic is generally divided into three or four phases. Although the phases are usually conducted sequentially, they may overlap or be combined.

- *Phase 1.* The drug or biologic is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to evaluate the safety, dosage tolerance, metabolism and pharmacologic actions of the investigational new drug in humans, the side effects associated with increasing doses, and if possible, to gain early evidence on effectiveness.
- *Phase 2.* The drug or biologic is administered to a limited patient population to evaluate dosage tolerance and optimal dosage, identify possible adverse side effects and safety risks and preliminarily evaluate efficacy.
- *Phase 3.* The drug or biologic is administered to an expanded patient population, generally at geographically dispersed clinical study sites to generate enough data to statistically evaluate dosage, clinical effectiveness and safety, to establish the overall benefit-risk relationship of the investigational product and to provide an adequate basis for product approval.
- *Phase 4.* In some cases, the FDA may condition approval of an NDA or BLA for a drug candidate on the sponsor's agreement to conduct additional clinical studies after approval. In other cases, a sponsor may voluntarily conduct additional clinical studies after approval to gain more information about the drug. Such post-approval studies are typically referred to as Phase 4 clinical studies.

A pivotal study is a clinical study that adequately meets regulatory agency requirements for the evaluation of a drug candidate's efficacy and safety such that it can be used to justify the approval of the product. Generally, pivotal studies are Phase 3 studies, but the FDA may accept results from Phase 2 studies if the study design provides a well-controlled and reliable assessment of clinical benefit, particularly in situations where there is an unmet medical need, and the results are sufficiently robust.

The FDA, the IRB or the clinical study sponsor may suspend or terminate a clinical study at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Additionally, some clinical studies are overseen by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study. A sponsor may also suspend or terminate a clinical study based on evolving business objectives and/or competitive climate.

Submission of an NDA or BLA to the FDA

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, detailed investigational new drug product information is submitted to the FDA in the form of an NDA or BLA requesting approval to market the product for one or more indications. Under federal law, the submission of most NDAs and BLAs is subject to a substantial application user fee. Applications for orphan drug products are exempted from the NDA and BLA application user fees.

An NDA or BLA must include all relevant data available from pertinent preclinical and clinical studies, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. Data can come from

company-sponsored clinical studies intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and effectiveness of the investigational product to the satisfaction of the FDA.

Once an NDA or BLA has been submitted, the FDA's goal is to review the application within ten months after it accepts the application for filing, or, if the application receives priority review, six months after the FDA accepts the application for filing. The review process is often significantly extended by FDA requests for additional information or clarification.

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

The FDA is required to refer an application for a novel drug or biologic to an advisory committee or explain why such referral was not made. 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. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions and typically follows such recommendations.

The FDA's Decision on an NDA or BLA

After the FDA evaluates the NDA or BLA and conducts inspections of manufacturing facilities, it may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug or biologic with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete, and the application is not ready for approval. A Complete Response Letter may require additional clinical data and/or an additional pivotal Phase 3 clinical study(ies), and/or other significant, expensive and time-consuming requirements related to clinical studies, preclinical studies or manufacturing. Even if such additional information is submitted, the FDA may ultimately decide that the NDA or BLA does not satisfy the criteria for approval. The FDA could also approve the NDA or BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to mitigate risks, which could include medication guides, physician communication plans or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling, development of adequate controls and specifications or a commitment to conduct one or more post-market studies or clinical studies. Such post-market testing may include Phase 4 clinical studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization. Also, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products under development.

Expedited Review and Accelerated Approval Programs

The FDA has various programs, including fast track designation, breakthrough therapy designation, accelerated approval, and priority review, that are intended to expedite the development and approval of new drugs and biologics that address unmet medical needs in the treatment of serious or life-threatening diseases and conditions. To be eligible for a fast track designation, the FDA must determine, based on the request of a sponsor, that a product is intended to treat a serious or life-threatening disease or condition and demonstrates the potential to address an unmet medical need. The FDA may review sections of the NDA for a fast-track product on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA, the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA.

The FDA may give a priority review designation to drugs or biologics that are designed to treat a serious condition and, if approved, would provide a significant improvement in safety or effectiveness compared to available

therapies. A priority review means that the goal for the FDA to review an application is six months, rather than the standard review of ten months. These six- and 10-month review periods are measured from the “filing” date rather than the receipt date for NDAs for new molecular entities, which typically adds approximately two months to the timeline for review and decision from the date of submission. Products that are eligible for fast-track designation may also be eligible for priority review.

In addition, products studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may be eligible for accelerated approval and may be approved on the basis of adequate and well-controlled clinical studies establishing that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require a sponsor of a drug receiving accelerated approval to perform post-marketing studies to verify and describe the predicted effect on irreversible morbidity or mortality or other clinical endpoint, and the drug or biologic may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required post-marketing studies, or such post-marketing studies fail to confirm the predicted clinical benefit.

Moreover, under the provisions of the Food and Drug Administration Safety and Innovation Act, or FDASIA, passed in July 2012, a sponsor can request designation of a product candidate as a “breakthrough therapy.” A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, 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. This designation includes all of the features of fast track designation, as well as more intensive FDA interaction and guidance. The breakthrough therapy designation is a distinct status from both accelerated approval and priority review, but these can also be granted to the same product candidate if the relevant criteria are met. The FDA must take certain actions, such as holding timely meetings and providing advice, intended to expedite the development and review of an application for approval of a breakthrough therapy.

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

Post-Approval Requirements

Drugs and biologics marketed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims are subject to prior FDA review and approval. There also are continuing, annual user fee requirements.

Manufacturers are subject to periodic unannounced inspections by the FDA and state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

Discovery of previously unknown problems with a product or the failure to comply with applicable requirements may result in restrictions on a product, manufacturer or holder of an approved NDA or BLA, including withdrawal or recall of the product from the market or other voluntary, FDA-initiated or judicial action that could delay or prohibit further marketing. Also, new government requirements, including those resulting from new

legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products under development.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product;
- complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending NDAs or BLAs or supplements to approved NDAs or BLAs, or suspension or revocation of product licenses or approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

Orphan Designation and Exclusivity

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

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

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

Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or the Affordable Care Act, signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. To date, only a handful of biosimilars have been licensed under the BPCIA, although numerous biosimilars have been approved in Europe. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity and potency, can be shown through analytical studies, animal studies and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. However, complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA.

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

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

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In addition, recent government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

Hatch-Waxman Amendments and Exclusivity

Section 505 of the FDCA describes three types of marketing applications that may be submitted to the FDA to request marketing authorization for a new drug. A Section 505(b)(1) NDA is an application that contains full reports of investigations of safety and efficacy. A 505(b)(2) NDA is an application that contains full reports of investigations of safety and efficacy but where at least some of the information required for approval comes from investigations that were not conducted by or for the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted. This regulatory pathway enables the applicant to rely, in part, on the FDA's prior findings of safety and efficacy for an existing product, or published literature, in support of its application. Section 505(j) establishes an abbreviated approval process for a generic version of approved drug products through the submission of an Abbreviated New Drug Application, or ANDA. An ANDA provides for marketing of a generic drug product that has the same active ingredients, dosage form, strength, route of administration, labeling, performance characteristics and intended use, among other things, to a previously approved product. ANDAs are termed "abbreviated" because they are generally not required to include preclinical (animal) and clinical (human) data to establish safety and efficacy. Instead, generic applicants must scientifically demonstrate that

their product is bioequivalent to, or performs in the same manner as, the innovator drug through in vitro, *in vivo* or other testing. The generic version must deliver the same amount of active ingredients into a subject's bloodstream in the same amount of time as the innovator drug and can often be substituted by pharmacists under prescriptions written for the reference listed drug. In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent with claims that cover the applicant's drug or a method of using the drug. Upon approval of a drug, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential competitors in support of approval of an ANDA or 505(b)(2) NDA.

Upon submission of an ANDA or a 505(b)(2) NDA, an applicant must certify to the FDA that (1) no patent information on the drug product that is the subject of the application has been submitted to the FDA; (2) such patent has expired; (3) the date on which such patent expires; or (4) such patent is invalid or will not be infringed upon by the manufacture, use or sale of the drug product for which the application is submitted. Generally, the ANDA or 505(b)(2) NDA cannot be approved until all listed patents have expired, except where the ANDA or 505(b)(2) NDA applicant challenges a listed patent through the last type of certification, also known as a paragraph IV certification. If the applicant does not challenge the listed patents or indicates that it is not seeking approval of a patented method of use, the ANDA or 505(b)(2) NDA application will not be approved until all of the listed patents claiming the referenced product have expired.

If the ANDA or 505(b)(2) NDA applicant has provided a Paragraph IV certification to the FDA, the applicant must send notice of the Paragraph IV certification to the NDA and patent holders once the application has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the paragraph IV certification. If the paragraph IV certification is challenged by an NDA holder or the patent owner(s) asserts a patent challenge to the paragraph IV certification, the FDA may not approve that application until the earlier of 30 months from the receipt of the notice of the paragraph IV certification, the expiration of the patent, when the infringement case concerning each such patent was favorably decided in the applicant's favor or settled, or such shorter or longer period as may be ordered by a court. This prohibition is generally referred to as the 30-month stay. In instances where an ANDA or 505(b)(2) NDA applicant files a paragraph IV certification, the NDA holder or patent owner(s) regularly take action to trigger the 30-month stay, recognizing that the related patent litigation may take many months or years to resolve.

The FDA also cannot approve an ANDA or 505(b)(2) application until all applicable non-patent exclusivities listed in the Orange Book for the branded reference drug have expired. For example, a pharmaceutical manufacturer may obtain five years of non-patent exclusivity upon NDA approval of a new chemical entity, or NCE, which is a drug containing an active moiety that has not been approved by FDA in any other NDA. An "active moiety" is defined as the molecule responsible for the drug substance's physiological or pharmacologic action. During that five-year exclusivity period, the FDA cannot accept for filing (and therefore cannot approve) any ANDA seeking approval of a generic version of that drug or any 505(b)(2) NDA that relies on the FDA's approval of the drug, provided that the FDA may accept an ANDA four years into the NCE exclusivity period if the ANDA applicant also files a Paragraph IV certification.

A drug, including one approved under Section 505(b)(2), may obtain a three-year period of exclusivity for a particular condition of approval, or change to a marketed product, such as a new formulation for a previously approved product, if one or more new clinical studies (other than bioavailability or bioequivalence studies) was essential to the approval of the application and was conducted/sponsored by the applicant. Should this occur, the FDA would be precluded from approving any ANDA or 505(b)(2) application for the protected modification until after that three-year exclusivity period has run. However, unlike NCE exclusivity, the FDA can accept an application and begin the review process during the exclusivity period.

Other Healthcare Laws and Compliance Requirements

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, and physician sunshine laws and regulations. If their operations are found to be in violation of any of such laws or any other governmental

regulations that apply, they may be subject to penalties, including, without limitation, civil and criminal penalties, damages, fines, the curtailment or restructuring of operations, exclusion from participation in federal and state healthcare programs and individual imprisonment.

Coverage and Reimbursement

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

Healthcare Reform

In March 2010, former President Obama signed the Affordable Care Act, which substantially changed the way healthcare is financed by both governmental and private insurers in the United States, and significantly affected the pharmaceutical industry. The Affordable Care Act contains a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and fraud and abuse changes. Additionally, the Affordable Care Act increases the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1%; requires collection of rebates for drugs paid by Medicaid managed care organizations; requires manufacturers to participate in a coverage gap discount program, under which they must agree to offer 70 percent point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and imposes a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs" to specified federal government programs.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the Affordable Care Act, and we expect there will be additional challenges and other efforts to repeal or replace the Affordable Care Act in the future. Other legislative changes have been proposed and adopted since the Affordable Care Act was enacted, including aggregate reductions of Medicare payments to providers of 2% per fiscal year and reduced payments to several types of Medicare providers. Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed bills designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Data Privacy and Security Laws

Numerous state, federal and foreign laws, including consumer protection laws and regulations, govern the collection, dissemination, use, access to, confidentiality and security of personal information, including health-related information. In the United States, numerous federal and state laws and regulations, including data breach notification laws, health information privacy and security laws and consumer protection laws and regulations that govern the

collection, use, disclosure, and protection of health-related and other personal information and could apply to our operations or the operations of our partners. In addition, certain foreign laws govern the privacy and security of personal data, including health-related data, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. Failure to comply with these laws, where applicable, can result in the imposition of significant civil and/or criminal penalties and private litigation. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to complicate compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing.

Employees and Human Capital Resources

As of December 31, 2023, we had 19 employees, all of whom were full-time. Approximately 37% of our employees hold advanced degrees. In February 2022, and again on May 4, 2023, we announced a restructuring to align resources to focus on our ongoing clinical programs and deliver on key development milestones. These actions to prioritize our ophthalmology programs, optimize resource allocation, extend our runway, and implement cost saving measures were designed to enable us to achieve multiple key clinical data readouts for UBX1325. As part of the May 2023 restructuring actions, we reduced our headcount by a total of nine employees, or approximately 29%, effective as of May 31, 2023, with three employees who departed as of June 30, 2023.

The majority of our employees work in our corporate headquarters. None of our employees are represented by a labor union or a collective bargaining agreement and we consider our relationship with our employees to be good.

Our human capital resources objectives are, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and additional employees. As such, we expend considerable time, attention, and financial resources on these activities. Our corporate culture, which is underpinned by our company values, is the overarching framework we use to make decisions related to people practices, including total compensation, short and long-term incentives, health and wellness, and employee engagement.

Facilities

Our corporate headquarters are located in South San Francisco, California, where we currently lease approximately 62,000 square feet of office and laboratory space pursuant to a lease dated February 28, 2019, of which approximately 23,000 square feet was subleased as of June 2021 through July 2024, and approximately 15,000 square feet was subleased as of July 2022 through June 2026 with an additional 17,000 square feet subleased as of September 2023 through June 2026. The majority of our employees work at our corporate headquarters.

Legal Proceedings

We are not currently involved in any litigation or legal proceedings that, in management's opinion, are likely to have any material adverse effect on our company. While we know of no imminent legal action in which we are likely to be involved, we may in the future become engaged in litigation or other legal proceedings. Regardless of the outcome, litigation can have an adverse impact due to defense fees, settlement costs, demands on management attention, and other concerns.

About UNITY

We were incorporated in the State of Delaware on March 30, 2009. Our registered trademarks include UNITY BIOTECHNOLOGY®. Other service marks, trademarks and trade names referred to in this document are the property of their respective owners.

Available Information

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended and we therefore file periodic reports, proxy statements and other information with the SEC, relating to our business, financial statements and other matters. The SEC maintains an Internet site, www.sec.gov, that contains reports, proxy statements and other information regarding issuers such as UNITY.

For more information about UNITY, including free access to our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, visit our website, www.unitybiotechnology.com. The information found on or accessible through our website is not incorporated into, and does not form a part of, this Annual Report on Form 10-K.

Item 1A. Risk Factors

This Annual Report on Form 10-K contains forward-looking information based on our current expectations. Because our business is subject to many risks and our actual results may differ materially from any forward-looking statements made by or on behalf of us, this section includes a discussion of important factors that could affect our business, operating results, financial condition and the trading price of our common stock. This discussion should be read in conjunction with the other information in this Annual Report on Form 10-K, including our financial statements and the notes accompanying those financial statements and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” The occurrence of any of the events or developments described below could have a material adverse effect on our business, results of operations, financial condition, prospects and stock price.

Risks Related to Our Limited Operating History, Financial Condition, and Capital Requirements

We are a clinical-stage biopharmaceutical company with a limited operating history and no products approved for commercial sale. We have incurred significant losses since our inception, and we anticipate that we will continue to incur losses for the foreseeable future, which, together with our limited operating history, make it difficult to assess our future viability.

We are a clinical-stage biopharmaceutical company with a limited operating history. Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We have not yet sought approval for commercial sale of any products and therefore have no products approved for commercial sale and have not generated any product revenue and have incurred losses in each year since our inception in March 2009. We have only a limited operating history upon which you can evaluate our business and prospects. In addition, we have limited experience and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical industry.

We have had significant operating losses since our inception. Our net loss for the years ended December 31, 2023 and 2022 was approximately \$39.9 million and \$44.5 million, respectively. As of December 31, 2023, we had an accumulated deficit of \$484.4 million. Substantially all of our losses have resulted from expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations. We expect to continue to incur losses for the foreseeable future, and we anticipate these losses will increase as we continue to develop our drug candidates, conduct clinical studies and pursue research and development activities. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our stockholders’ equity and working capital.

In recent fiscal periods our financial condition has raised substantial doubt as to our ability to continue as a going concern.

Based on our current operating plans and following the cash exercise by certain holders of existing warrants, we expect our existing capital resources will fund our planned operating expenses into the third quarter of 2025, which will be used to advance UBX1325 (foxelutoclax). We expect to continue to incur net operating losses for at least the next several years as we continue our research and development efforts, advance our drug candidates through preclinical and clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization. We

do not expect to generate revenue from any drug candidates that we develop until we obtain regulatory approval for one or more of such drug candidates and commercialize our products or enter into collaborative agreements with third parties.

In recent fiscal periods, these conditions have raised substantial doubt about our ability to continue as a going concern. For example, our independent registered public accounting firm included in its audit opinion for the year ended December 31, 2022 an explanatory paragraph that there was substantial doubt as to our ability to continue as a going concern. The reaction of investors to the inclusion of a going concern statement by our auditors may materially adversely affect our share price and our ability to raise new capital or enter into partnerships. While our financial statements have been prepared assuming that we will continue to operate as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business, we will need to raise additional funds. There is no assurance that funding will be available to us, will be obtained on terms favorable to us or will provide us with sufficient funds to meet our objectives. Failure to raise additional financing may adversely impact our ability to achieve our intended business objectives because without substantial additional capital, we may not be able to complete pivotal trials necessary to advance our product development and our programs. If we become unable to continue as a going concern, we may have to liquidate our assets and the values we receive for our assets in liquidation or dissolution could be significantly lower than the values reflected in our financial statements.

We will require substantial additional financing to achieve our goals, and a failure to obtain this capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our product development, other operations or commercialization efforts.

Since our inception, we have invested a significant portion of our efforts and financial resources in research and development activities. Preclinical studies and clinical studies for our drug candidates and additional research and development activities to discover and develop new drug candidates will require substantial funds to complete. As of December 31, 2023, we had capital resources consisting of cash, cash equivalents, and marketable securities of \$43.2 million. We believe that we will continue to expend substantial resources for the foreseeable future in connection with our programs, including the clinical development of UBX1325, and the development of any other drug candidates we may choose to pursue. These expenditures will include costs associated with conducting preclinical studies and clinical studies, obtaining regulatory approvals, and manufacturing and supply, as well as marketing and selling any products approved for sale. In addition, other unanticipated costs may arise. Because the outcome of any preclinical study or clinical study is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our current drug candidates or any future drug candidates.

In February 2022, and again on May 4, 2023, we announced restructuring efforts to align resources to focus on our ongoing clinical programs and deliver on key development milestones. These actions to prioritize our ophthalmology programs, optimize resource allocation, extend our runway, and implement cost saving measures were designed to enable us to achieve multiple key clinical data readouts for UBX1325. As part of the May 2023 restructuring actions, we reduced our headcount by a total of nine employees, or approximately 29%, effective as of May 31, 2023, with three employees who departed as of June 30, 2023.

Based on our current operating plans and following the cash exercise by certain holders of existing warrants, we expect our existing capital resources will fund our planned operating expenses into the third quarter of 2025, which will be used to advance UBX1325.

We will need substantial additional capital to operate our business and continue our development activities and without substantial additional capital, we may not be able to complete pivotal trials necessary to advance our product development and our programs. If funding is only available on less desirable terms or not available at all for companies in the life sciences industry or if we are unable to access our cash deposits held at financial institutions due any liquidity concerns at such financial institutions, our business and operations would be adversely affected.

To date, we have primarily financed our operations through the sale of equity securities. For example, in March 2022, we filed a Registration Statement on Form S-3 covering the offering of up to \$125.0 million of common stock, preferred stock, debt securities, warrants and units, which was declared effective by the SEC in May 2022, or the March 2022 Shelf Registration Statement. In March 2022, we also entered into a sales agreement, or the March 2022 Sales Agreement, with Cowen and Company, LLC, or Cowen, as sales agent to sell shares of our common stock, from

time to time, with aggregate gross sales proceeds of up to \$25.0 million pursuant to the March 2022 Shelf Registration Statement as an “at-the-market” offering under the Securities Act, or the March 2022 ATM Offering Program. Further, in October 2022, we filed a Registration Statement on Form S-3 covering the offering of up to \$250.0 million of common stock, preferred stock, debt securities, warrants and units, or the October 2022 Shelf Registration Statement and, together with the March 2022 Shelf Registration Statement, the shelf registration statements. In October 2022, we also entered into a sales agreement with Cowen as sales agent to sell shares of our common stock, from time to time, with aggregate gross sales proceeds of up to \$50.0 million pursuant to the October 2022 Shelf Registration Statement as an “at-the-market” offering under the Securities Act, or the October 2022 ATM Offering Program, and, together with the March 2022 ATM Offering Program, the ATM Offering Programs.

We will be required to seek additional funding in the future and currently intend to do so through collaborations, public or private equity offerings or debt financings, credit or loan facilities or a combination of one or more of these funding sources. Such financing may result in dilution to stockholders and the terms of any financing may adversely affect the rights of our stockholders. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Debt financing, if available, is likely to involve restrictive covenants limiting our flexibility in conducting future business activities, and, in the event of insolvency, debt holders would be repaid before holders of our equity securities received any distribution of our corporate assets.

Our ability to raise additional funds will depend on financial, economic and other factors, many of which are beyond our control. For example, financial markets have been negatively affected by high interest rates, rising inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions, and the potential for local and/or global economic recession. Such impacts may be exacerbated by unforeseen events or public health emergencies. Adequate funding may not be available to us on acceptable terms, or at all, particularly in light of these conditions. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

We currently have shelf registration statements effective and existing ATM Offering Programs, however, our ability to raise capital under these registration statements and through these ATM Offering Programs may be limited by, among other things, SEC rules and regulations impacting the eligibility of smaller companies to use Form S-3 for primary offerings of securities. Based on our public float, as of the date of the filing of this Annual Report on Form 10-K, we are only permitted to utilize a shelf registration statement, including the registration statements under which our ATM Offering Programs are operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the “baby shelf” rule. For so long as our public float is less than \$75.0 million, we may not sell more than the equivalent of one-third of our public float during any 12 consecutive months pursuant to the baby shelf rules. Although alternative public and private transaction structures may be available, these may require additional time and cost, may impose operational restrictions on us, and may not be available on attractive terms.

Our future capital requirements depend on many factors, including:

- the results of our ongoing clinical trials of UBX1325;
- our ability to reduce our operating expenses;
- the scope, progress, results and costs of researching and developing our drug candidates, and conducting preclinical studies and clinical studies;
- potential delays in or an increase in costs associated with our ongoing or planned preclinical studies or clinical trials;
- the timing of, and the costs involved in, obtaining regulatory approvals for our current drug candidates or any future drug candidates;
- the number and characteristics of any additional drug candidates we develop or acquire;

- the timing and amount of any milestone payments we are required to make pursuant to our license agreements;
- the cost of manufacturing our current drug candidates or any future drug candidates and any products we successfully commercialize;
- the cost of commercialization activities if our current drug candidates or any future drug candidates are approved for sale, including marketing, sales and distribution costs;
- our ability to maintain existing, and establish new, strategic collaborations, licensing 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;
- any product liability or other lawsuits related to our products;
- the costs associated with being a public company;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing our intellectual property portfolio;
- our ability to utilize our ATM Offering Programs and raise additional capital;
- whether we can maintain compliance with the continued listing requirements of Nasdaq;
- the availability of capital in the technology and life sciences industries following the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions; and
- the timing, receipt and amount of sales of any future approved products, if any.

Additional and sufficient funds may not be available when we need them, on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to:

- delay, limit, reduce or terminate preclinical studies, clinical studies or other development activities for our current drug candidates or any future drug candidate;
- delay, limit, reduce or terminate our research and development activities; or
- delay, limit, reduce or terminate our efforts to establish manufacturing and sales and marketing capabilities or other activities that may be necessary to commercialize our current drug candidates or any future drug candidate, or reduce our flexibility in developing or maintaining our sales and marketing strategy.

We also could choose or be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies or drug candidates that we would otherwise pursue on our own. We do not expect to realize revenue from sales of products or royalties from licensed products in the foreseeable future, if at all, and unless and until our drug candidates are clinically tested, approved for commercialization and successfully marketed.

We may not be able to maintain compliance with the continued listing requirements of Nasdaq, and, if so, we would be subject to delisting.

Our common stock is currently listed for trading on the Nasdaq Global Select Market under the symbol “UBX”. The continued listing of our common stock on Nasdaq is subject to our compliance with a number of listing standards. On June 3, 2022, we received a letter from the Listing Qualifications Staff of The Nasdaq Stock Market LLC indicating

that for the last 30 consecutive business days, the closing bid price of our common stock was below \$1.00 per share, which is the minimum required closing bid price for continued listing on the Nasdaq Global Select Market pursuant to Listing Rule 5450(a)(1). We had 180 calendar days, or until November 30, 2022, to regain compliance. To regain compliance, the closing bid price of our common stock needed to be at least \$1.00 per share for a minimum of ten consecutive business days. On October 19, 2022, we effected a 1-for-10 reverse stock split of our common stock seeking to regain compliance with Nasdaq Global Select Market's continued listing standards. From October 20, 2022 to November 2, 2022 (10 consecutive business days), the closing bid price of our common stock exceeded \$1.00 per share. Accordingly, on November 3, 2022, we received a notice from Nasdaq indicating that we have regained compliance with Listing Rule 5450(a)(1) as of such date.

Although we currently comply with the minimum bid requirement following the reverse stock split, our bid price could fall below \$1.00 per share again in the future, in which event we would receive another deficiency notice from Nasdaq advising us that we have 180 days to regain compliance by maintaining a minimum bid price of at least \$1.00 for a minimum of ten consecutive business days. Under certain circumstances, Nasdaq could require that the minimum bid price exceed \$1.00 for more than ten consecutive days before determining that a company complies. If we fail to satisfy the Nasdaq's continued listing requirements, we may transfer to the OTC Bulletin Board. Having our common stock trade on the OTC Bulletin Board could adversely affect the liquidity of our common stock. Any such transfer could make it more difficult to dispose of, or obtain accurate quotations for the price of, our common stock, and there also would likely be a reduction in our coverage by securities analysts and the news media, which could cause the price of our common stock to decline further and adversely impact the ability of stockholders to sell our common stock. We may also face other material adverse consequences in such event such as negative publicity, a decreased ability to obtain additional financing, diminished investor and/or employee confidence, and the loss of business development opportunities, any of which may contribute to a further decline in our stock price.

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, making it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control and may be difficult to predict, including:

- the timing, cost and level of investment in research, development and, if approved, commercialization activities relating to our drug candidates, which may change from time to time;
- the timing and status of enrollment for our clinical studies;
- the cost of manufacturing our drug 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 we may incur to acquire, develop or commercialize additional drug 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 studies for our drug candidates or competing drug 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 our drug candidates from regulatory authorities in the United States and internationally;

- coverage and reimbursement policies with respect to our drug candidates, if approved, and potential future drugs that compete with our products;
- the level of demand for our products, if approved, which may vary significantly over time; and
- potential disruption caused by unforeseen events and public health emergencies.

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 revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the 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.

Risks Related to Our Business and Product Development

Our core therapeutic approach to slow, halt, or reverse diseases of aging is based on our understanding of cellular senescence. Utilizing senolytic molecules to treat diseases of aging is a novel therapeutic approach, which exposes us to unforeseen risks and makes it difficult to predict the time and cost of drug development and potential for regulatory approval.

Our foundational science and lead drug candidate are based on senescence biology. We believe that we can develop drug candidates capable of eliminating or modulating accumulated senescent cells, when administered locally. In our development efforts we intend to explore senolytic medicines that use multiple modalities. However, our approach to treating diseases of aging is novel and the scientific research that forms the basis of our efforts to develop senolytic medicines is ongoing. We have only recently begun testing our senolytic molecules in humans and the majority of our current data supporting our hypothesis regarding senescence biology is limited to pre-clinical animal models and in vitro cell lines, the results of which may not translate into humans. We currently have no conclusive evidence in humans, that the accumulation or modulation of senescent cells is the underlying cause of tissue damage and dysfunction associated with many diseases of aging. For example, in August 2020, we announced the 12-week results from our Phase 2 study of UBX0101 in patients with moderate-to-severe painful OA of the knee. There was no statistically significant difference between any arm of UBX0101 and placebo at the 12-week primary endpoint for change from baseline in WOMAC-A, an established measurement of pain in OA. Given these results, we decided not to progress UBX0101 into pivotal studies and have narrowed our near-term focus mainly to our ongoing ophthalmologic disease programs.

Our current program, UBX1325 (foselutoclax), is a Bcl-xL inhibitor, and is intended to target senescent cells in the eye. While cellular senescence is a naturally occurring biological process, the administration of senolytic medicines to eliminate or cause the elimination or modulation of accumulated senescent cells in humans has not been widely tested and may potentially harm healthy tissue or result in unforeseen safety events or fail to achieve the intended therapeutic purpose entirely. We may also ultimately discover that our senolytic molecules do not possess certain properties required for therapeutic effectiveness, or that even if found to be effective in one type of tissue, that such molecules will be effective in other tissues. In addition, given the novel nature of this therapeutic approach, designing preclinical and clinical studies to demonstrate the effect of senolytic medicines is complex and exposes us to unforeseen risks. In addition, the scientific evidence to support the feasibility of developing systemic senolytic medicines is based primarily on preclinical data and not human clinical trials. We may spend substantial funds attempting to develop these drug candidates and never succeed in doing so.

No regulatory authority has granted approval for a senolytic medicine. As such, we believe the U.S. Food and Drug Administration, or the FDA, has limited experience with senescence, which may increase the complexity, uncertainty and length of the clinical development and regulatory approval process for our drug candidates. We may never receive

approval to market and commercialize any drug candidate. Even if we obtain regulatory approval, the approval may be for targets, disease indications or patient populations that are not as broad as we intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. We may be required to perform additional or unanticipated clinical studies to obtain approval or be subject to post-marketing testing requirements to maintain marketing authorization. If our other senolytic molecules prove to be ineffective, unsafe or commercially unviable, our entire senolytic platform and pipeline would have little, if any, value, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

Our business is currently dependent on the successful development of UBX1325, which is in early stages of clinical development.

We have no products approved for sale and all of our drug candidates are in early stages of development. We have one product candidate, UBX1325, in clinical development and are focused on advancing our ophthalmology program. In particular, in October 2020, we initiated a Phase 1 clinical study of UBX1325 in patients with DME or nAMD for whom anti-VEGF therapy was no longer considered beneficial, and in July, October, and November 2021, we announced positive data up to 24 weeks from this Phase 1 study. We initiated a Phase 2 proof-of-concept clinical study of UBX1325 in DME (BEHOLD) in May 2021, dosed the first patient in June 2021 and announced positive 24-week safety and efficacy data in November 2022, and announced positive 48-week safety and efficacy data in April 2023. In April 2022 we also dosed our first patient in our Phase 2 proof-of-concept study in nAMD (ENVISION), and we shared 16- and 24-week data in March 2023, and 48-week data in September 2023. We are actively enrolling a head-to-head Phase 2b (ASPIRE) study to explore the efficacy of UBX1325 in patients with DME compared to the current standard of care, aflibercept.

In February 2022, and again on May 4, 2023, we announced restructuring efforts to align resources to focus on our ongoing clinical programs and deliver on key development milestones. These actions to prioritize our ophthalmology programs, optimize resource allocation, extend our runway, and implement cost saving measures were designed to enable us to achieve multiple key clinical data readouts for UBX1325. As a result, our business, including our ability to finance our company and generate any revenue in the future, is currently dependent on the successful development of UBX1325. If UBX1325 does not demonstrate clinical benefit, we may be required to significantly delay or abandon its development. In the event UBX1325 is not successful in clinical development, we have limited resources and capital with which to develop additional drug candidates and we may be forced to sell or liquidate our business.

The clinical and commercial success of UBX1325, and any other future drug candidates, will depend on a number of factors, including the following:

- our ability to raise any additional required capital on acceptable terms, or at all;
- our ability to complete IND-enabling studies and successfully submit an IND or comparable applications in foreign jurisdictions;
- timely completion of our preclinical studies and clinical studies, which may be significantly slower, or cost more than we currently anticipate and will depend substantially upon the performance of third-party contractors, some of whom could be adversely impacted by unforeseen events such as pandemics and public health emergencies;
- whether we are required by the FDA or similar foreign regulatory agencies to conduct additional clinical studies or other studies beyond those planned to support the approval and commercialization of our drug candidates or any future drug candidates;
- acceptance of our proposed indications and primary endpoint assessments relating to the proposed indications of our drug candidates by the FDA and similar foreign regulatory authorities;
- our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities the safety, efficacy, and acceptable risk-to-benefit profile of our current drug candidates or any future drug candidates;

- the prevalence, duration and severity of potential side effects or other safety issues experienced with our drug candidates or future approved products, if any;
- the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;
- achieving and maintaining, and, where applicable, ensuring that our third-party contractors achieve and maintain compliance with our contractual obligations and with all regulatory requirements applicable to our current drug candidates or any future drug candidates or approved products, if any;
- the willingness of physicians, professional societies, operators of clinics, hospitals, and patients to recommend, utilize, or adopt any of our future drug candidates to treat diseases of aging;
- the ability of third parties with whom we contract to manufacture adequate clinical study and commercial supplies of our current drug candidates or any future drug candidates, to remain in good standing with regulatory agencies and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices, or cGMP;
- our ability to successfully develop a commercial strategy and thereafter commercialize our drug candidates or any future drug candidates in the United States, and internationally, if approved for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others;
- the convenience of our treatment or dosing regimen;
- acceptance by physicians, payors, and patients of the benefits, safety, and efficacy of our drug candidates or any future drug candidates, if approved, including relative to alternative and competing treatments;
- patient demand for our drug candidates, if approved;
- our ability to establish and enforce intellectual property rights in and to our drug candidates or any future drug candidates; and
- our ability to avoid third-party patent interference, intellectual property challenges, or intellectual property infringement claims.

These factors, many of which are beyond our control, could cause us to experience significant delays or be unable to obtain regulatory approvals or commercialize our drug candidates. Even if regulatory approvals are obtained, we may never achieve success in commercializing any of our drug candidates. Accordingly, we cannot provide assurances that we will be able to generate sufficient revenue through the sale of our drug candidates or any future drug candidates to continue our business or achieve profitability.

Other than UBX1325, all of our other programs are preclinical and face significant development risk.

Other than UBX1325, all of our other programs are in preclinical and early research stage. In addition, we have limited resources for which to develop any products other than UBX1325. Given the early stage nature of these programs, each of the drug candidates and programs faces substantial development risk. UBX1325 is the only current drug candidate that we have administered to humans, and as such, we face significant translational risk with our earlier stage drug candidates. We may also be required by the FDA or similar foreign regulatory agencies to conduct additional preclinical studies beyond those planned to support the commencement of additional clinical trials. Accordingly, there can be no assurance that we are able to bring any of our preclinical product candidates or development programs into the clinic or otherwise successfully develop them.

Clinical development involves a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure or delay can occur at any time during the clinical study process. Success in preclinical studies and early clinical studies does not ensure that later clinical studies will be successful. A number of companies in the biotechnology, and pharmaceutical industries have suffered significant setbacks in clinical studies, even after positive results in earlier preclinical studies or clinical studies. These setbacks have been caused by, among other things, preclinical findings made while clinical studies were underway and safety or efficacy observations made in clinical studies, including previously unreported adverse events. The results of our preclinical animal studies or studies in ex vivo human tissues may not be predictive of the results of outcomes in human clinical studies. For example, our senolytic molecules may demonstrate different chemical and pharmacological properties in patients than they do in laboratory studies or may interact with human biological systems in unforeseen or harmful ways.

Drug candidates in later stages of clinical studies may fail to show the desired pharmacological properties or safety and efficacy traits despite having progressed through preclinical studies and initial clinical studies. Notwithstanding any promising results in earlier studies, we cannot be certain that we will not face similar setbacks. Even if we are able to initiate and complete clinical studies, the results may not be sufficient to obtain regulatory approval for our drug candidates.

We cannot be certain that studies or trials for our drug candidates will begin on time, not require redesign, enroll an adequate number of subjects on time or be completed on schedule, if at all. Future pandemics or public health emergencies could cause or exacerbate these factors. For example, for our Phase 2 studies for UBX1325 and future studies, clinical sites may be unable to recruit and retain investigators and study staff, screen and enroll patients, patients may be unable to adhere to the study visit schedule, and the completion of the study could be delayed. Clinical studies can be prolonged, delayed or terminated for a variety of reasons, including:

- the FDA or comparable foreign regulatory authorities disagreeing with or requiring changes to the design or implementation of our clinical studies;
- delays in obtaining regulatory approval to commence or continue a trial;
- reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical study sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- obtaining institutional review board, or IRB, approval at each trial site;
- recruiting an adequate number of suitable patients to participate in a trial;
- having subjects complete a trial or return for post-treatment follow-up;
- encountering difficulties in gathering the range of biological data from patients needed to fully assess the impact of our drug candidates;
- clinical sites deviating from trial protocol or dropping out of a trial;
- addressing subject safety concerns that arise during the course of a trial;
- adding a sufficient number of clinical study sites; or
- obtaining sufficient product supply of drug candidate for use in preclinical studies or clinical studies from third-party suppliers some of whom could be adversely impacted by unforeseen events such as pandemics and public health emergencies.

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

- clinical studies of our drug candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to modify clinical study design, conduct additional clinical studies or abandon drug development programs, including all of our senolytic programs;
- the number of patients required for clinical studies of our drug candidates may be larger than we anticipate, enrollment in these clinical studies may be slower than we anticipate, or participants may drop out of these clinical studies at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements, fail to maintain adequate quality controls, or be unable to provide us with sufficient product supply to conduct and complete preclinical studies or clinical studies of our drug candidates in a timely manner, or at all;
- we or our investigators might have to suspend or terminate clinical studies of our drug candidates for various reasons, including noncompliance with regulatory requirements, a finding that our drug candidates have undesirable side effects or other unexpected characteristics, a finding that the participants are being exposed to unacceptable health risks, or due to unforeseen events such as pandemics and public health emergencies;
- the cost of clinical studies of our drug candidates may be greater than we anticipate;
- the quality of our drug candidates or other materials necessary to conduct preclinical studies or clinical studies of our drug candidates may be inadequate;
- regulators may revise the requirements for approving our drug candidates, or such requirements may not be as we anticipate; and
- future collaborators may conduct clinical studies in ways they view as advantageous to them but that are suboptimal for us.

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

- incur unplanned costs;
- be delayed in obtaining marketing approval for our drug candidates or fail to obtain marketing approval at all;
- obtain marketing approval in some countries and not in others;
- obtain marketing approval for indications or patient populations that are not as broad as intended or desired;
- obtain marketing approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to additional post-marketing testing requirements; or
- have the treatment removed from the market after obtaining marketing approval.

We could also encounter delays if a clinical study is suspended or terminated by us, by the IRBs of the institutions in which such trials are being conducted, by the Data Safety Monitoring Board, or DSMB, for such trial or by the FDA or other regulatory authorities. Such authorities may suspend or terminate a clinical study due to a number of factors, including failure to conduct the clinical study in accordance with regulatory requirements or our clinical protocols, inspection of the clinical study operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen 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 study.

Further, conducting clinical studies in foreign countries, as we may do for certain of our drug candidates, presents additional risks that may delay completion of our clinical studies. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries, including those caused by unforeseen events such as pandemics and public health emergencies similar to the COVID-19 pandemic.

Moreover, in January 2024, the U.S. House of Representatives introduced the BIOSECURE Act (H.R. 7085) and the Senate advance a substantially similar bill (S.3558), which legislation, if passed and enacted into law, would have the potential to restrict the ability of U.S. biopharmaceutical companies like us to purchase services or products from, or otherwise collaborate with, certain Chinese biotechnology companies “of concern” without losing the ability to contract with, or otherwise receive funding from, the U.S. government. We do business with companies in China and it is possible some of our contractual counterparties could be impacted by this legislation.

Principal investigators for our clinical studies may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or a regulatory authority concludes that the financial relationship may have affected the interpretation of the trial, the integrity of the data generated at the applicable clinical study site may be questioned and the utility of the clinical study itself may be jeopardized, which could result in the delay or rejection of the marketing application we submit. Any such delay or rejection could prevent or delay us from commercializing our current or future drug candidates.

If we experience termination or delays in the completion of any preclinical study or clinical study of our drug candidates, the commercial prospects of our drug candidates may be harmed, and our ability to generate revenues from any of these drug candidates will be delayed or unrealized. In addition, any delays in completing our clinical studies may increase our costs, slow down our drug candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may significantly harm our business, financial condition and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical studies may also ultimately lead to the denial of regulatory approval of our drug candidates. If one or more of our drug candidates or our senescence technology generally prove to be ineffective, unsafe or commercially unviable, our platform and pipeline would have significantly diminished value, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

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

- the patient eligibility criteria defined in the protocol;
- the size of the patient population required for analysis of the trial’s primary endpoints;
- the proximity of patients to trial sites;

- patients' fear of visiting or traveling to trial sites due to pandemics and public health emergencies;
- the design of the trial;
- our ability to recruit clinical study investigators with the appropriate competencies and experience;
- clinicians' and patients' perceptions as to the potential advantages of the drug candidate being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating; and
- our ability to obtain and maintain patient consents.

In addition, our clinical studies may compete with other clinical studies for drug candidates that are in the same therapeutic areas as our drug candidates. 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 studies at the same clinical study sites that some of our competitors use, which will reduce the number of patients who are available for our clinical studies in such clinical study site.

Further, the administration of senolytic medicines designed to eliminate or cause the elimination of senescent cells and thereby modulate their associated SASP may result in unforeseen events, including by harming healthy tissues. As a result, it is possible that safety concerns could negatively affect patient enrollment among the patient populations that we intend to treat, including among those in indications with a low risk of mortality. Delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical studies, which could prevent completion of these trials and adversely affect our ability to advance the development of our drug candidates.

Interim, "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 may publicly disclose top-line or preliminary data from our clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or 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 different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Top-line or preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the top-line or preliminary data we previously published. As a result, top-line and preliminary data should be viewed with caution until the final data is 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 conduct are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data becomes available. Adverse differences between interim data and final data could significantly harm our business prospects. Further, disclosure of interim data by us or by our competitors could result in volatility in the price of our common stock.

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 or product, our ability to make certain claims about our products, and our company in general. 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, our product candidates may be harmed, which could harm our business, operating results, prospects or financial condition.

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

The ability of the FDA and other government agencies to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies, including a prolonged government shutdown, may cause significant regulatory delays and, therefore, delay our efforts to seek approvals and adversely affect our business, financial condition, results of operations, or cash flows. 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.

Our drug candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.

Undesirable side effects caused by our drug candidates could cause us or regulatory authorities to interrupt, delay or halt clinical studies and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. Other than our clinical studies of UBX0101 and UBX1325 (foselutoclax), senolytic medicines designed to eliminate or cause the elimination of senescent cells have never been tested in humans. As a result, although UBX1325 has been well tolerated in our Phase 1 and Phase 2 clinical studies with no adversities that would prevent advancement into later stage clinical trials as of the date of this Annual Report on Form 10-K, UBX1325 could reveal a high and unacceptable severity and prevalence of side effects, and it is possible that patients enrolled in such clinical studies could respond in unexpected ways. For instance, in preclinical in vivo animal and ex vivo human tissue studies, our senolytic molecules have exhibited clearance of senescent cells; however, the elimination of accumulated senescent cells may result in unforeseen events, including harming healthy cells or tissues. In addition, the entry by cells into a senescent state is a natural biological process that we believe may have protective effects, such as halting the proliferation of damaged cells. The treatment of tissues with senolytic molecules could interfere with such protective processes.

If unacceptable side effects arise in the development of our drug candidates, we, the FDA, the IRBs at the institutions in which our studies are conducted, or the DSMB could suspend or terminate our clinical studies, or the FDA or comparable foreign regulatory authorities could order us to cease clinical studies or deny approval of our drug candidates for any or all targeted indications. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete any of our clinical studies or result in potential product liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff. We expect to have to train medical personnel using our drug candidates to understand the side effect profiles for our clinical studies and upon any commercialization of any of our drug candidates. Inadequate training in recognizing or managing the potential side effects of our drug candidates could result in patient injury or death. Any of these occurrences may harm our business, financial condition and prospects significantly.

In addition, even if we successfully advance any of our drug candidates into and through clinical studies, such trials will likely only include a limited number of subjects and limited duration of exposure to our drug candidates. As a result, we cannot be assured that adverse effects of our drug candidates will not be uncovered when a significantly larger number of patients are exposed to the drug candidate. Further, clinical studies may not be sufficient to determine

the effect and safety consequences of taking our drug candidates over a multi-year period. There can be no assurance that it will demonstrate a similarly favorable safety profile in subsequent clinical trials.

If any of our drug candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw their approval of the product;
- we may be required to recall a product or change the way such product is administered to patients;
- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product or any component thereof;
- regulatory authorities may require the addition of labeling statements, such as a “black box” warning or a contraindication;
- we may be required to implement a Risk Evaluation and Mitigation Strategy, or REMS, or create a Medication Guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients;
- the product may become less competitive; and
- our reputation may suffer.

Any of the foregoing events could prevent us from achieving or maintaining market acceptance of the particular drug candidate, if approved, and result in the loss of significant revenues to us, which would materially and adversely affect our results of operations and business. In addition, if one or more of our drug candidates or our senescence approach generally prove to be unsafe, our entire platform and pipeline could be affected, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

We may not be successful in our efforts to continue to create a pipeline of drug candidates or to develop commercially successful products. If we fail to successfully identify and develop additional drug candidates, our commercial opportunity may be limited.

We are committed to developing senolytic medicines that slow, halt, or reverse diseases of aging, and we are currently advancing multiple senolytic molecules to address a variety of diseases of aging, including ophthalmologic disorders. As senolytic medicines are not limited to intervention by a single mode of action or molecular target, we believe that we can modulate a number of biologic pathways in order to trigger the beneficial elimination of senescent cells. However, our core therapeutic approach is based on our belief that senescent cells drive diseases of aging, and that hypothesis has not yet been proven. In addition, we do not know if we will be able to develop medicines that selectively eliminate senescent cells or whether the elimination of such senescent cells will mitigate the effects of or effectively treat any diseases.

In addition, identifying, developing, obtaining regulatory approval and commercializing drug candidates for the treatment of diseases of aging will require substantial additional funding and is prone to the risks of failure inherent in drug development. Research programs to identify drug candidates also require substantial technical, financial and human resources, regardless of whether or not any drug candidates are ultimately identified, and even if our preclinical research programs initially show promise in identifying potential drug candidates, they may fail to yield drug candidates for clinical development.

While we have a number of drug discovery programs targeting senescent cells, we do not know whether these will be successful, or whether we will be able to identify novel senolytic mechanisms to continue to build our pipeline. We also cannot provide any assurance that we will be able to successfully identify or acquire additional drug candidates, advance any of these additional drug candidates through the development process, successfully commercialize any

such additional drug candidates, if approved, or assemble sufficient resources to identify, acquire, develop or, if approved, commercialize additional drug candidates. If we are unable to successfully identify, acquire, develop and commercialize additional drug candidates, our commercial opportunities may be limited.

We may be unable to obtain regulatory approval for our drug candidates under applicable regulatory requirements. The denial or delay of any such approval would delay commercialization of our drug candidates and adversely impact our potential to generate revenue, our business and our results of operations.

To gain approval to market our drug candidates, we must provide the FDA and foreign regulatory authorities with clinical data that adequately demonstrate the safety and efficacy of the drug candidate for the intended indication applied for in the applicable regulatory filing. For our senolytic medicines, we must also demonstrate that eliminating or causing the elimination of senescent cells and modulating relevant associated SASP factors will lead to the improvement of well-defined and measurable endpoints.

We have not previously submitted an NDA, or biologics license application, or BLA, to the FDA, or similar approval filings to comparable foreign regulatory authorities. An NDA, BLA or other relevant regulatory filing must include extensive preclinical and clinical data and supporting information to establish that the drug candidate is safe and effective, or that a biological drug candidate is safe, pure and potent for each desired indication. The NDA, BLA or other relevant regulatory submission must also include significant information regarding the chemistry, manufacturing and controls for the product.

The research, testing, manufacturing, labeling, approval, sale, marketing, and distribution of drug and biologic products are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, and such regulations differ from country to country. We are not permitted to market our drug candidates in the United States or in any foreign countries until they receive the requisite approval from the applicable regulatory authorities of such jurisdictions.

The FDA or any foreign regulatory bodies can delay, limit or deny approval of our drug candidates for many reasons, including:

- our inability to demonstrate to the satisfaction of the FDA or the applicable foreign regulatory body that any of our drug candidates is safe and effective for the requested indication;
- the FDA's or the applicable foreign regulatory agency's disagreement with our trial protocol or the interpretation of data from preclinical studies or clinical studies;
- our inability to demonstrate that the clinical and other benefits of any of our drug candidates outweigh any safety or other perceived risks;
- the FDA's or the applicable foreign regulatory agency's requirement for additional preclinical studies or clinical studies;
- the FDA's or the applicable foreign regulatory agency's failure to approve the formulation, labeling or specifications of our current or future drug candidates, including UBX1325;
- the FDA's or the applicable foreign regulatory agency's failure to approve the manufacturing processes or facilities of third-party manufacturers upon which we rely; or
- the potential for approval policies or regulations of the FDA or the applicable foreign regulatory agencies to significantly change in a manner that renders our clinical data insufficient for approval.

Of the large number of biopharmaceutical and pharmaceutical products in development, only a small percentage successfully complete the FDA or other regulatory approval processes and are commercialized.

Even if we eventually complete clinical testing and receive approval from the FDA or applicable foreign agencies for any of our drug candidates, the FDA or the applicable foreign regulatory agency may grant approval contingent on the performance of costly additional clinical studies which may be required after approval. The FDA or the applicable foreign regulatory agency also may approve our current drug candidates for limited indications or narrower patient populations than we originally requested, and the FDA, or applicable foreign regulatory agency, may not approve our drug candidates with the labeling that we believe is necessary or desirable for the successful commercialization of such drug candidates.

Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of our drug candidates and would materially adversely impact our business and prospects.

Even if our current drug candidates or any future drug candidates obtain regulatory approval, they may fail to achieve the broad degree of physician and patient adoption and use necessary for commercial success.

Even if one or more of our drug candidates receive FDA or other regulatory approvals, the commercial success of any of our current or future drug candidates will depend significantly on the broad adoption and use of the resulting product by physicians and patients for approved indications. Our drug candidates may not be commercially successful for a variety of reasons, including: competitive factors, pricing or physician preference, reimbursement by insurers, and the degree and rate of physician and patient adoption of our current or future drug candidates. If approved, the commercial success of our drug candidates will depend on a number of factors, including:

- the clinical indications for which the product is approved and patient demand for approved products that treat those indications;
- the safety and efficacy of our product as compared to other available therapies;
- the availability of coverage and adequate reimbursement from managed care plans, insurers and other healthcare payors for any of our drug candidates that may be approved;
- acceptance by physicians, operators of clinics, and patients of the product as a safe and effective treatment;
- physician and patient willingness to adopt a new therapy over other available therapies to treat approved indications;
- overcoming any biases physicians or patients may have toward particular therapies for the treatment of approved indications;
- proper training and administration of our drug candidates by physicians and medical staff;
- public misperception regarding the use of our therapies, or public bias against “anti-aging” companies;
- patient satisfaction with the results and administration of our drug candidates and overall treatment experience, including, for example, the convenience of any dosing regimen;
- the cost of treatment with our drug candidates in relation to alternative treatments and reimbursement levels, if any, and willingness to pay for the product, if approved, on the part of insurance companies and other third-party payers, physicians and patients;
- the willingness of patients to pay for certain of our products, if approved;
- the revenue and profitability that our products may offer a physician as compared to alternative therapies;
- the prevalence and severity of side effects;

- limitations or warnings contained in the FDA-approved labeling for our products;
- the willingness of physicians, operators of clinics and patients to utilize or adopt our products as a solution;
- any FDA requirement to undertake a REMS;
- the effectiveness of our sales, marketing and distribution efforts;
- adverse publicity about our products or favorable publicity about competitive products; and
- potential product liability claims.

We cannot assure you that our current or future drug candidates, if approved, will achieve broad market acceptance among physicians and patients. Any failure by our drug candidates that obtain regulatory approval to achieve market acceptance or commercial success would adversely affect our results of operations.

We rely on third-party suppliers to manufacture supplies of our drug candidates and we intend to continue to rely on third parties to produce such preclinical and clinical supplies as well as commercial supplies of any approved product. The loss of these suppliers, or their failure to comply with applicable regulatory requirements or to provide us with sufficient quantities at acceptable quality levels or prices, or at all, would materially and adversely affect our business.

We do not have the infrastructure or capability internally to manufacture supplies of our drug candidates or the materials necessary to produce our drug candidates for use in the conduct of our clinical studies, and we lack the internal resources and the capability to manufacture any of our drug candidates on a clinical or commercial scale. The facilities used by our contract manufacturers to manufacture our drug candidates are subject to various regulatory requirements and may be subject to the inspection of the FDA or other regulatory authorities. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturing partners for compliance with the regulatory requirements, known as cGMPs. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or comparable regulatory authorities in foreign jurisdictions, we may not be able to rely on their manufacturing facilities for the manufacture of our drug candidates. In addition, we have 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 these facilities inadequate for the manufacture of our drug candidates or if such facilities are subject to enforcement action in the future or are otherwise inadequate, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our drug candidates.

We currently intend to supply all of our drug candidates in all territories for our planned clinical development programs. We currently rely on third parties at key stages in our supply chain. For instance, the supply chains for our current drug candidates involve several manufacturers that specialize in specific operations of the manufacturing process, specifically, raw materials manufacturing, drug substance manufacturing and drug product manufacturing. As a result, the supply chain for the manufacturing of our drug candidates is complicated and we expect the logistical challenges associated with our supply chain to grow more complex as our drug candidates progress through the clinical trial process. Some of these third parties have in the past and may in the future also be adversely impacted by unforeseen events and public health emergencies. For example, one of the manufacturers in our supply chain for UBX0101 experienced a two-week shutdown in April 2020 due to a COVID-19 related incident. While this incident did not impact our supply of UBX0101 for clinical studies being conducted in April 2020, there can be no assurance that our supply chain for any of our candidates and clinical trials will not be disrupted in the future due to such incidents.

We do not have any control over the process or timing of the acquisition or manufacture of materials by our manufacturers. Further, we have not yet engaged any manufacturers for the commercial supply of our current drug candidates. Although we intend to enter into such agreements prior to commercial launch of any of our drug candidates, we may be unable to enter into any such agreement or do so on commercially reasonable terms, which

could have a material adverse impact upon our business. We generally do not begin a preclinical study and we do not intend to initiate any clinical studies unless we believe we have access to a sufficient supply of a drug candidate to complete such study or trial. In addition, any significant delay in, or quality control problems with respect to, the supply of a drug candidate, or the raw material components thereof, for an ongoing study or trial could considerably delay completion of our preclinical studies or future clinical studies, product testing and potential regulatory approval of our drug candidates.

Moreover, if there is a disruption to one or more of our third-party manufacturers' or suppliers' relevant operations, or if we are unable to enter into arrangements for the commercial supply of our drug candidates, we will have no other means of producing our current drug candidates until they restore the affected facilities or we or they procure alternative manufacturing facilities or sources of supply. Our ability to progress our preclinical and clinical programs could be materially and adversely impacted if any of the third-party suppliers upon which we rely were to experience a significant business challenge, disruption or failure due to issues such as financial difficulties or bankruptcy, issues relating to other customers such as regulatory or quality compliance issues, or other financial, legal, regulatory or reputational issues.

Additionally, any damage to or destruction of our third-party manufacturers' or suppliers' facilities or equipment may significantly impair our ability to manufacture our drug candidates on a timely basis.

Further, to manufacture our current drug candidates in the quantities that we believe would be required to meet anticipated market demand, our third-party manufacturers would likely need to increase manufacturing capacity and, in some cases, we would need to secure alternative sources of commercial supply, which could involve significant challenges and may require additional regulatory approvals. In addition, the development of commercial-scale manufacturing capabilities may require us and our third-party manufacturers to invest substantial additional funds and hire and retain the technical personnel who have the necessary manufacturing experience. Neither we nor our third-party manufacturers may successfully complete any required increase to existing manufacturing capacity in a timely manner, or at all. If our manufacturers or we are unable to purchase the raw materials necessary for the manufacture of our drug candidates on acceptable terms, at sufficient quality levels, or in adequate quantities, if at all, the commercial launch of our current drug candidates or any future drug candidates would be delayed or there would be a shortage in supply, which would impair our ability to generate revenues from the sale of such drug candidates, if approved.

If we fail to attract and retain key personnel, we may be unable to successfully develop our current drug candidates or any future drug candidates, conduct our clinical studies and commercialize our current or any future drug candidates.

Our success depends in part on our continued ability to attract, retain and motivate highly qualified management and employees. In February 2022, and again on May 4, 2023, we announced restructuring actions to advance corporate strategy and focus on key ophthalmology programs and, as of May 2023, the UBX1325 program in DME in particular. As a result of the restructuring and other factors, additional unplanned loss of personnel may occur despite our efforts to retain management and employees. Additionally, continued disruption caused by the transition or by the loss of ongoing services of any other members of our management or employees could delay or prevent the successful development of our ongoing programs, initiation or completion of our planned clinical studies or the commercialization of our current drug candidates or any future drug candidates. Competition for qualified personnel in the biotechnology and pharmaceuticals field is intense due to the limited number of individuals who possess the skills and experience required by our industry, and we may not be able to adequately address attrition, including unplanned, attrition, and as a result, the timely completion of our clinical trials could be jeopardized. Further, our ability to attract and retain highly qualified management and employees relies in part on our ability to offer competitive compensation and equity packages to such key personnel. We use restricted stock units, or RSUs, and stock options as a key component of compensation for key employees in order to align employee interests with the interests of our stockholder, provide competitive compensation packages, and encourage employee retention. Our stock price volatility or lack of positive performance may cause periods of time during which option exercise prices might be less than the sale price of our common stock or the value of RSUs might be less competitive, which may lessen the retentive attributes of these awards. We are also limited as to the number of equity awards that we may grant under our stock plans, and we are unsure how effective different stock-based awards with different vesting schedules will be to retain

key employees. As a result, we may have to incur increased compensation costs, change our equity compensation strategy, or find it difficult to attract, retain and motivate employees.

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

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

We rely on third parties in the conduct of critical portions of our preclinical studies and intend to rely on third parties in the conduct of critical portions of our future clinical studies. If these third parties do not successfully carry out their contractual duties, fail to comply with applicable regulatory requirements or meet expected deadlines, we may be unable to obtain regulatory approval for our drug candidates. Some of these third parties may also be adversely impacted by unforeseen events and public health emergencies.

We currently do not have the ability to independently conduct preclinical studies that comply with the regulatory requirements known as good laboratory practice, or GLP, requirements. We also do not currently have the ability to independently conduct any clinical studies. The FDA and regulatory authorities in other jurisdictions require us to comply with regulations and standards, commonly referred to as good clinical practice, or GCP, requirements for conducting, monitoring, recording and reporting the results of clinical studies, in order to ensure that the data and results are scientifically credible and accurate and that the trial subjects are adequately informed of the potential risks of participating in clinical studies. We rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, to conduct GLP-compliant preclinical studies and GCP-compliant clinical studies on our drug candidates properly and on time. While we have agreements governing their activities, we control only certain aspects of their activities and have limited influence over their actual performance. The third parties with whom we contract for execution of our GLP-compliant preclinical studies and our GCP-compliant clinical studies play a significant role in the conduct of these studies and trials and the subsequent collection and analysis of data. These third parties are not our employees and, except for restrictions imposed by our contracts with such third parties, we have limited ability to control the amount or timing of resources that they devote to our programs. Although we rely on these third parties to conduct our GLP-compliant preclinical studies and GCP-compliant clinical studies, we remain responsible for ensuring that each of our GLP preclinical studies and clinical studies is conducted in accordance with its investigational plan and protocol and applicable laws and regulations, and our reliance on the CROs does not relieve us of our regulatory responsibilities.

Many of the third parties with whom we contract may also have relationships with other commercial entities, potentially including our competitors, for whom they may also be conducting clinical studies or other drug development activities that could harm our competitive position. If the third parties conducting our preclinical studies or our clinical studies do not adequately perform their contractual duties or obligations, experience significant business challenges, disruptions or failures, do not meet expected deadlines, terminate their agreements with us or need to be replaced, or if the quality or accuracy of the data they obtain is compromised due to their failure to adhere to our protocols or to GCPs, or for any other reason, we may need to enter into new arrangements with alternative third parties. This could be difficult, costly or impossible, and our preclinical studies or clinical studies may need to be extended, delayed, terminated or repeated. As a result, we may not be able to obtain regulatory approval in a timely fashion, or at all, for the applicable drug candidate, our financial results and the commercial prospects for our drug candidates would be harmed, our costs could increase, and our ability to generate revenues could be delayed.

We face significant competition in an environment of rapid technological and scientific change, and our drug candidates, if approved, will face significant competition and our failure to effectively compete may prevent us from achieving significant market penetration. Most of our competitors have significantly greater resources than we do, and we may not be able to successfully compete.

The biotechnology and pharmaceutical industries in particular are characterized by rapidly advancing technologies, intense competition and a strong emphasis on developing proprietary therapeutics. Numerous companies are engaged in the development, patenting, manufacturing and marketing of healthcare products competitive with those that we are developing. We face competition from a number of sources, such as pharmaceutical companies, generic drug companies, biotechnology companies and academic and research institutions, many of which have greater financial resources, marketing capabilities, sales forces, manufacturing capabilities, research and development capabilities, clinical study expertise, intellectual property portfolios, experience in obtaining patents and regulatory approvals for drug candidates and other resources than we do. Some of the companies that offer competing products also have a broad range of other product offerings, large direct sales forces and long-term customer relationships with our target physicians, which could inhibit our market penetration efforts. Mergers and acquisitions in the pharmaceutical industry may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical study sites and patient registration for clinical studies, as well as in acquiring technologies complementary to, or necessary for, our programs. In addition, certain of our drug candidates, if approved, may compete with other products that treat diseases of aging, including over the counter, or OTC, treatments, for a share of some patients' discretionary budgets and for physicians' attention within their clinical practices.

We are aware of other companies seeking to develop treatments to prevent or treat diseases of aging through various biological pathways. Within our lead senolytic program in ophthalmology diseases, our drug candidates would compete against current therapies from a wide range of companies and technologies, including current standard of care treatments such as anti-VEGF antibodies (bevacizumab, ranibizumab, aflibercept, brolocizumab), bispecific antibodies (faricimab), intravitreal steroid (dexamethasone), high-dose Eylea, complement inhibitors (e.g., pegcetacoplan) for the geographic atrophy form of AMD, and pan-retinal photocoagulation by laser. There are also potentially disease-modifying therapeutics being developed by several pharmaceutical and biotechnology companies, including Roche/Genentech and Regeneron.

Further, we believe that potential competitors may be able to develop senolytic medicines utilizing well-established molecules and pathways, which could enable the development of competitive drug candidates utilizing the same cellular senescence biological theories.

Certain alternative treatments offered by competitors may be available at lower prices and may offer greater efficacy or better safety profiles. Furthermore, currently approved products could be discovered to have application for treatment of diseases of aging generally, which could give such products significant regulatory and market timing advantages over any of our drug candidates. Our competitors also may obtain FDA, EMA or other regulatory approval for their products more rapidly than we may obtain approval for ours and may obtain orphan product exclusivity from the FDA for indications our drug candidates are targeting, which could result in our competitors establishing a strong market position before we are able to enter the market. Newly developed systemic or non-systemic treatments that replace existing therapies that currently are only utilized in patients suffering from severe disease may also have lessened side effects or reduced prices compared to current therapies, which make them more attractive for patients suffering from mild to moderate disease. Even if a generic or OTC product is less effective than our drug candidates, it may be more quickly adopted by physicians and patients than our competing drug candidates based upon cost or convenience.

The successful commercialization of our drug candidates will depend in part on the extent to which governmental authorities and health insurers establish adequate coverage, reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our drug candidates, if approved, could limit our ability to market those products and decrease our ability to generate revenue.

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

Third-party payors increasingly are challenging prices charged for pharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs or biologics when an equivalent generic drug, biosimilar or a less expensive therapy is available. It is possible that a third-party payor may consider our drug candidates as substitutable and only offer to reimburse patients for the cost of the less expensive product. Even if we show improved efficacy or improved convenience of administration with our drug candidates, pricing of existing third-party therapeutics may limit the amount we will be able to charge for our drug candidates. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in our drug candidates. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our drug candidates and may not be able to obtain a satisfactory financial return on our investment in the development of drug candidates.

There is significant uncertainty related to the insurance coverage and reimbursement of newly approved products. In the United States, third-party payors, including private and governmental payors, such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs and biologics will be covered. The Medicare and Medicaid programs increasingly are used as models in the United States for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs and biologics. Some third-party payors may require pre-approval of coverage for new or innovative devices or drug therapies before they will reimburse healthcare providers who use such therapies. We cannot predict at this time what third-party payors will decide with respect to the coverage and reimbursement for our drug candidates.

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

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other countries have and will continue to put pressure on the pricing and usage of our drug candidates. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products but monitor and control company profits.

Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our drug candidates. Accordingly, in markets outside the United States, the reimbursement for our drug candidates may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our drug candidates. We expect to experience pricing pressures in connection with the sale of our drug candidates due to the trend toward managed health care, the increasing influence of health maintenance organizations and additional legislative changes.

The downward pressure on healthcare costs in general, particularly prescription drugs and biologics and surgical procedures and other treatments, has become intense. As a result, increasingly high barriers are being erected to the entry of new products.

We currently have no sales organization. If we are unable to establish sales capabilities on our own or through third parties, we may not be able to market and sell our drug candidates effectively in the U.S. and foreign jurisdictions, if approved, or generate product revenue.

We currently do not have a marketing or sales organization. In order to commercialize our drug candidates in the United States and foreign jurisdictions, we must build our marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services, and we may not be successful in doing so. If any of our drug candidates receive regulatory approval, we expect to establish a sales organization with technical expertise and supporting distribution capabilities to commercialize each such drug candidate, which will be expensive and time consuming. We have no prior experience in the marketing, sale and distribution of pharmaceutical products and there are significant risks involved in building and managing a sales organization, including our ability to hire, retain, and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel, and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may choose to collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. If we are unable to enter into such arrangements on acceptable terms or at all, we may not be able to successfully commercialize our drug candidates. If we are not successful in commercializing our drug candidates or any future drug candidates, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our current or future drug candidates.

We face an inherent risk of product liability as a result of the clinical testing of our drug candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if any product we develop allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, and a failure to warn of dangers inherent in the product, negligence, strict liability, and a breach of warranty. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our drug candidates.

Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our current or future drug candidates;
- injury to our reputation;
- withdrawal of clinical study participants;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- regulatory investigations, product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue; and

- the inability to commercialize our current or any future drug candidates.

Our inability to obtain and maintain sufficient product liability insurance at an acceptable cost and scope of coverage to protect against potential product liability claims could prevent or inhibit the commercialization of our current or any future drug candidates we develop. We currently carry product liability insurance covering our clinical studies. Although we maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. Our insurance policies also have various exclusions and deductibles, and we may be subject to a product liability claim for which we have no coverage. We will have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient funds to pay such amounts. Moreover, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses. If and when we obtain approval for marketing any of our drug candidates, we intend to expand our insurance coverage to include the sale of such drug candidate; however, we may be unable to obtain this liability insurance on commercially reasonable terms or at all.

Our existing collaborations as well as additional collaboration arrangements that we may enter into in the future may not be successful, which could adversely affect our ability to develop and commercialize our drug candidates.

We utilize external collaborations and currently maintain several active early-stage research and discovery focused collaborations. In the future, we may seek additional collaboration arrangements for the commercialization, or potentially for the development, of certain of our drug candidates depending on the merits of retaining commercialization rights for ourselves as compared to entering into collaboration arrangements. To the extent that we decide to enter into additional collaboration agreements in the future, we may face significant competition in seeking appropriate collaborators. Moreover, collaboration arrangements are complex and time-consuming to negotiate, document, implement and maintain and challenging to manage. We may not be successful in our efforts to prudently manage our existing collaborations or to enter new ones should we chose to do so. The terms of new collaborations, or other arrangements that we may establish may not be favorable to us.

The success of our collaboration arrangements will depend heavily on the efforts and activities of our collaborators and partners. Collaborations are subject to numerous risks, which may include risks that:

- collaborators and partners have significant discretion in determining the efforts and resources that they will apply to collaborations and they may not devote the level of effort or resources we expect;
- collaborators may not pursue development and commercialization of our drug candidates or may elect not to continue or renew development or commercialization programs based on clinical study results, changes in their strategic focus due to their acquisition of competitive products or their internal development of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators may delay clinical studies, provide insufficient funding for a clinical study program, stop a clinical study, abandon a drug candidate, repeat or conduct new clinical studies or require a new formulation of a drug candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or drug candidates;
- a collaborator with marketing, manufacturing, and distribution rights to one or more products may not commit sufficient resources to or otherwise not perform satisfactorily in carrying out these activities;
- we could grant exclusive rights to our collaborators that would prevent us from collaborating with others;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation

that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;

- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our current or future drug candidates or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated, resulting in a need for additional capital to pursue further development or commercialization of the applicable current or future drug candidates;
- collaborators may own or co-own intellectual property covering products that results from our collaborating with them, and in such cases, we would not have the exclusive right to develop or commercialize such intellectual property;
- disputes may arise with respect to the ownership of any intellectual property developed pursuant to our collaborations;
- a collaborator's sales and marketing activities or other operations may not be in compliance with applicable laws resulting in civil or criminal proceedings; and
- collaborators may be adversely impacted by unforeseen events and public health emergencies.

Risks Related to Intellectual Property

Our senolytic medicine platform and any future products that we commercialize could be alleged to infringe patent rights and other proprietary rights of third parties, which may require costly litigation and, if we are not successful, could cause us to pay substantial damages and/or limit our ability to commercialize our products.

Our commercial success depends on our ability to develop, manufacture and market our senolytic medicines and future drug candidates and use our proprietary technology without infringing the patents and other proprietary rights of third parties. Intellectual property disputes can be costly to defend and may cause our business, operating results and financial condition to suffer. We operate in an industry with extensive intellectual property litigation. As the biopharmaceutical and pharmaceutical industries expand and more patents are issued, the risk increases that there may be patents issued to third parties that relate to our products and technology of which we are not aware or that we may need to challenge to continue our operations as currently contemplated.

Whether merited or not, we may face allegations that we have infringed the trademarks, copyrights, patents and other intellectual property rights of third parties, including patents held by our competitors or by non-practicing entities. We may also face allegations that our employees have misappropriated the intellectual property rights of their former employers or other third parties.

Litigation may make it necessary to defend ourselves by determining the scope, enforceability, and validity of third-party proprietary rights, or to establish our proprietary rights. Regardless of whether claims that we are infringing patents or other intellectual property rights have merit, the claims can be time consuming, divert management attention and financial resources and are costly to evaluate and defend. Results of any such litigation are difficult to predict and may require us to stop treating certain conditions, obtain licenses or modify our products and features while we develop non-infringing substitutes, or may result in significant settlement costs. For example, litigation can involve substantial damages for infringement (and if the court finds that the infringement was willful, we could be ordered to pay treble damages and the patent owner's attorneys' fees), and the court could prohibit us from selling or licensing our products unless the third-party licenses rights to us, which it is not required to do at a commercially reasonable price or at all. If a license is available from a third party, we may have to pay substantial royalties, upfront fees or grant cross-licenses to intellectual property rights for our products. We may also have to redesign our products so they do not infringe third-party intellectual property rights, which may not be possible at all or may require substantial monetary expenditures and time, during which our products may not be available for manufacture, use, or sale.

In addition, patent applications in the United States and many international jurisdictions are typically not published until 18 months after the filing of certain priority documents (or, in some cases, are not published until they issue as patents) and publications in the scientific literature often lag behind actual discoveries. Thus, we cannot be certain that others have not filed patent applications or made public disclosures relating to our technology or our contemplated technology. A third party may have filed, and may in the future file, patent applications covering our products or technology similar to ours. Any such patent application may have priority over our patent applications or patents, which could further require us to obtain rights to issued patents covering such technologies. If another party has filed a U.S. patent application on inventions similar to ours, depending on whether the timing of the filing date falls under certain patent laws, we may have to participate in a priority contest (such as an interference proceeding) declared by the U.S. Patent and Trademark Office, to determine priority of invention in the United States. The costs of patent and other proceedings could be substantial, and it is possible that such efforts would be unsuccessful if it is determined that the other party had independently arrived at the same or similar invention prior to our own invention, resulting in a loss of our U.S. patent position with respect to such inventions.

From time to time, we may be subject to legal proceedings and claims in the ordinary course of business with respect to intellectual property. Although we are not currently subject to any claims from third parties asserting infringement of their intellectual property rights, in the future, we may receive claims from third parties asserting infringement of their intellectual property rights. Future litigation may be necessary to establish our intellectual property rights or to defend ourselves by determining the scope, enforceability and validity of third-party intellectual property rights. There can be no assurance with respect to the outcome of any current or future litigation brought by or against us, and the outcome of any such litigation could have a material adverse impact on our business, operating results and financial condition. Litigation is inherently unpredictable and outcomes are uncertain. Further, as the costs and outcome of these types of claims and proceedings can vary significantly, it is difficult to estimate potential losses that may occur. Accordingly, we are unable at this time to estimate the effects of these potential future lawsuits on our financial condition, operations or cash flows.

Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock. Finally, 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.

If we are unable to obtain, maintain and enforce intellectual property protection directed to our senolytic medicine platform and any future technologies that we develop, others may be able to make, use, or sell products substantially the same as ours, which could adversely affect our ability to compete in the market.

As of March 1, 2024, we own, co-own, or have an exclusive license in certain fields of use to more than 170 patents and pending applications in the United States and foreign jurisdictions. This portfolio includes 34 issued and allowed U.S. patents and applications and 63 granted and allowed foreign patents and applications, respectively. A composition of matter patent filing claiming the specific chemical structure of UBX1325 was issued in the U.S. on April 20, 2021, which will extend our loss of exclusivity on this molecule to 2039, not including any patent term adjustment or patent term extensions to which it may be entitled.

We have not pursued or maintained, and may not pursue or maintain in the future, patent protection for our products in every country or territory in which we may sell our products. In addition, we cannot be sure that any of our pending patent applications or pending trademark applications will issue or that, if issued, they will issue in a form that will be advantageous to us. The U.S. Patent and Trademark Office, or the USPTO, international patent offices or judicial bodies may deny or significantly narrow claims made under our patent applications and our issued patents may be successfully challenged, may be designed around, or may otherwise be of insufficient scope to provide us with protection for our commercial products. Further, the USPTO, international trademark offices or judicial bodies may deny our trademark applications and, even if published or registered, these trademarks may not effectively protect our brand and goodwill. Like patents, trademarks also may be successfully opposed or challenged.

We cannot be certain that the steps we have taken will prevent unauthorized use or unauthorized reverse engineering of our technology. Moreover, third parties may independently develop technologies that are competitive with ours and such competitive technologies may or may not infringe our intellectual property. The enforcement of our intellectual property rights also depends on the success of our legal actions against these infringers in the respective country or forum, but these actions may not be successful. As with all granted intellectual property, such intellectual property may be challenged, invalidated or circumvented, may not provide specific protection and/or may not prove to be enforceable in actions against specific alleged infringers.

The market for biopharmaceuticals, pharmaceuticals, and treatments for diseases of aging is highly competitive and subject to rapid technological change. Our success depends, in part, upon our ability to maintain a competitive position in the development and protection of technologies and products for use in these fields and upon our ability to obtain, maintain and enforce our intellectual property rights in connection therewith. We seek to obtain and maintain patents and other intellectual property rights to restrict the ability of others to market products that misappropriate our technology and/or infringe our intellectual property to unfairly and illegally compete with our products. If we are unable to protect our intellectual property and proprietary rights, our competitive position and our business could be harmed, as third parties may be able to make, use, or sell products that are substantially the same as ours without incurring the sizeable development and licensing costs that we have incurred, which would adversely affect our ability to compete in the market.

We use a combination of patents, trademarks, know-how, confidentiality procedures, and contractual provisions to protect our proprietary technology. However, these protections may not be adequate and may not provide us with any competitive advantage. For example, patents may not issue from any of our currently pending or any future patent applications, and our issued patents and any future patents that may issue may not survive legal challenges to their scope, validity or enforceability, or provide significant protection for us.

If we or one of our current or future collaborators were to initiate legal proceedings against a third party to enforce a patent covering one of our current drug candidates or future drug candidates, the defendant could counterclaim that our patent is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace.

Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or nonenablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties may also raise similar claims before the USPTO, even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable.

With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our drug candidates. Such a loss of patent protection would have a material adverse impact on our business.

Even if our patents are determined by a court to be valid and enforceable, they may not be interpreted sufficiently broadly to prevent others from marketing products similar to ours or designing around our patents. For example, third parties may be able to make products that are similar to ours but that are not covered by the claims of our patents. Third parties may assert that we or our licensors were not the first to make the inventions covered by our issued patents or pending patent applications. The claims of our issued patents or patent applications when issued may not cover our proposed commercial technologies or the future products that we develop. We may not have freedom to commercialize unimpeded by the patent rights of others. Third parties may have dominating, blocking, or other patents relevant to our technology of which we are not aware. There may be prior public disclosures or art that could be deemed to invalidate one or more of our patent claims. Further, we may not develop additional proprietary technologies in the future, and, if we do, they may not be patentable.

Patent law can be highly uncertain and involve complex legal and factual questions for which important principles remain unresolved. In the United States and in many international jurisdictions, policy regarding the breadth of claims allowed in patents can be inconsistent. The U.S. Supreme Court and the Court of Appeals for the Federal Circuit have made, and will likely continue to make, changes in how the patent laws of the United States are interpreted. Similarly,

international courts have made, and will likely continue to make, changes in how the patent laws in their respective jurisdictions are interpreted. We cannot predict future changes in the interpretation of patent laws or changes to patent laws that might be enacted into law by U.S. and international legislative bodies. Those changes may materially affect our patents, our ability to obtain patents or the patents and patent applications of our licensors. Patent reform legislation in the United States could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. For example, on September 16, 2011, the Leahy-Smith America Invents Act, or Leahy-Smith Act, was signed into law. The Leahy-Smith Act included a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art, may affect patent litigation, and switch the U.S. patent system from a “first-to-invent” system to a “first-to-file” system. Under a “first-to-file” system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to the patent on an invention regardless of whether another inventor had made the invention earlier. The U.S. Patent and Trademark Office recently developed new regulations and 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, only became effective on 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, which could have a material adverse effect on our business and financial condition.

In addition, we have a number of international patents and patent applications and expect to continue to pursue patent protection in many of the significant markets in which we intend to do business. The laws of some international jurisdictions may not protect intellectual property rights to the same extent as laws in the United States, and many companies have encountered significant difficulties in obtaining, protecting, and defending such rights in international jurisdictions. If we encounter such difficulties or we are otherwise precluded from effectively protecting our intellectual property rights in international jurisdictions, our business prospects could be substantially harmed.

Varying filing dates in international countries may also permit intervening third parties to allege priority to certain technology.

Patent terms may be shortened or lengthened by, for example, terminal disclaimers, patent term adjustments, supplemental protection certificates, and patent term extensions. Patent term extensions and supplemental protection certificates, and the like, may be impacted by the regulatory process and may not significantly lengthen the patent term. Non-payment or delay in payment of patent fees or annuities, delay in patent filings or delay in extension filing (including any patent term extension or adjustment filing), whether intentional or unintentional, may also result in the loss of patent rights important to our business. Certain countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. In addition, many countries limit the enforceability of patents against other parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of any patents.

In addition to the protection afforded by patents, we rely on confidentiality agreements to protect confidential information and proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our drug candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors, and contractors. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our confidential information or proprietary technology and processes. We also seek to preserve the integrity and confidentiality of our data and other confidential information by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached and detecting the disclosure or misappropriation of confidential information and enforcing a claim that a party illegally disclosed or misappropriated confidential information is difficult, expensive and time-consuming, and the outcome is unpredictable. Further, we may not be able to obtain adequate remedies for any breach. In addition, our confidential information may otherwise become known or be independently discovered by competitors, in which case we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. We may in the future rely on trade secret protection, which would be subject to the risks identified above with respect to confidential information.

Monitoring unauthorized use of our intellectual property is difficult and costly. From time to time, we review our competitors' products, and may in the future seek to enforce our patents or other rights against potential infringement. However, the steps we have taken to protect our proprietary rights may not be adequate to prevent misappropriation of our intellectual property. We may not be able to detect unauthorized use of, or take appropriate steps to enforce, our intellectual property rights. Our competitors may also independently develop similar technology. Any inability to meaningfully protect our intellectual property could result in competitors offering products that incorporate our product or service features, which could reduce demand for our products. In addition, we may need to defend our patents from third-party challenges, such as (but not limited to) interferences, derivation proceedings, reexamination proceedings, post-grant review, inter partes review, third-party submissions, oppositions, nullity actions or other patent proceedings. We may need to initiate infringement claims or litigation.

Adverse proceedings such as litigation can be expensive, time consuming and may divert the efforts of our technical and managerial personnel, which could in turn harm our business, whether or not we receive a determination favorable to us. In addition, in an infringement proceeding, a court or other judicial body may decide that the patent we seek to enforce is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that the patent in question does not cover the technology in question. An adverse result in any litigation could put one or more of our patents at risk of being invalidated or interpreted narrowly. Some of our competitors may be able to devote significantly more resources to intellectual property litigation and may have significantly broader patent portfolios to assert against us if we assert our rights against them. Further, because of the substantial discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be disclosed or otherwise compromised during litigation.

We may not be able to correctly estimate or control our future operating expenses in relation to obtaining intellectual property, enforcing intellectual property and/or defending intellectual property, which could affect operating expenses. Our operating expenses may fluctuate significantly in the future as a result of a variety of factors, including the costs of preparing, filing, prosecuting, defending, and enforcing patent and trademark claims and other intellectual property-related costs, including adverse proceedings (such as litigation) costs.

Our intellectual property agreements with third parties may be subject to disagreements over contract interpretation, which could narrow the scope of our rights to the relevant intellectual property or technology or increase our financial or other obligations to our licensors.

Certain provisions in our intellectual property agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could affect the scope of our rights to the relevant intellectual property or technology, or affect financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact conceives or develops intellectual property that we regard as our own. Our assignment agreements may not be self-executing or may be breached, and we may be forced to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property.

If we are unable to protect the confidentiality of our proprietary information and know-how, the value of our technology and products could be adversely affected.

We may not be able to protect our proprietary information and technology adequately. Although we use reasonable efforts to protect our proprietary information, technology, and know-how, our employees, consultants, contractors and outside scientific advisors may unintentionally or willfully disclose our information to competitors. Enforcing a claim that a third party illegally obtained and is using any of our proprietary information, technology or know-how is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect proprietary information, technology, and know-how. We rely, in part, on non-disclosure and confidentiality agreements with our employees, consultants and other parties to protect our proprietary information, technology, and know-how. These agreements may be breached, and we may not have adequate remedies

for any breach. Moreover, others may independently develop similar or equivalent proprietary information, and third parties may otherwise gain access to our proprietary knowledge.

Risks Related to Government Regulation

Even if we obtain regulatory approval for a drug candidate, our products will remain subject to regulatory scrutiny.

If our drug 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.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any approved marketing application. 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.

We will have to comply with requirements concerning advertising and promotion for our products. Promotional communications with respect to prescription drugs and biologics are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved label. As such, we may not promote our products for indications or uses for which they do not have approval. The holder of an approved application must submit new or supplemental applications and obtain approval for certain changes to the approved product, product labeling, or manufacturing process. We could also be asked to conduct post-marketing clinical studies to verify the safety and efficacy of our products in general or in specific patient subsets. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of marketing approval.

If a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, or disagrees with the promotion, marketing or labeling of a product, such regulatory agency may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we fail to comply with applicable regulatory requirements, a regulatory agency or enforcement authority may, among other things:

- issue warning letters;
- impose civil or criminal penalties;
- suspend or withdraw regulatory approval;
- suspend any of our clinical studies;
- refuse to approve pending applications or supplements to approved applications submitted by us;
- impose restrictions on our operations, including closing our contract manufacturers' facilities; or
- seize or detain products or require a product recall.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to commercialize and generate revenue from our products. If regulatory sanctions are applied or if regulatory approval is withdrawn, the value of our company and our operating results will be adversely affected.

Moreover, the policies of the FDA and of other regulatory authorities may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our drug candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad.

If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action, and we may not achieve or sustain profitability.

If any of our small molecule drug candidates obtain regulatory approval, additional competitors could enter the market with generic versions of such drugs, which may result in a material decline in sales of affected products.

Under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, a pharmaceutical manufacturer may file an ANDA, seeking approval of a generic version of an approved, small molecule innovator product. Under the Hatch-Waxman Act, a manufacturer may also submit an NDA, under section 505(b)(2) of the Federal Food, Drug, and Cosmetic Act that references the FDA's prior approval of the small molecule innovator product. A 505(b)(2) NDA product may be for a new or improved version of the original innovator product. The Hatch-Waxman Act also provides for certain periods of regulatory exclusivity, which preclude FDA approval (or in some circumstances, FDA filing and review) of an ANDA or 505(b)(2) NDA. In addition to the benefits of regulatory exclusivity, an innovator NDA holder may have patents claiming the active ingredient, product formulation or an approved use of the drug, which would be listed with the product in the FDA publication, "Approved Drug Products with Therapeutic Equivalence Evaluations," known as the Orange Book. If there are patents listed in the Orange Book for a product, a generic or 505(b)(2) applicant that seeks to market its product before expiration of the patents must include in their applications what is known as a "Paragraph IV" certification, challenging the validity or enforceability of, or claiming non-infringement of, the listed patent or patents. Notice of the certification must be given to the patent owner and NDA holder and if, within 45 days of receiving notice, either the patent owner or NDA holder sues for patent infringement, approval of the ANDA or 505(b)(2) NDA is stayed for up to 30 months.

Accordingly, if any of our small molecule drug candidates, such as UBX1325, are approved, competitors could file ANDAs for generic versions of our small molecule drug products or 505(b)(2) NDAs that reference our small molecule drug products. If there are patents listed for our small molecule drug products in the Orange Book, those ANDAs and 505(b)(2) NDAs would be required to include a certification as to each listed patent indicating whether the ANDA applicant does or does not intend to challenge the patent. We cannot predict which, if any, patents in our current portfolio or patents we may obtain in the future will be eligible for listing in the Orange Book, how any generic competitor would address such patents, whether we would sue on any such patents, or the outcome of any such suit.

We may not be successful in securing or maintaining proprietary patent protection for products and technologies we develop or license. Moreover, if any of our owned or in-licensed patents that are listed in the Orange Book are successfully challenged by way of a Paragraph IV certification and subsequent litigation, the affected product could immediately face generic competition and its sales would likely decline rapidly and materially.

Any biologic, or large molecule, drug candidates for which we intend to seek approval may face competition sooner than anticipated.

If we are successful in achieving regulatory approval to commercialize any biologic drug candidate faster than our competitors, such drug candidates may face competition from biosimilar products. In the United States, large molecule drug candidates are regulated by the FDA as biologic products subject to approval under the biologics license application, or BLA, pathway. The Biologics Price Competition and Innovation Act of 2009, or BPCIA, creates an abbreviated pathway for the approval of biosimilar and interchangeable biologic products following the approval of an original BLA. The abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an existing brand product. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the original branded product was approved under a BLA. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty.

Moreover, the extent to which a biosimilar product, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biologic products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing. In addition, a competitor could decide to forego the biosimilar approval path and submit a full BLA after completing its own preclinical studies and clinical studies. In such cases, any exclusivity to which we may be eligible under the BPCIA would not prevent the competitor from marketing its product as soon as it is approved.

If competitors are able to obtain marketing approval for biosimilars referencing our large molecule drug candidates, if approved, such products may become subject to competition from such biosimilars, with the attendant competitive pressure and potential adverse consequences. Such competitive products may be able to immediately compete with us in each indication for which our drug candidates may have received approval.

Enacted and future healthcare legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our drug candidates and may affect the prices we may set.

In the United States, the European Union and other jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes and proposed changes to the healthcare system that could affect our future results of operations. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare. For example, in March 2010, the Patient Protection and ACA, as amended by the Health Care and Education Reconciliation Act, or collectively the Affordable Care Act, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers. Among the provisions of the ACA, those of greatest importance to the pharmaceutical and biotechnology industries include the following:

- an annual, non-deductible fee payable by any entity that manufactures or imports certain branded prescription drugs and biologic agents (other than those designated as orphan drugs), which is apportioned among these entities according to their market share in certain government healthcare programs;
- a new 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;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- extension of a manufacturer's Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- creation of the Independent Payment Advisory Board, which, once empaneled, will have the authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs and those recommendations could have the effect of law unless overruled by a supermajority vote of Congress; and

- establishment of a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the Affordable Care Act. For example, the Tax Cuts and Jobs Act of 2017, or the Tax Act, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the “individual mandate”. In addition, there may be other efforts to challenge, repeal or replace the ACA that may impact our business or financial condition.

In addition, other legislative changes have been proposed and adopted in the United States since the Affordable Care Act was enacted. In August 2011, the Budget Control Act of 2011, among other things, led to aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect in April 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through December 31, 2021, unless additional action is taken by Congress. In addition, in January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Individual states in the United States have also become increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our drug candidates or put pressure on our product pricing. 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 marketed products.

In the European Union, similar political, economic and regulatory developments may affect our ability to profitably commercialize our drug candidates, if approved. In addition to continuing pressure on prices and cost containment measures, legislative developments at the EU or member state level may result in significant additional requirements or obstacles that may increase our operating costs. The delivery of healthcare in the European Union, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than EU, law and policy. National governments and health service providers have different priorities and approaches to the delivery of health care and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most European Union member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing EU and national regulatory burdens on those wishing to develop and market products, this could prevent or delay marketing approval of our drug candidates, restrict or regulate post-approval activities and affect our ability to commercialize our drug candidates, if approved. In markets outside of the United States and European Union, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies.

We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action in the United States, the European Union or any other jurisdiction. If we or any third parties we may engage are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we or such third parties are not able to maintain regulatory compliance, our drug candidates may lose any regulatory approval that may have been obtained and we may not achieve or sustain profitability.

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

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute our drug candidates, if approved.

Such laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe, or certain rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of, any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. federal false claims and civil monetary penalties laws, including the civil False Claims Act, which, among other things, impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services; similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the FDCA, which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;
- the U.S. Public Health Service Act, which prohibits, among other things, the introduction into interstate commerce of a biological product unless a biologics license is in effect for that product;
- the U.S. Physician Payments Sunshine Act and its implementing regulations, which require certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to the government information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain other healthcare providers starting in 2022, and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members;
- analogous U.S. state laws and regulations, including: state anti-kickback and false claims laws, which may apply to our business practices, including but not limited to, research, distribution, sales and

marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities; and

- similar healthcare laws and regulations in the European Union and other jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers.

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 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 the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations. Further, defending against any such actions can be costly, time-consuming and may require significant personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

U.S. tax legislation and future changes to applicable U.S. tax laws and regulations may have a material adverse effect on our business, financial condition and results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, or interpreted, changed, modified or applied adversely to us, any of which could adversely affect our business operations and financial performance. We are currently unable to predict whether such changes will occur and, if so, the ultimate impact on our business. To the extent that such changes have a negative impact on us, our suppliers or our customers, including as a result of related uncertainty, these changes may materially and adversely impact our business, financial condition, results of operations and cash flows.

Risks Related to Ownership of Our Common Stock

Our stock price may be volatile and you may not be able to resell shares of our common stock at or above the price you paid.

The trading price of our common stock has been and may continue to be highly volatile and may be subject to wide fluctuations in response to various factors, some of which are beyond our control.

These factors include those discussed in this “Risk Factors” section of this report and others such as:

- results from, and any delays in, commencing, conducting or completing our clinical studies for our current drug candidates, or any other future clinical development programs;
- announcements by academic or other third parties challenging the fundamental premises underlying our approach to treating diseases of aging and/or drug development;
- announcements of regulatory approval or disapproval of our current or any future drug candidates;
- failure or discontinuation of any of our research and development programs;
- announcements relating to future licensing, collaboration, or development agreements;

- our ability to maintain compliance with Nasdaq listing standards;
- delays in the commercialization of our current or any future drug candidates;
- public misperception regarding the use of our therapies, or public bias of against “anti-aging” companies;
- acquisitions and sales of new products, technologies, or businesses;
- manufacturing and supply issues related to our drug candidates for clinical studies or future drug candidates for commercialization;
- quarterly variations in our results of operations or those of our future competitors;
- changes in earnings estimates or recommendations by securities analysts;
- announcements by us or our competitors of new products, significant contracts, commercial relationships, acquisitions, or capital commitments;
- developments with respect to intellectual property rights;
- our commencement of, or involvement in, litigation;
- changes in financial estimates or guidance, including our ability to meet our future revenue and operating profit or loss estimates or guidance;
- any major changes in our board of directors or management;
- new legislation in the United States relating to the sale or pricing of pharmaceuticals;
- FDA or other U.S. or foreign regulatory actions affecting us or our industry;
- product liability claims or other litigation or public concern about the safety of our drug candidates;
- market conditions in the pharmaceutical, biopharmaceutical and biotechnology sectors; and
- general economic conditions in the United States and abroad, including high interest rates, rising inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions, and the potential for local and/or global economic recession.

In addition, the stock markets in general, and the markets for pharmaceutical, biopharmaceutical, and biotechnology stocks in particular, have experienced extreme volatility as a result of the economic uncertainty and increased interest rates, inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions that may be unrelated to the operating performance of the issuer. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business.

On October 19, 2022, we effected a 1-for-10 reverse stock split of our common stock seeking to regain compliance with Nasdaq Global Select Market’s continued listing standards. As a result of the reverse stock split, the split-adjusted per share market price of our common stock increased and, from October 20, 2022 to November 2, 2022 (10 consecutive business days), the closing bid price of our common stock exceeded \$1.00 per share. Accordingly, on November 3, 2022, we received a notice from Nasdaq indicating that we have regained compliance with Listing Rule 5450(a)(1) as of such date. See the risk factor titled “*We may not be able to maintain compliance with the continued*

listing requirements of Nasdaq and, if so, we would be subject to delisting.” for additional information about our ability to maintain compliance with the continued listing requirements of Nasdaq. Although we currently comply with the minimum bid requirement following the reverse stock split, we cannot assure you that we will be able to maintain compliance with the continued listing requirements of Nasdaq and any delisting would adversely affect our stock price and the liquidity of our common stock.

An active, liquid and orderly market for our common stock may not be maintained.

Although our common stock is listed on the Nasdaq Global Select Market, an active trading market for our common stock may never be sustained on the Nasdaq Global Select Market or any other exchange in the future. On October 19, 2022, we effected a 1-for-10 reverse stock split of our common stock seeking to bring us into compliance with the minimum required closing bid price for continued listing on the Nasdaq Global Select Market and to regain compliance with Nasdaq Global Select Market's continued listing standards. While we have regained compliance, we cannot assure that we will continue to meet the minimum required closing bid price for continued listing on the Nasdaq Global Select Market in the future or that we will be able to maintain our listing on the Nasdaq Global Select Market or any other exchange. See the risk factor titled *“We may not be able to maintain compliance with the continued listing requirements of Nasdaq and, if so, we would be subject to delisting.”* for additional information about our ability to maintain compliance with the continued listing requirements of Nasdaq. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. An inactive market may also impair our ability to raise capital by selling shares and may impair our ability to acquire other businesses, applications, or technologies using our shares as consideration.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock is influenced by the research and reports that industry or securities analysts publish about us or our business. In the event any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our clinical studies and operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. If our public float stays below \$75.0 million, the risk that analysts cease to cover our stock may increase.

If we sell shares of our common stock in future financings, stockholders may experience immediate dilution and, as a result, our stock price may decline.

We may from time to time issue additional shares of common stock at a discount from the current trading price of our common stock. As a result, our stockholders would experience immediate dilution upon the purchase of any shares of our common stock sold at such discount. For example, we may issue additional shares from time to time pursuant to our shelf registration statements and ATM Offering Programs. In addition, as opportunities present themselves, we may enter into financing or similar arrangements in the future, including the issuance of debt securities, preferred stock or common stock. However, for so long as our public float is less than \$75.0 million, under our shelf registration statements, we may not sell more than the equivalent of one-third of our public float during any 12 consecutive months pursuant to the baby shelf rules.

On September 29, 2021, we entered into a Purchase Agreement with Lincoln Park Capital Fund, LLC, under which we may at our discretion sell up to \$30.0 million shares of our common stock, subject to certain daily limits, applicable prices, and conditions. As of December 31, 2021, we issued and sold 417,286 shares of our common stock under our Purchase Agreement with Lincoln Park amounting to \$8.3 million in gross proceeds. In addition, under the Purchase Agreement, we issued 25,244 shares of our common stock to Lincoln Park as consideration for its commitment to purchase shares of our common stock under the Purchase Agreement.

We generally have the right to control the timing and amount of any future sales of our common stock to Lincoln Park. Sales of shares of our common stock, if any, to Lincoln Park will depend upon market conditions and other factors to be determined by us. We may ultimately decide to sell to Lincoln Park all, some or none of the additional shares of our common stock that may be available for us to sell under the Purchase Agreement. If and when we do sell shares

of our common stock to Lincoln Park, after Lincoln Park has acquired the shares of common stock, Lincoln Park may resell all, some or none of those shares of common stock at any time or in its discretion. The sale by Lincoln Park of a substantial number of shares of our common stock issued by us to Lincoln Park under the Purchase Agreement or the anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales.

Sales of substantial amounts of shares of our common stock or other securities by our stockholders, by us under our shelf registration statements or the ATM Offering Programs, or otherwise or by Lincoln Park or through any other means could also lower the market price of our common stock and impair our ability to raise capital through the sale of equity or equity-related securities. The Company would need to file a new prospectus supplement covering issuances under the Lincoln Park facility in order to continue using the facility, however.

We have identified a material weakness in our internal control over financial reporting. This material weakness could continue to adversely affect our results of operations and financial condition. In the future, we may identify additional material weaknesses or otherwise fail to maintain an effective system of internal control over financial reporting or adequate disclosure controls and procedures, which may result in material errors in our financial statements or cause us to fail to meet our period reporting obligations.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, evaluating the effectiveness of our internal controls and disclosing any changes or material weaknesses identified through such evaluation. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

In March 2024, we determined that we incorrectly classified certain warrants that were issued to investors in connection with a Follow-On offering of our common stock in August 2022. Our management subsequently concluded that a material weakness existed and our internal control over financial reporting was not effective as of August 2022. The material weakness was due to the inadequate design and implementation of controls to evaluate the accounting for warrant classification between liability and equity.

As a result, we determined that there were material errors in the financial statements that required a restatement of the December 31, 2022 financial statements and for our Forms 10-Q for the quarterly periods ended September 30, 2022, March 31, 2023, June 30, 2023 and September 30, 2023. Those restatements are included in the Annual Report on Form 10-K for the year ended December 31, 2023. This was due to the inadequate design and implementation of controls to evaluate the accounting for warrant classification between liability and equity.

Management is implementing enhanced internal controls to remediate the material weakness. Specifically, we are in the process of expanding and improving our review process for complex security transactions and related accounting standards. We plan to improve this process by specifically incorporating the review of the accounting conclusions for each significant relevant contractual term, by using a robust accounting literature tool, and engaging third-party subject matter experts with relevant experience to determine the appropriate accounting for complex security transactions. The elements of our remediation plan can only be accomplished over time, and we can offer no assurance that these initiatives will ultimately have the intended effects.

Effective internal controls over financial reporting are necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, are designed to prevent fraud. 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. If we are not able to comply with the requirements of the Sarbanes-Oxley Act or if we are unable to maintain effective internal control over financial reporting, we may not be able to produce timely and accurate financial statements or guarantee that information required to be disclosed by us in the reports that we file with the SEC, is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms. Any failure of our internal control over financial reporting or disclosure controls and procedures could cause our investors to lose confidence in our publicly reported information, cause the market price of our stock to decline, expose us to sanctions or investigations by the SEC or other regulatory authorities, or impact our results of operations.

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

We have incurred substantial losses during our history and may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset a portion of future taxable income, if any, until such unused losses expire, if ever. 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 certain stockholders over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards, or 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. We may have experienced ownership changes in the past and may experience ownership changes in the future as a result of subsequent shifts in our stock ownership (some of which shifts are outside our control). As a result, if we earn net taxable income, our ability to use our pre-change NOLs to offset such taxable income could be subject to limitations. Similar provisions of state tax law may also apply. As a result, even if we achieve profitability, we may be unable to use a material portion of our NOLs and other tax attributes.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable and may lead to entrenchment of management.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could delay or prevent changes in control or changes in our management without the consent of our board of directors. These provisions include the following:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the ability of our board of directors to alter our amended and restated bylaws without obtaining stockholder approval;
- the required approval of at least 66 2/3% of the shares entitled to vote at an election of directors to adopt, amend or repeal our amended and restated bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by the chief executive officer or the president or the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders’ meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror’s own slate of directors or otherwise attempting to obtain control of us.

We are also subject to the anti-takeover provisions contained in Section 203 of the Delaware General Corporation Law. Under Section 203, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other exceptions, the board of directors has approved the transaction.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws and our indemnification agreements that we have entered into with our directors and officers provide that:

- We will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.
- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law.
- We are required to advance expenses, as incurred, to our directors and officers in connection with defending a proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined that such person is not entitled to indemnification. We will not be obligated pursuant to our amended and restated bylaws to indemnify a person with respect to proceedings initiated by that person against us or our other indemnitees, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification.
- The rights conferred in our amended and restated bylaws are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons.
- We may not retroactively amend our amended and restated bylaw provisions to reduce our indemnification obligations to directors, officers, employees and agents.

We do not currently intend to pay dividends on our common stock, and, consequently, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We do not currently intend to pay any cash dividends on our common stock for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Therefore, you are not likely to receive any dividends on your common stock for the foreseeable future. Since we do not intend to pay dividends, your ability to receive a return on your investment will depend on any future appreciation in the market value of our common stock. There is no guarantee that our common stock will appreciate or even maintain the price at which our holders have purchased it.

General Risk Factors

Unfavorable global economic or political conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. Furthermore, the market for products with the potential to treat diseases of aging, particularly those affecting large populations in a wide range of geographic locations, may be particularly vulnerable to unfavorable

economic conditions. A global financial crisis or a global or regional political disruption, including most recently as a result of the COVID-19 pandemic, have caused and could continue to cause extreme volatility in the capital and credit markets. A severe or prolonged economic downturn or political disruption could result in a variety of risks to our business, including weakened demand for our current drug candidates or any future drug candidates, if approved, and our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy or political disruption could also strain our manufacturers or suppliers, possibly resulting in supply disruption, or cause our customers to delay making payments for our services. Weakened or declining economic conditions could be caused by a number of factors, including high interest rates, rising inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions, and the potential for local and/or global economic recession. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the political or economic climate and financial market conditions could adversely impact our business.

We or the third parties upon whom we depend may be adversely affected by earthquakes, other natural disasters or unforeseen pandemics and public health emergencies, such as the COVID-19 pandemic, and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Our corporate headquarters and other facilities are located in the San Francisco Bay Area, which in the past has experienced both severe earthquakes and wildfires. Although we carry earthquake insurance, it is limited in scope. Earthquakes, wildfires or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects.

If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our enterprise financial systems or manufacturing resource planning and enterprise quality systems, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible, for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which, particularly when taken together with our lack of earthquake insurance, could have a material adverse effect on our business.

Furthermore, integral parties in our supply chain are similarly vulnerable to natural disasters or other sudden, unforeseen and severe adverse events. If such an event were to affect our supply chain, it could have a material adverse effect on our business.

Significant disruptions of information technology systems or deficiencies in our cybersecurity could materially adversely affect our business, results of operations and financial condition.

We collect and maintain information in digital form that is necessary to conduct our business, and we are increasingly dependent on information technology systems and infrastructure to operate our business. In the ordinary course of our business, we collect, store and transmit large amounts of confidential information, including intellectual property, proprietary business information and personal information. It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential information. We have established physical, electronic and organizational measures to safeguard and secure our systems to prevent a data compromise, and rely on commercially available systems, software, tools, and monitoring to provide security for our information technology systems and the processing, transmission and storage of digital information. We have also outsourced elements of our information technology infrastructure, and as a result a number of third-party vendors may or could have access to our confidential information.

Our information technology systems and infrastructure, and those of our current and any future collaborators, contractors and consultants and other third parties on which we rely, are vulnerable to attack, interruption and damage from computer viruses, malware (e.g. ransomware), natural disasters, terrorism, war, telecommunication and electrical failures, cyberattacks or cyber-intrusions over the Internet, phishing attacks and other social engineering schemes, employee theft or misuse, human error, fraud, denial or degradation of service attacks, sophisticated nation-state and nation-state-supported actors or unauthorized access or use by persons inside our organization, or persons with access to systems inside our organization.

The risk of a security breach or disruption, particularly through cyberattacks or cyber-intrusion, including by computer hackers, “phishing” attacks, foreign governments and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. In addition, the prevalent use of mobile devices that access confidential information increases the risk of data security breaches, which could lead to the loss of confidential information or other intellectual property. We may face increased cybersecurity risks due to our reliance on internet technology and the number of our employees that work or may work 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. We may also experience security breaches that may remain undetected for an extended period. 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. The costs to us to mitigate network security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant, and while we have implemented security measures to protect our data security and information technology systems, our efforts to address these problems may not be successful, and these problems could result in unexpected interruptions, delays, cessation of service and other harm to our business and our competitive position.

We and certain of our service providers are from time to time subject to cyberattacks and security incidents. While we do not believe that we have experienced any significant system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our product development programs. For example, the loss of clinical study data from completed or ongoing or planned clinical studies could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

Moreover, if a security breach affects our systems, or those of our current and any future collaborators, contractors and consultants and other third parties on which we rely, or results in the unauthorized release of personally identifiable information, our reputation could be materially damaged. In addition, such a breach may require notification to governmental agencies, the media or individuals pursuant to various federal and state privacy and security laws. We would also be exposed to a risk of loss or litigation and potential liability, which could materially adversely affect our business, results of operations and financial condition. We maintain cyber liability insurance; however, this insurance may not be sufficient to cover the financial, legal, business or reputational losses that may result from an interruption or breach of our systems.

Our employees and independent contractors, including principal investigators, consultants, commercial collaborators, service providers and other vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have an adverse effect on our results of operations.

We are exposed to the risk that our employees and independent contractors, including principal investigators, consultants, any future commercial collaborators, service providers and other vendors may engage in misconduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or other unauthorized activities that violate the laws and regulations of the FDA and other similar regulatory bodies, including those laws that require the reporting of true, complete and accurate information to such regulatory bodies; manufacturing standards; U.S. federal and state healthcare fraud and abuse, data privacy laws and other similar non-U.S. laws; or laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical studies, the creation of fraudulent data in our preclinical studies or clinical studies, or illegal misappropriation of product, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by employees and other third-parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. In addition, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and financial results,

including, without limitation, the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid and other U.S. healthcare programs, individual imprisonment, other sanctions, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Our business involves the use of hazardous materials, and we and our third-party manufacturers and suppliers must comply with environmental laws and regulations, which can be expensive and restrict how we do business.

Our research and development activities and our third-party manufacturers' and suppliers' activities involve the controlled storage, use and disposal of hazardous materials owned by us, including the components of our product and drug candidates and other hazardous compounds. We and any third-party manufacturers and suppliers we engage are subject to numerous federal, state and local environmental, health and safety laws, regulations and permitting requirements, including those governing laboratory procedures; the generation, handling, use, storage, treatment, and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air and water; and employee health and safety. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our operations also produce hazardous waste. In some cases, these hazardous materials and various wastes resulting from their use are stored at our and our manufacturers' facilities pending their use and disposal. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination, which could cause an interruption of our commercialization efforts, research and development efforts and business operations, environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations governing the use, storage, handling and disposal of these materials and specified waste products.

Although we believe that the safety procedures utilized by our third-party manufacturers for handling and disposing of these materials generally comply with the standards prescribed by these laws and regulations, we cannot guarantee that this is the case or eliminate the risk of accidental contamination or injury from these materials. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. In such an event, we may be held liable for any resulting damages and such liability could exceed our resources and state or federal or other applicable authorities may curtail our use of certain materials and/or interrupt our business operations. Furthermore, environmental laws and regulations are complex, change frequently and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance.

Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our research, product development and manufacturing efforts. In addition, we cannot entirely eliminate the risk of accidental injury or contamination from these materials or wastes. Although we maintain 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 carry specific biological or hazardous waste insurance coverage, and our property, casualty, and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical studies or regulatory approvals could be suspended, which could have a material adverse effect on our business, results of operations and financial condition.

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

We may also be subject to claims that former employees, collaborators or other third parties have an ownership interest in our patents or other intellectual property. Litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and distraction to management and other employees.

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

Filing, prosecuting and defending patents on drug candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful.

Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Actual or perceived failures to comply with U.S. and foreign privacy and data protection laws, regulations and standards may adversely affect our business, operations and financial performance.

We are subject to or affected by numerous federal, state and foreign laws and regulations, as well as regulatory guidance, governing the collection, use, disclosure, retention, and security of personal information, such as information that we collect about patients and healthcare providers in connection with clinical trials in the United States and abroad. The global data protection landscape is rapidly evolving, and implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. This evolution may create uncertainty in our business, affect our or any service providers', contractors' or future collaborators' ability to operate in certain jurisdictions or to collect, store, transfer use and share personal information, necessitate the acceptance of more onerous obligations in our contracts, result in liability or impose additional costs on us. The cost of compliance with these laws, regulations and standards is high and is likely to increase in the future. Any failure or perceived failure by us or our collaborators, service providers and contractors to comply with federal, state or foreign laws or regulation, our internal policies and procedures or our contracts governing processing of personal information could result in negative publicity, diversion of management time and effort and proceedings against us by governmental entities or others. In many jurisdictions, enforcement actions and consequences for noncompliance are rising.

In the United States, HIPAA imposes privacy, security and breach reporting obligations with respect to individually identifiable health information upon "covered entities" (health plans, health care clearinghouses and certain health care providers), and their respective business associates, individuals or entities that create, receive, maintain or transmit protected health information in connection with providing a service for or on behalf of a covered entity. Most healthcare providers, including research institutions from which we obtain patient health information, are subject to privacy and security regulations promulgated under HIPAA. While we do not believe that we are currently acting as a covered entity or business associate under HIPAA and thus are not directly regulated under HIPAA, any person may be prosecuted under HIPAA's criminal provisions either directly or under aiding-and-abetting or conspiracy principles. Consequently, depending on the facts and circumstances, we could face substantial criminal penalties if we knowingly receive individually identifiable health information from a HIPAA-covered healthcare provider or research institution that has not satisfied HIPAA's requirements for disclosure of individually identifiable health information.

In addition, certain state laws govern the privacy and security of personal information, including health-related information. For example, the California Consumer Privacy Act, or the CCPA went into effect on January 1, 2020. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that has increased the likelihood, and risks associated with data breach litigation. Further, the California Privacy Rights Act, or the CPRA generally went into effect on January 1, 2023, and significantly amends the CCPA. It imposes additional data protection obligations on covered businesses, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data, and opt outs for certain uses of sensitive data. It also creates a new California data protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. Additional compliance investment and potential business process changes may also be required. Similar laws have passed in Virginia, Colorado, Connecticut and Utah, and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. The enactment of such laws could have potentially conflicting requirements that would make compliance challenging. In the event that we are subject to or affected by HIPAA, the CCPA, the CPRA or other domestic privacy and data protection laws, any liability from failure to comply with the requirements of these laws could adversely affect our financial condition.

Our operations abroad may also be subject to increased scrutiny or attention from data protection authorities. Many countries in these regions have established or are in the process of establishing privacy and data security legal frameworks with which we, our collaborators, service providers, including our CRO, and contractors must comply. For example, the European Union General Data Protection Regulation, or GDPR, went into effect in May 2018 and imposes strict requirements for processing the personal information of subjects within the European Economic Area, or EEA, including clinical trial data. Companies that must comply with the GDPR face increased compliance obligations and risk, including more robust regulatory enforcement of data protection requirements and potential fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. Among Further, recent legal developments in Europe have created complexity and compliance uncertainty regarding certain transfers of personal data from the EEA. On July 16, 2020, the Court of Justice of the European Union, or the CJEU, invalidated the EU-U.S. Privacy Shield Framework, or the Privacy Shield, under which personal data could be transferred from the EEA to United States entities who had self-certified under the Privacy Shield scheme, and imposed further restrictions on use of the standard contractual clauses, or SCCs. In March 2022, the US and EU announced a new regulatory regime intended to replace the invalidated regulations; however, this new EU-US Data Privacy Framework has not been implemented beyond an executive order signed by President Biden on October 7, 2022 on Enhancing Safeguards for United States Signals Intelligence Activities. European court and regulatory decisions subsequent to the CJEU decision of July 16, 2020 have taken a restrictive approach to international data transfers. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the SCCs cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results.

Further, beginning January 1, 2021, companies have had to comply with the GDPR and also the United Kingdom GDPR, or UK GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in United Kingdom national law. The UK GDPR mirrors the fines under the GDPR, i.e., fines up to the greater of €20 million (£17.5 million) or 4% of global turnover. As we continue to expand into other foreign countries and jurisdictions, we may be subject to additional laws and regulations that may affect how we conduct business.

We incur increased costs as a result of operating as a public company, and our management devote substantial time to new compliance initiatives. We may fail to comply with the rules that apply to public companies, including Section 404 of the Sarbanes-Oxley Act of 2002, which could result in sanctions or other penalties that would harm our business.

We have incurred and will continue to incur significant legal, accounting and other expenses as a public company, including costs resulting from public company reporting obligations under the Exchange Act and regulations regarding corporate governance practices. The listing requirements of the Nasdaq Global Select Market and the rules of the

Securities and Exchange Commission, or SEC, require that we satisfy certain corporate governance requirements relating to director independence, filing annual and interim reports, stockholder meetings, approvals and voting, soliciting proxies, conflicts of interest and a code of conduct. Our management and other personnel have devoted and will need to devote a substantial amount of time to ensure that we comply with all of these requirements. Moreover, the reporting requirements, rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costlier. Any changes we make to comply with these obligations may not be sufficient to allow us to satisfy our obligations as a public company on a timely basis, or at all. These reporting requirements, rules and regulations, coupled with the increase in potential litigation exposure associated with being a public company, could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors or board committees or to serve as executive officers, or to obtain certain types of insurance, including directors' and officers' insurance, on acceptable terms.

We are subject to Section 404 of The Sarbanes-Oxley Act of 2002, or Section 404, and the related rules of the SEC, which generally require our management and independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting. Section 404 requires an annual management assessment of the effectiveness of our internal control over financial reporting. Once we are considered an "accelerated filer" or "larger accelerated filer" under SEC rules, we will be required to include an opinion from our independent registered public accounting firm on the effectiveness of our internal controls over financial reporting.

During the course of our review of our internal controls we may identify deficiencies in our internal controls that we must remediate. If we identify a material weakness in our internal controls over financial reporting, we may not detect errors on a timely basis and our financial statements may be materially misstated. We or our independent registered public accounting firm may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting, which could harm our operating results, cause investors to lose confidence in our reported financial information and cause the trading price of our stock to fall. In addition, as a public company we will be required to file accurate and timely quarterly and annual reports with the SEC under the Exchange Act. In order to report our results of operations and financial statements on an accurate and timely basis, we will depend in part on CROs to provide timely and accurate notice of their costs to us. Any failure to report our financial results on an accurate and timely basis could result in sanctions, lawsuits, delisting of our shares from The Nasdaq Global Select Market or other adverse consequences that would materially harm to our business.

We have recorded, and may be required to record in the future, significant charges if our long-lived assets become impaired.

We test long-lived assets for impairment if changes in circumstances or the occurrence of events suggest impairment exists. Any significant change in market conditions, including a sustained decline in our stock price, that indicate a reduction in carrying value may give rise to impairment in the period that indicators are present. For example, as a result of the sustained decline in our stock price and related market capitalization and a general decline in equity values in the biotechnology industry, we performed an impairment assessment of long-lived assets in connection with the preparation of the financial statements required to be included in this Annual Report on Form 10-K. Based on this assessment, we recognized a non-cash long-lived asset impairment charge of \$5.6 million during the year ended December 31, 2023. See Note 9, "Commitments and Contingencies - Impairment of Operating Lease Right-of-Use Asset and Other Long-Lived Assets" for additional factors and assumption that can result in impairment charges on our long-lived assets.

It is possible that changes in circumstances, many of which are outside of our control, or in the numerous variables associated with the assumptions and estimates used in assessing the appropriate valuation of our long-lived assets, could in the future result in an impairment to our long-lived assets, requiring us to record impairment charges, which would adversely affect our business, financial condition and results of operations.

Item 1B. Unresolved Staff Comments.

None.

Item 1C. Cybersecurity

Cybersecurity Risk Management and Strategy

We have developed and implemented a cybersecurity risk management program intended to protect the confidentiality, integrity, and availability of our critical systems and information. Our cybersecurity risk management program includes a cybersecurity incident response plan.

We design and assess our cybersecurity program based on the National Institute of Standards and Technology (NIST) Cybersecurity Framework. This does not imply that we meet any particular technical standards, specifications, or requirements, only that we use the NIST Cybersecurity Framework as a guide to help us identify, assess, and manage cybersecurity risks relevant to our business.

Our cybersecurity risk management program is integrated into our overall enterprise risk management program, and shares common methodologies, reporting channels and governance processes that apply across the enterprise risk management program to other legal, compliance, strategic, operational, and financial risk areas.

Our cybersecurity risk management program includes:

- risk assessments designed to help identify material cybersecurity risks to our critical systems, information, products, services, and our broader enterprise IT environment;
- a security team principally responsible for managing (1) our cybersecurity risk assessment processes, (2) our security controls, and (3) our response to cybersecurity incidents;
- the use of external service providers, where appropriate, to assess, test or otherwise assist with aspects of our security controls;
- cybersecurity awareness training of our employees, incident response personnel, and senior management;
- a cybersecurity incident response plan that includes procedures for responding to cybersecurity incidents; and
- a third-party risk management process for service providers, suppliers, and vendors.

We have not identified risks from known cybersecurity threats, including as a result of any prior cybersecurity incidents, that have materially affected or are reasonably likely to materially affect us, including our operations, business strategy, results of operations, or financial condition.

Cybersecurity Governance

Our Board considers cybersecurity risk as part of its risk oversight function and has delegated to the Audit Committee oversight of cybersecurity and other information technology risks. The Audit Committee oversees management's implementation of our cybersecurity risk management program.

The Audit Committee receives regular reports from management on our cybersecurity risks. In addition, management updates the Audit Committee, as necessary, regarding any material cybersecurity incidents, as well as any incidents with lesser impact potential.

The Audit Committee reports to the full Board regarding its activities, including those related to cybersecurity. The full Board also receives briefings from management on our cyber risk management program. Board members receive presentations on cybersecurity topics from our Head of Information Technology, internal security staff or external experts as part of the Board's continuing education on topics that impact public companies.

Our management team, including our Head of Information Technology and Chief Legal Officer and Head of Operations, is responsible for assessing and managing our material risks from cybersecurity threats. The team has primary responsibility for our overall cybersecurity risk management program and supervises both our internal cybersecurity personnel and our retained external cybersecurity consultants. Our management team's experience includes over 30 years of leading and managing IT infrastructure and security operations teams for various sized global companies across several different industries.

Our management team supervises efforts to prevent, detect, mitigate, and remediate cybersecurity risks and incidents through various means, which may include briefings from internal security personnel; threat intelligence and other information obtained from governmental, public or private sources, including external consultants engaged by us; and alerts and reports produced by security tools deployed in the IT environment.

Item 2. Properties.

Our corporate headquarters are located in South San Francisco, California, where we currently lease approximately 62,000 square feet of office and laboratory space pursuant to a lease dated February 28, 2019, of which approximately 23,000 square feet was subleased as of June 2021 through July 2024 and approximately 15,000 square feet was subleased as of July 2022 through June 2026 with an additional 17,000 square feet subleased as of September 2023 through June 2026. The majority of our employees work at our corporate headquarters.

Item 3. Legal Proceedings.

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

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market Information for Common Stock

Our common stock has been listed on the Nasdaq Global Select Market under the symbol “UBX” since May 3, 2018. As of March 1, 2024, there were 45 holders of record of our common stock. Because many of our shares of common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of beneficial owners of our common stock represented by these record holders.

Dividend Policy

We have never declared or paid any cash dividends on our common stock or any other securities. We anticipate that we will retain all available funds and any future earnings, if any, for use in the operation of our business and do not anticipate paying cash dividends in the foreseeable future. In addition, future debt instruments may materially restrict our ability to pay dividends on our common stock. Payment of future cash dividends, if any, will be at the discretion of the board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs, the requirements of current or then-existing debt instruments and other factors the board of directors deems relevant.

Sales of Unregistered Equity Securities

There were no sales of unregistered securities during the year ended December 31, 2023 that were not previously reported in a quarterly report on Form 10-Q or current report on Form 8-K.

Repurchase of Shares or of Company Equity Securities

None.

Item 6. [Reserved]

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

You should read the following discussion and analysis of our financial condition and results of operations together with the section entitled “Selected Financial Data” and our audited financial statements and related notes included elsewhere in this report. This discussion and other parts of this report contain forward-looking statements that involve risks and uncertainties, such as our plans, objectives, expectations, intentions and beliefs. Our actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section entitled “Risk Factors” included elsewhere in this report.

Overview

We are a biotechnology company engaged in researching and developing therapeutics to slow, halt, or reverse diseases of aging. Our initial focus is on creating senolytic medicines to selectively eliminate senescent cells and thereby treat diseases of aging, such as ophthalmologic diseases.

In July 2020, we filed an Investigational New Drug application, or IND, to commence a Phase 1, first-in-human, open-label, single-ascending dose study of UBX1325 (foselutoclax) in patients with advanced diabetic macular edema, or DME, and neovascular age-related macular degeneration, or nAMD. Our goal with UBX1325 is to transformationally improve outcomes for patients with DME. In October 2020, the Phase 1, first-in-human, clinical study of UBX1325 commenced. That study, an open-label, single ascending dose clinical trial, evaluated doses from 0.5 – 10 µg administered as a single intra-vitreous injection in up to 8 patients with DME and 11 patients with nAMD all of whom had been off all anti-VEGF treatment due to lack of benefit for at least 6 months. The results of this study demonstrated acceptable safety and tolerability without any dose-limiting toxicities; no evidence of intraocular inflammation; and mean improvement in Best Corrected Visual Acuity (BCVA) of up to 9.5 ETDRS letters in those patients with DME receiving higher doses (5 and 10 µg) and a mean improvement in BCVA of 3.2 ETDRS letters in evaluable patients with nAMD at all doses, both at 24 weeks after treatment with UBX1325.

In May 2021, we initiated our Phase 2 BEHOLD study of UBX1325 in patients with DME and dosed our first patient in June 2021. This study was a multi-center, randomized, double-masked, sham-controlled study designed to evaluate the safety, tolerability, efficacy and durability of a single 10 µg dose of UBX1325 (foselutoclax) in patients with DME evaluated through 24 weeks. Patients had the option of rolling over to a 48-week long term extension and a majority of patients who completed their 24-week visits opted to remain in the study. A total of 65 patients were enrolled, randomized evenly between UBX1325 and sham-injected patients. These patients were being actively treated with anti-VEGF for at least 6 months prior to being randomized into the BEHOLD study (mean of 4.03 injections in the 6 months preceding randomization), and had persistent visual acuity deficits (73 ETDRS letters or worse, approximately 20/40 or worse, mean of 61.4 letters at baseline) and residual retinal fluid (≥ 300 µm of central subfield thickness on optical coherence tomography, mean of approximately 439.6 µm). At the time of randomization, patients were taken off of their anti-VEGF treatment, and instead treated with UBX1325 or a sham procedure. Endpoints explored in the study included safety and tolerability, changes in BCVA, CST, SRF/IRF, proportion of patients requiring rescue treatment, and durability of effects.

In August 2022, we announced positive 12- and 18-week data in our Phase 2 BEHOLD study, including that a single injection of UBX1325 led to a progressive, statistically significant, and clinically meaningful improvement in mean best-corrected visual acuity compared to sham treatment. At Week 18, the mean change from baseline of BCVA for UBX1325-treated subjects was an increase of 6.1 ETDRS letters that represented a difference of +5.0 ETDRS letters compared to sham-treated subjects ($p=0.0368$). In addition, patients treated with UBX1325 maintained central subfield thickness (CST) (+3.2 microns) compared to sham-treated patients who had progressive worsening (increase) in CST through 18 weeks (+53.5 microns) ($p=0.0719$).

In November 2022, we announced positive 24-week data in our BEHOLD study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in BCVA of +6.2 ETDRS letters from baseline and +7.6 ETDRS letters compared to sham treatment ($p=0.0084$). Inclusive of rescue data, patients treated with UBX1325 had a mean improvement in BCVA of +6.4 ETDRS letters from baseline and +5.2 ETDRS letters compared to sham ($p=0.0068$). At 24 weeks, patients treated with UBX1325 had a mean change in CST of –5.4

microns from baseline compared to a worsening (increase) of +34.6 microns in sham-treated patients ($p=0.1244$). The proportion of rescue-free patients at 24 weeks was greater on UBX1325 (59.4%) as compared to sham (37.5%) with fewer total rescues and longer time-to-rescue in UBX1325-treated patients as compared to sham. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis. Patients were followed through 48 weeks post-treatment in a long-term follow-up.

In April 2023, we announced positive 48-week data from this long-term follow-up in our BEHOLD study in 50 patients who participated in the 48-week extension study, showing that a single injection of UBX1325 led to a statistically significant and clinically meaningful improvement in vision lasting for the duration of the study (48 weeks), marked by a gain of +6.2 ETDRS letters from baseline, representing a difference of +5.6 ETDRS letters compared to sham-treated patients. In addition, patients treated with UBX1325 maintained stable CST compared to worsening in sham-treated patients ($p=0.1198$). Approximately 50% of UBX1325-treated patients did not require any additional injections through 48 weeks, compared to only 22% of patients in the sham arm. Retinal structure, as measured by central subfield thickness (CST), was maintained in UBX1325-treated patients throughout the duration of the study. UBX1325 continued to show a favorable safety and tolerability profile with no evidence of intraocular inflammation.

In December 2023, we announced that the first patients have been dosed in our Phase 2b ASPIRE study, designed to evaluate UBX1325 (foselutoclax) head-to-head against aflibercept in previously treated patients with active DME who are not achieving optimal benefit from standard of care. We are currently enrolling patients into the ASPIRE study in DME, which is a multi-center, randomized, double-masked, active-controlled study designed to evaluate the safety and efficacy of UBX1325 in comparison to aflibercept. Patients are expected to be randomized 1:1 to receive either 10 μg UBX1325, or 2 mg of aflibercept control injections every eight weeks for six months. We expect to enroll approximately 50 participants with DME who have residual visual acuity deficits and excess fluid in the retina despite having received at least three anti-VEGF injections in the preceding six months. All participants will receive three doses of 2 mg aflibercept as a “run-in” prior to randomization. The primary efficacy endpoint will be mean change from baseline in BCVA to week 24. Secondary endpoints will include change in BCVA over time, and CST change from baseline to week 24, and percentage of participants with one or more treatment-emergent ocular adverse events during the course of the study. We currently anticipate our 16-week data readout in the fourth quarter of 2024 and our 24-week data readout in the first quarter of 2025.

On age-related macular degeneration (AMD), in March 2022, we enrolled our first patient in the Phase 2 ENVISION study. In September 2022, the study completed enrollment of patients with nAMD who have had at least two intravitreal injections of anti-VEGF therapy in the preceding six months and who still have active choroidal neovascularization and residual sub- or intra-retinal fluid. Patients were to have received their last anti-VEGF treatment approximately 4-8 weeks prior to screening, and all patients were followed for approximately 24 weeks after dosing with either UBX1325 or aflibercept.

In March 2023, we announced 16-week and 24-week data in Part A of our ENVISION study, in which UBX1325 monotherapy did not achieve non-inferiority through 24 weeks due, in part, to an unexpected 3.5 letter gain at week two in the anti-VEGF control arm. UBX1325 maintained visual acuity in patients with ongoing active disease through 24 weeks with less than one letter mean decrease from baseline (-0.8 ETDRS letters at 24 weeks compared to $+3.1$ ETDRS letters in the aflibercept control arm). Of UBX1325-treated patients, 52% did not require anti-VEGF treatment through 24 weeks. UBX1325 demonstrated a favorable safety and tolerability profile with no cases of intraocular inflammation, retinal artery occlusion, endophthalmitis, or vasculitis.

In September 2023, we announced 48-week data in Part B of our ENVISION study, in which UBX1325 demonstrated a favorable safety and tolerability profile in the combination and monotherapy arms with no cases of significant intraocular inflammation, retinal artery occlusion or endophthalmitis. Patients switched from every 8-week aflibercept to a combination of aflibercept and UBX1325 at week 24 maintained vision gains achieved with aflibercept alone through week 48. Patients in a pre-specified subgroup with poor visual acuity at baseline (≤ 60 ETDRS letters) gained 3.2 ETDRS letters on combination treatment between weeks 24 and 48. In the UBX1325 monotherapy arm, patients maintained visual acuity for the duration of the study, with a mean change of $+0.1$ ETDRS letters at the 24-week time point and a mean change of -1.5 ETDRS letters at 48 weeks. 40% of UBX1325-treated patients did not need anti-

VEGF rescue through 48 weeks and 64% of the patients achieved an anti-VEGF treatment-free period of over 24-weeks. The median time to first anti-VEGF rescue was 32 weeks.

In February 2022, and again on May 4, 2023, we announced restructuring efforts to align resources to focus on our ongoing clinical programs and deliver on key development milestones. These actions to prioritize our ophthalmology programs, optimize resource allocation, extend our runway, and implement cost saving measures were designed to enable us to achieve multiple key clinical data readouts for UBX1325. As part of the May 2023 restructuring actions, we reduced our headcount by a total of nine employees, or approximately 29%, effective as of May 31, 2023, with three employees who departed as of June 30, 2023.

On November 9, 2023, we entered into an Inducement Offer with certain holders, or Holders of existing warrants, or Existing Warrants, to purchase up to an aggregate of 2,143,000 shares of common stock, which warrants were issued to the Holders on August 22, 2022, having an exercise price of \$8.50 per share. The Holders agreed to exercise for cash their Existing Warrants to purchase an aggregate of 2,143,000 shares of common stock at a reduced exercise price of \$2.045 per share, or the Exercise, in consideration of our agreement to issue new warrants, or the New Warrants to purchase up to an aggregate of 2,143,000 shares of common stock, or the New Warrant Shares. Each New Warrant has an exercise price equal to \$1.92 per share. We received aggregate gross proceeds of approximately \$4.4 million from the Exercise, before deducting \$0.6 million in placement agent fees and other offering expenses payable by us. We also issued to the placement agent, H.C. Wainwright & Co., LLC, warrants to purchase up to 128,580 shares of common stock with an exercise price equal to \$2.5563 per share. We expect to use the net proceeds from the Inducement Offer for working capital, operating expenses to include clinical trial progression, and general corporate purposes. The resale of the New Warrant Shares and the shares underlying the warrants issued to the placement agent was registered on a Registration Statement on Form S-3 initially filed on December 6, 2023 pursuant to the terms of the Inducement Offer.

Since the commencement of our operations, we have invested a significant portion of our efforts and financial resources in research and development activities, and we have incurred net losses each year since inception. Our net losses were \$39.9 million and \$44.5 million for the twelve months ended December 31, 2023 and 2022, respectively. We do not have any products approved for sale, and we have never generated any product revenue. As of December 31, 2023, we had an accumulated deficit of \$484.4 million, and we do not expect positive cash flows from operations in the foreseeable future.

Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and from general and administrative costs associated with our operations. Based on our current operating plans and following the cash exercise by certain holders of existing warrants, we expect our existing capital resources will fund our planned operating expenses into the third quarter of 2025, which will be used to advance UBX1325. We will need to raise additional capital; however, adequate funding may not be available to us on acceptable terms, or at all, particularly in light of the current economic uncertainty, high interest rates, rising inflation, the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions, and the potential for local and/or global economic recession. We expect to continue to look for opportunities to secure such financing in the near future, in addition to using our existing 2022 ATM Offering Programs (as defined below). If sufficient funds on acceptable terms are not available when needed, we could be required to significantly reduce our operating expenses and delay, reduce the scope of, or eliminate one or more of our development programs.

We expect to continue to incur net operating losses for at least the next several years as we continue our research and development efforts, advance our drug candidates through preclinical and clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization. We do not expect to generate revenue from any drug candidates that we develop until we obtain regulatory approval for one or more of such drug candidates and commercialize our products or enter into collaborative agreements with third parties.

We rely on third parties in the conduct of our preclinical studies and clinical trials and for manufacturing and supply of our drug candidates. We have no internal manufacturing capabilities, and we will continue to rely on third parties, many of whom are single-source suppliers, for our preclinical and clinical trial materials, as well as the commercial supply of our products. In addition, we do not yet have a marketing or sales organization or commercial infrastructure. Accordingly, we will incur significant expenses to develop a marketing and sales organization and commercial infrastructure in advance of generating any product sales.

Reverse Stock Split

On October 18, 2022, at a special meeting of stockholders, or the Special Meeting, our stockholders approved a proposal authorizing our board of directors, in its discretion, to effect a reverse stock split of our outstanding shares of common stock at a ratio ranging from 1-for-6 to 1-for-12 to be determined by the board of directors in its discretion following the Special Meeting and prior to our annual meeting of stockholders to be held in 2023. On October 19, 2022, our board of directors approved a 1-for-10 reverse stock split of our outstanding common stock. A Certificate of Amendment to the Amended and Restated Certificate of Incorporation effecting the reverse stock split was filed with the Secretary of State of the State of Delaware on October 19, 2022 and the reverse stock split became effective at 5:00 p.m., Eastern Time, on October 19, 2022. At the effective time, every 10 shares of common stock issued and outstanding was automatically reclassified into one new share common stock without any action on the part of the holders. No fractional shares of common stock were issued in the reverse stock split, but in lieu thereof, each holder of common stock who would otherwise have been entitled to a fraction of a share in the reverse stock split received a cash payment. Proportionate adjustments were made to the exercise prices and the number of shares underlying our outstanding equity awards, as applicable, and warrants exercisable for shares of common stock, as well as to the number of shares issuable under our equity incentive plans and certain existing agreements. The common stock issued pursuant to the reverse stock split remain fully paid and non-assessable. The reverse stock split affected all stockholders of our common stock uniformly, and did not affect any stockholder's percentage of ownership interest. Unless otherwise noted, all share and per share information included in this Annual Report on Form 10-K has been adjusted to give effect to the reverse stock split.

The reverse stock split did not affect the number of authorized shares of common stock or the par value of our common stock.

Components of Our Results of Operations

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for the development of our drug candidates, which include:

- personnel-related expenses, including salaries, benefits, severance, and stock-based compensation for personnel contributing to research and development activities;
- laboratory expenses including supplies and services;
- clinical trial expenses;
- expenses incurred under agreements with third-party contract manufacturing organizations, contract research organizations, research and development service providers, academic research institutions, and consultants;
- expenses related to license and sponsored research agreements; and
- facilities and other allocated expenses, including expenses for rent and facilities maintenance, and depreciation and amortization.

We expect our research and development expenses to increase as we advance our drug candidates into and through preclinical and clinical trials and pursue regulatory approval of our drug candidates. The process of conducting the clinical trials required to obtain regulatory approval is costly and time-consuming. Clinical trials generally become larger and more costly to conduct as they advance into later stages and we are required to make estimates for expense accruals related to clinical trial expenses. The actual probability of success for our drug candidates may be affected by a variety of factors including: the safety and efficacy of our drug candidates, early clinical data, investment in our clinical program, the ability of collaborators, if any, to successfully develop any drug candidates we license to them, competition, manufacturing capability and commercial viability. We may never succeed in achieving regulatory approval for any of our drug candidates. Program costs that are direct external expenses are tracked on a program-by-program basis once they enter clinical studies. As a result of the uncertainties discussed above, we are unable to

determine the duration and completion costs of our research and development projects or when and to what extent we will generate revenue from the commercialization and sale of our drug candidates.

General and Administrative Expenses

Our general and administrative expenses consist primarily of personnel costs, allocated facilities costs and other expenses for outside professional services, including legal, audit and accounting services, and depreciation and amortization expense related to property and equipment. Personnel costs consist of salaries, benefits, severance, and stock-based compensation. We expect to continue to incur additional expenses associated with operating as a public company, including expenses related to compliance with the rules and regulations of the Securities and Exchange Commission and standards applicable to companies listed on a national securities exchange, additional insurance expenses, investor relations activities, and other administrative and professional services.

Interest Income

Interest income is primarily related to interest earned on our marketable securities.

Interest Expense

Interest expense relates to interest on the Loan Agreement entered into on August 3, 2020 which was subsequently paid down in September 6, 2023.

Gain or Loss on Warrant Liability

Gain or loss is primarily related to the non-cash changes in the estimated fair value of the warrants associated with the Follow-On Offering of the Company's common stock in August 2022 and the Inducement Offer in November 2023.

Impairment of long-lived assets

Impairment charges relate to the right-of-use asset and related leasehold improvements upon subleasing our office space located in South San Francisco, California.

Other Expense, Net

Other expense, net in 2021 includes the commitment share expenses related to the equity purchase agreement with Lincoln Park Capital Fund and the debt extinguishment gain from the conversion of debt to equity. Other expense, net during the year ended December 31, 2023 includes the recognized gains resulting from the sale of fixed assets.

Results of Operations

Comparison of the Years Ended December 31, 2023 and 2022

The following table sets forth the significant components of our results of operations (in thousands):

	Year ended December 31,		
		2022	
	2023	(Restated)	Change
Summary of Operations Data:			
Licensing revenue – related party	\$ —	\$ 236	\$ (236)
Operating expenses:			
Research and development	20,099	36,859	(16,760)
General and administrative	18,966	20,949	(1,983)
Impairment of long-lived assets	5,602	—	5,602
Total operating expenses	44,667	57,808	(13,141)
Loss from operations	(44,667)	(57,572)	12,905
Interest income	2,874	1,220	1,654
Interest expense	(2,452)	(3,558)	1,106
Gain (loss) on warrant liability	6,215	16,843	(10,628)
Other expense, net	(1,830)	(1,402)	(428)
Net loss	<u>\$ (39,860)</u>	<u>\$ (44,469)</u>	<u>\$ 4,609</u>

Licensing Revenue – Related Party

In December 2021, we entered into a licensing agreement with Jocasta Neuroscience, Inc. (“Jocasta”) pursuant to which we exclusively licensed all of our rights to UBX2089, our α -Klotho asset. The agreement provided for an upfront fee of \$5.0 million. We recognized revenue of zero and \$0.2 million for the years ended December 31, 2023 and 2022, respectively, related to the delivery of the know-how performance obligation under the License Agreement entered into with Jocasta in December 2021.

Research and Development

Research and development expenses decreased by \$16.8 million, to \$20.1 million for the year ended December 31, 2023 from \$36.9 million for the year ended December 31, 2022. The decrease was primarily due to decreases of \$7.3 million in direct research and development expenses mainly due to the completion of our UBX1325 BEHOLD and ENVISION studies, \$7.2 million in personnel costs due to our reduced headcount and reduction in force, \$2.0 million in facilities-related costs primarily due to the sublease of our East Grand facility, and \$0.3 million in laboratory supplies.

General and Administrative

General and administrative expenses decreased by \$1.9 million, to \$19.0 million for the year ended December 31, 2023 from \$21.0 million for the year ended December 31, 2022. The decrease was primarily due to decreases of \$2.5 million in personnel costs due to our reduced headcount and reduction in force, partially offset by an increase of \$0.6 million in professional fees.

Impairment of Long-Lived Assets

Impairment charges consisted of impairment of long-lived assets. During the year ended December 31, 2023, we recorded an impairment charge of \$5.6 million after evaluating the right-of-use asset and related leasehold improvements upon subleasing our office space located in South San Francisco, California. There were no impairment charges during the year ended December 31, 2022.

Interest Income

Our interest income was \$2.9 million for the year ended December 31, 2023, as compared to \$1.2 million for the year ended December 31, 2022. The increase is primarily attributable to continued increases in market yields during the year.

Interest Expense

Our interest expense of \$2.4 million and \$3.5 million for the years ended December 31, 2023 and 2022, respectively, is related to the Loan Agreement.

Gain or Loss on Warrant Liability

Our unrealized gain was \$6.2 million and \$16.8 million for the years ended December 31, 2023 and 2022, respectively. Gain is attributable to the subsequent non-cash changes in the estimated fair value of the warrants associated with the Follow-On Offering of the Company's common stock in August 2022 and the Inducement Offering in November 2023.

Other Expense, Net

Other expense, net, was \$1.8 million for the year ended December 31, 2023 which includes \$1.0 million in issuance costs and loss on extinguishment of Existing Warrants, \$0.5 million in debt extinguishment loss associated to the unamortized debt discount, and \$0.3 million in property and other taxes. Other expense was immaterial for the year ended December 31, 2022 which includes \$0.2 million in recognized gains resulting from the extinguishment of the derivative related to long term debt and \$0.1 million from the gains on sale of assets, offset by \$0.3 million property and other tax expense.

Comparison of the years ended December 31, 2022 and 2021

The following table sets forth the significant components of our results of operations (in thousands):

	<u>Year ended December 31,</u>		
	<u>2022</u>		
	<u>(Restated)</u>	<u>2021</u>	<u>Change</u>
Summary of Operations Data:			
Licensing revenue – related party	\$ 236	\$ 4,784	\$ (4,548)
Operating expenses:			
Research and development	36,859	38,393	(1,534)
General and administrative	20,949	23,056	(2,107)
Total operating expenses	57,808	61,449	(3,641)
Loss from operations	(57,572)	(56,665)	(907)
Interest income	1,220	100	1,120
Interest expense	(3,558)	(3,177)	(381)
Gain (loss) on warrant liability	16,843	—	16,843
Other expense, net	(1,402)	(983)	(419)
Net loss	<u>\$ (44,469)</u>	<u>\$ (60,725)</u>	<u>\$ 16,256</u>

Licensing Revenue – Related Party

In December 2021, we entered into a licensing agreement with Jocasta Neuroscience, Inc., or Jocasta, pursuant to which we exclusively licensed all of our rights to UBX2089, our α -Klotho asset. The agreement provided for an upfront fee of \$5.0 million. We recognized revenue of \$0.2 million and \$4.8 million for the years ended December 31, 2022 and 2021, respectively, related to the grant of license and delivery of the know-how performance obligation under the License Agreement entered into with Jocasta in December 2021.

Research and Development

Research and development expenses decreased by \$1.5 million, to \$36.9 million for the year ended December 31, 2022 from \$38.4 million for the year ended December 31, 2021. The decrease was primarily due to decreases of \$3.3 million in facilities-related costs primarily due to allocation to general and administrative expenses of net expenses on Brisbane and East Grand facilities which have been subleased, \$2.6 million in personnel costs due to our reduced headcount and reduction in force, and \$1.8 million in laboratory supplies, partially offset by an increase of \$6.2 million in direct research and development expenses mainly due to the continued advancement of our lead UBX1325 candidates.

General and Administrative

General and administrative expenses decreased by \$2.1 million, to \$21.0 million for the year ended December 31, 2022 from \$23.1 million for the year ended December 31, 2021. The decrease was primarily due to decreases of \$1.4 million in personnel costs due to our reduced headcount and reduction in force, \$0.4 million in professional fees, and \$0.3 million in facilities-related costs.

Interest Income

Our interest income was \$1.2 million for the year ended December 31, 2022, as compared to \$0.1 million for the year ended December 31, 2021. The increase is primarily attributable to higher market yields and increased cash balances on our cash equivalents and marketable securities.

Interest Expense

Our interest expense of \$3.5 million and \$3.2 million for the years ended December 31, 2022 and 2021, respectively, is related to the Loan Agreement.

Gain or Loss on Warrant Liability

Our unrealized gain was \$16.8 million and zero for the years ended December 31, 2022 and 2021, respectively. Unrealized gain is attributable to the non-cash changes in the estimated fair value of the warrants associated with the Follow-On Offering of the Company's stock in August 2022.

Other Expense, Net

Other expense, net, was \$1.4 million for the year ended December 31, 2022 which primarily relates to the issuance cost on Existing Warrants. Other expense, net, was \$1.0 million for the year ended December 31, 2021 which includes \$0.8 million commitment share expenses related to the equity purchase agreement with Lincoln Park Capital Fund and \$0.3 million property and other tax expense, partially offset by \$0.2 million gain from the extinguishment of the derivative related to long term debt and the sale of assets.

Liquidity, Capital Resources and Capital Requirements

Sources of Liquidity

We have incurred net losses each year since inception. We do not have any products approved for sale and have never generated any revenue from product sales. Historically, we have incurred operating losses as a result of ongoing efforts to develop our drug candidates, including conducting ongoing research and development, preclinical studies and providing general and administrative support for these operations. Our net losses were \$39.9 million and \$44.5 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, we had an accumulated deficit of \$484.4 million, and we do not expect positive cash flows from operations in the foreseeable future. Our future viability is dependent on its ability raise additional capital to finance its operations. Although we have been successful in raising capital in the past, there is no assurance that we will be successful in obtaining such additional financing. If sufficient funds on acceptable terms are not available when needed, we could be further required to significantly reduce its operating expenses and delay, reduce the scope of, or eliminate one or more of our development programs. Failure to manage discretionary spending or raise additional financing, as needed, may adversely impact our ability to achieve our intended business objectives, or liquidate assets where possible, cease operations or file for bankruptcy protection. Based on our current operating plans, we expect our existing capital resources will fund our planned operating expenses into the third quarter of 2025, which will be used to advance UBX1325, therefore, sufficient to fund our operations for a period of at least one year from the date the accompanying Financial Statements are filed with the Securities and Exchange Commission.

Adequate funding may not be available to us on acceptable terms, or at all, particularly in light of the economic uncertainty, liquidity concerns at financial institutions, and potential for local and/or global economic recession. Further, if banks and financial institutions enter receivership or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, our ability to access our existing cash, cash equivalents and marketable securities may be threatened, which could have a material adverse effect on our business and financial condition.

Further, based on our public float, as of the date of the filing of this Annual Report on Form 10-K, we are only permitted to utilize a shelf registration statement, including the registration statements under which our ATM Offering Programs are operated, subject to Instruction I.B.6 to Form S-3, which is referred to as the "baby shelf" rule. For so long as our public float is less than \$75.0 million, we may not sell more than the equivalent of one-third of our public float during any 12 consecutive months pursuant to the baby shelf rules. Although alternative public and private transaction structures may be available, these may require additional time and cost, may impose operational restrictions on us, and may not be available on attractive terms. If sufficient funds on acceptable terms are not available when needed, we could be required to significantly reduce our operating expenses and delay, reduce the scope of, or eliminate one or more of our development programs. Failure to manage discretionary spending or raise additional financing, as needed, may adversely impact our ability to achieve our intended business objectives because without substantial additional capital, we may not be able to complete pivotal trials necessary to advance our product development and our programs.

We have historically financed our operations primarily through private placements of preferred stock and promissory notes, as well as public equity issuances, such as our initial public offering, and more recently through proceeds from our Loan Agreement, our prior and existing at-the-market offering programs, the Equity Purchase

Agreement, and the sale of common stock and warrants in the Follow-On Offering and the Inducement Offer (each as defined below) and we will continue to be dependent upon equity and/or debt financing to operate our business until we are able to generate positive cash flows from our operations.

In August 2020, we entered into a Loan and Security Agreement, as amended, restated, supplemented or otherwise modified, the "Hercules Loan Agreement") with Hercules Capital, Inc., or Hercules, as administrative agent and collateral agent for the lenders, and certain banks and other financial institutions or entities from time to time parties thereto, for an aggregate principal amount of up to \$80.0 million secured term loan facility, or the Hercules Facility, subject to certain terms and conditions. \$25.0 million was advanced to us on the date of execution of the Hercules Loan Agreement. In August 2022, we met certain clinical and capital raising milestones, which extended the interest only period to March 2023. On January 25, 2023, we entered into a second amendment to the Hercules Loan Agreement whereas the amortization date was extended from March 1, 2023 to April 1, 2023. As such, we continued to make interest only payments up to the amended amortization date and were required to repay the principal balance and interest in equal monthly installments through August 1, 2024. In December 2021, we entered into an amendment to the Hercules Loan Agreement under the terms of which, Hercules (including any of its assignees) had the option for a period of six (6) months to convert up to \$5.0 million of the outstanding principal under the existing loan into shares of our common stock. Under this amendment, the required cash reserve amount would be reduced by the principal amount of the converted loan to not less than \$10 million. As of December 31, 2022, we had issued 435,497 shares of our common stock reducing our outstanding loan principal balance by \$5.0 million and reducing the required cash reserve to \$10 million. In addition, the interest-only period could extend an additional three months to June 1, 2023 if specific milestones related to our clinical trials and raising additional capital by April 1, 2023 were met; however, we did not meet all these criteria such that the amortization date remained April 1, 2023. There were no material adverse events in connection with the Hercules Loan Agreement.

In September 2023, we and Hercules entered into a payoff letter for a voluntary prepayment with respect to the Hercules Loan Agreement, or the Payoff Letter. Pursuant to the Payoff Letter, we paid a total of \$15.0 million to Hercules, representing the outstanding principal, accrued and unpaid interest, fees, costs and expenses due to Hercules under the Hercules Facility and the Hercules Loan Agreement and related loan documents, in repayment of our outstanding obligations under the Hercules Facility and the Hercules Loan Agreement and related loan documents, and thereby terminated the Hercules Loan Agreement and the Hercules Facility and related loan documents.

In March 2022, we filed the March 2022 Shelf Registration Statement and entered into the March 2022 Sales Agreement, as amended, with Cowen as sales agent to sell shares of our common stock, from time to time, with aggregate gross sales proceeds of up to \$25.0 million pursuant to the March 2022 Shelf Registration Statement as an "at-the-market" offering under the Securities Act. Cowen is entitled to up to 3.0% of the gross proceeds of any shares of common stock sold under the March 2022 Sales Agreement. During the year ended December 31, 2023, there were 274,781 shares of the Company's common stock sold pursuant to the March 2022 Sales Agreement and the Company's received total net proceeds of approximately \$0.7 million, after deducting commissions and other offering expenses which were insignificant.

On August 22, 2022, we closed an underwritten offering, or the Follow-On Offering, in which the Company issued and sold an aggregate of 6,428,571 shares of common stock together with warrants, or the Warrants, to purchase an up to aggregate of 6,428,572 shares of common stock at an offering price of \$7.00 per unit. The Warrants have an exercise price of \$8.50 per share underlying the Warrant. The gross proceeds to us were approximately \$45 million.

On November 9, 2023, we entered into an Inducement Offer with certain Holders of Existing Warrants to purchase up to an aggregate of 2,143,000 shares of common stock, which warrants were issued to the Holders on August 22, 2022, having an exercise price of \$8.50 per share. The Holders agreed to exercise for cash their Existing Warrants to purchase an aggregate of 2,143,000 shares of common stock at a reduced exercise price of \$2.045 per share in consideration of the Company's agreement to issue New Warrants to purchase up to an aggregate of 2,143,000 shares of New Warrant Shares. Each New Warrant has an exercise price equal to \$1.92 per share. We received aggregate gross proceeds of approximately \$4.4 million from the Exercise, before deducting placement agent fees and other offering expenses payable by us. We also issued to the placement agent, H.C. Wainwright & Co., LLC, warrants to purchase up to 128,580 shares of common stock with an exercise price equal to \$2.5563 per share. We expect to use the net proceeds from the Inducement Offer for working capital, operating expenses to include clinical trial

progression, and general corporate purposes. The New Warrant Shares were registered on a Registration Statement on Form S-3 filed on December 6, 2023 pursuant to the terms of the Inducement Offer.

In October 2022, we filed the October 2022 Shelf Registration Statement and also entered into the October 2022 Sales Agreement with Cowen as sales agent to sell shares of our common stock, from time to time, with aggregate gross sales proceeds of up to \$50.0 million pursuant to the October 2022 Shelf Registration Statement as an “at-the-market” offering under the Securities Act. Cowen is entitled to up to 3.0% of the gross proceeds of any shares of common stock sold under the October 2022 Sales Agreement. There were no shares sold under the October 2022 ATM Offering Program during the year ended December 31, 2023.

In September 2021, we entered into a Purchase Agreement with Lincoln Park Capital Fund, LLC, under which we may at our discretion, sell up to \$30.0 million shares of our common stock over a 36-month period, subject to certain daily limits, applicable prices, and conditions. During the first quarter of 2022, we had initiated the purchase of 0.1 million shares of our common stock amounting to \$0.9 million in gross proceeds. There were no purchases initiated in the remaining three quarters of 2022. Issuances under the Purchase Agreement were to be made pursuant to the Company’s Registration Statement filed in July 2019, which has since expired. The Company would need to file a new prospectus supplement covering issuances under the Purchase Agreement in order to continue using the facility.

Future Funding Requirements

To date we have not generated any product revenue. We expect to continue to incur significant losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our drug candidates, and begin to commercialize any approved products. We are subject to all of the risks typically related to the development of new drug candidates, and we may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may adversely affect our business. Moreover, since becoming a public company, we continue to incur additional ongoing costs associated with operating as a public company. We anticipate that we will need substantial additional funding in connection with our continuing operations.

Until we can generate a sufficient amount of revenue from the commercialization of our drug candidates or from collaborative agreements with third parties, if ever, we expect to finance our future cash needs through various means. We do not have any committed external source of funds. Additional capital may be raised through the sale of our equity securities through our ATM Offering Programs or otherwise, incurring debt, entering into licensing or collaboration agreements with partners, receiving research contributions, grants or other sources of financing to fund our operations. There can be no assurance that sufficient funds will be available to us on attractive terms or at all. If we are unable to obtain additional funding from these or other sources, it may be necessary to significantly reduce our rate of spending through reductions in staff and delaying, scaling back, or stopping certain research and development programs. Insufficient liquidity may also require us to relinquish rights to drug candidates at an earlier stage of development or on less favorable terms than we would otherwise choose.

We have based our projections of operating capital requirements on assumptions that may prove to be incorrect and we may use all our available capital resources sooner than we expect. Because of the numerous risks and uncertainties associated with research, development, and commercialization of biotechnology products, we are unable to estimate the exact amount of our operating capital requirements. Our future funding requirements will depend on many factors, including, but not limited to:

- the results of our ongoing clinical trials of UBX1325;
- our ability to reduce our operating expenses;
- the scope, progress, results and costs of researching and developing our drug candidates, and conducting preclinical studies and clinical studies;
- potential delays in or an increase in costs associated with our ongoing or planned preclinical studies or clinical trials;

- the timing of, and the costs involved in, obtaining regulatory approvals for our current drug candidates or any future drug candidates;
- the number and characteristics of any additional drug candidates we develop or acquire;
- the timing and amount of any milestone payments we are required to make pursuant to our license agreements;
- the cost of manufacturing our current drug candidates or any future drug candidates and any products we successfully commercialize;
- the cost of commercialization activities if our current drug candidates or any future drug candidates are approved for sale, including marketing, sales and distribution costs;
- our ability to maintain existing, and establish new, strategic collaborations, licensing 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;
- any product liability or other lawsuits related to our products;
- the costs associated with being a public company;
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing our intellectual property portfolio; and
- our ability to utilize our ATM Offering Programs and raise additional capital;
- the availability of capital in the technology and life sciences industries following the government closure of Silicon Valley Bank and liquidity concerns at other financial institutions;
- whether or not we can maintain compliance with the continued listing requirements of Nasdaq; and
- the timing, receipt and amount of sales of any future approved products, if any.

Cash Flows

The following table sets forth a summary of the primary sources and uses of cash and restricted cash for each of the periods presented below (in thousands):

	<u>Year ended December 31,</u>		
	<u>2023</u>	<u>2022</u> <u>(Restated)</u>	<u>2021</u>
Cash used in operating activities	\$ (37,088)	\$ (52,414)	\$ (45,060)
Cash provided by (used in) investing activities	60,495	(24,545)	39,313
Cash provided by (used in) financing activities	(16,340)	56,240	20,845
Net increase (decrease) in cash and restricted cash	<u>\$ 7,067</u>	<u>\$ (20,719)</u>	<u>\$ 15,098</u>

Operating Activities

Cash used in operating activities of \$37.1 million for the year ended December 31, 2023 consisted primarily of a net loss of \$39.9 million adjusted for net non-cash charges of \$7.2 million and net changes to our operating assets and liabilities of \$4.4 million. Our non-cash charges consisted primarily of \$7.4 million in stock-based compensation, \$5.6 million in impairment of long-lived assets, \$1.2 million in depreciation and amortization, \$0.7 million in

amortization of debt issuance costs, \$0.7 million in extinguishment loss and issuance costs on the warrants, and \$0.5 million in debt extinguishment loss, partially offset by \$6.2 million in gain on the warrant liability, \$1.5 million in net accretion and amortization of premium and discounts on marketable securities, \$1.1 million in non-cash rent expense, and \$0.1 million in gain on the disposal of property and equipment. The net change in our operating assets and liabilities primarily consisted of increases of \$1.7 million in prepaid expenses combined with decreases of \$1.2 million in accrued compensation, \$1.1 million in accrued liabilities and other current liabilities, and \$0.4 million in accounts payable.

Cash used in operating activities of \$52.4 million for the year ended December 31, 2022 consisted primarily of a net loss of \$44.5 million adjusted for net non-cash charges of \$6.9 million and net changes to our operating assets and liabilities of \$1.0 million. Our non-cash charges consisted primarily of \$9.4 million in stock-based compensation, \$2.2 million in depreciation and amortization, and \$1.3 million in amortization of debt issuance costs, partially offset by a \$16.9 million unrealized gain on the warrant liability, \$2.1 million in non-cash rent expense, \$0.3 million in net accretion and amortization of premium and discounts on marketable securities, \$0.3 million gain from disposal of property and equipment and \$0.2 million gain from the extinguishment of the derivative related to long term debt. The net change in our operating assets and liabilities primarily consisted of decreases of \$1.0 million in accrued compensation, and \$0.2 million in accounts payable, partially offset by decreases of \$0.1 million in prepaid expenses and other current assets and \$0.1 million in other long-term assets.

Cash used in operating activities of \$45.1 million for the year ended December 31, 2021 consisted primarily of a net loss of \$60.7 million adjusted for net non-cash charges of \$16.3 million and net changes to our operating assets and liabilities of \$0.6 million. Our non-cash charges consisted primarily of \$11.6 million in stock-based compensation, \$2.9 million in depreciation and amortization, \$1.5 million in common stock granted to a third party, \$1.0 million in net accretion and amortization of premium and discounts on marketable securities, \$0.8 million in amortization of debt issuance costs and \$0.8 million other expenses related to the equity purchase agreement with Lincoln Park Capital Fund, partially offset by a \$2.2 million in non-cash rent expense and \$0.1 million gain from the extinguishment of the derivative related to long term debt. The net change in our operating assets and liabilities primarily consisted of decreases of \$1.3 million in accrued compensation, \$1.1 million in accrued liabilities and other current liabilities, \$0.6 million in accounts payable and an increase of \$0.1 million in other long-term assets, partially offset by increases of \$1.0 million in derivative liability and \$0.2 million in deferred revenue and a decrease of \$1.3 million in prepaid expenses and other current assets.

Investing Activities

Cash provided by investing activities of \$60.5 million for the year ended December 31, 2023 was related to maturities of marketable securities of \$89.0 million and the sale of property and equipment of \$0.1 million, partially offset by purchases of marketable securities of \$28.6 million.

Cash used in investing activities of \$24.5 million for the year ended December 31, 2022 was related to purchases of marketable securities of \$98.8 million and property and equipment of \$0.1 million, partially offset by maturities of marketable securities of \$74.0 million and the sale of \$0.4 million of property and equipment.

Cash provided by investing activities of \$39.3 million for the year ended December 31, 2021 was related to maturities of marketable securities of \$121.0 million which were offset by purchases of marketable securities of \$81.5 million and purchases of property and equipment of \$0.2 million.

Financing Activities

Cash used by financing activities of \$16.3 million for the year ended December 31, 2023 was related to \$20.0 million principal repayment of long-term debt and \$1.5 million of term loan issuance costs, partially offset by \$4.4 million in proceeds from issuance of common stock and warrants from the Inducement Offer, \$0.7 million in proceeds from the sale of common stock through our ATM Offering Program, net of issuance costs, and \$0.1 million in proceeds from the issuance of common stock under the 2018 Employee Stock Purchase Plan.

Cash provided by financing activities of \$56.2 million for the year ended December 31, 2022 was related to \$45.0 million in proceeds from issuance of common stock and warrants from our Follow-On Offering, \$12.2 million in proceeds from the sale of common stock through our ATM Offering Program, net of issuance costs, \$0.9 million in proceeds from issuance of common stock to Lincoln Park Capital Fund, net of issuance costs, and \$0.1 million in proceeds from the issuance of common stock under the 2018 Employee Stock Purchase Plan, partially offset by \$2.0 million of issuance costs for the sale of common stock.

Cash provided by financing activities of \$20.8 million for the year ended December 31, 2021 was related to \$10.4 million in proceeds from the sale of common stock through our ATM Offering Program, net of issuance costs, \$8.2 million in proceeds from issuance of common stock to Lincoln Park Capital Fund, net of issuance costs, \$1.8 million in proceeds from issuance of common stock upon exercise of stock options, net of repurchases, \$0.3 million in proceeds from the issuance of common stock under the 2018 Employee Stock Purchase Plan and \$0.2 million in proceeds from the repayment of employee promissory note, partially offset by \$0.1 million current portion of long-term debt arrangement.

Contractual Obligations and Other Commitments

Our contractual obligations and commitments relate primarily to our Loan Agreement, operating lease and non-cancelable purchase obligations under agreements with various research and development organizations and suppliers in the ordinary course of business. See Note 9, “Commitments and Contingencies” to our financial statements for further information.

We are party to various license agreements pursuant to which we have in-licensed rights to various technologies, including patents, research “know-how” and proprietary research tools, for the discovery, research, development and commercialization of drug candidates to treat age-related diseases. The license agreements obligate us to make certain milestone payments related to specified clinical development and sales milestone events, as well as tiered royalties in the low-single digits based on sales of licensed products. See Note 6 to our financial statements “License Revenue, Agreements and Strategic Investment” for additional information.

Indemnification

In the normal course of business, we enter into contracts and agreements that contain a variety of representations and warranties and provide for general indemnifications. Our exposure under these agreements is unknown because it involves claims that may be made against us in the future but have not yet been made. To date, we have not paid any claims or been required to defend any action related to our indemnification obligations. However, we may record charges in the future as a result of these indemnification obligations.

In accordance with our certificate of incorporation and bylaws, we have potential indemnification obligations to our officers and directors for specified events or occurrences, subject to some limits, while they are serving at our request in such capacities. There have been no claims to date, and we have director and officer insurance that may enable us to recover a portion of any amounts paid for future potential claims.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements.

Critical Accounting Policies and Estimates

This discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States, or GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses incurred during the reporting periods. These items are monitored and analyzed by us for changes in facts and circumstances, and material changes in these estimates could occur in the future. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Changes in estimates are reflected in

reported results for the period in which they become known. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in the notes to our financial statements included elsewhere in this prospectus, we believe that the following accounting policies are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Research and Development Expenses and Accruals

Costs related to research and development of drug candidates are charged to research and development expense as incurred. Research and development costs include, but are not limited to, payroll and personnel expenses for personnel contributing to research and development activities, laboratory supplies, outside services, licenses acquired to be used in research and development, manufacturing of clinical material, pre-clinical testing and consultants and allocated overhead, including rent, equipment, depreciation and utilities. Research and development costs are expensed as incurred unless there is an alternative future use in other research and development projects. Payments made prior to the receipt of goods or services to be used in research and development are deferred and recognized as expense in the period in which the related goods are received or services are rendered. Such payments are evaluated for current or long-term classification based on when they will be realized.

As part of the process of preparing our financial statements, we are required to estimate expenses resulting from our obligations under contracts with vendors and consultants and clinical site agreements in connection with conducting clinical trials. The financial terms of these contracts are subject to negotiations which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided under such contracts. Our objective is to reflect the appropriate expenses in our financial statements by matching those expenses with the period in which services and efforts are expended. We account for these expenses according to the progress of the production of clinical trial materials or based on progression of the clinical trial, as measured by patient progression and the timing of various aspects of the trial. We determine accrual estimates by taking into account discussion with applicable personnel and outside service providers as to the progress or state of consummation of goods and services, or the services completed. During the course of a clinical trial, we adjust the rate of expense recognition if actual results differ from our estimates. We make estimates of accrued expenses as of each balance sheet date in our financial statements based on the facts and circumstances known at that time. Our clinical trial accrual is dependent in part upon the timely and accurate reporting of contract research organizations, contract manufacturers and other third-party vendors. 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 our reporting changes in estimates in any particular period. Adjustments to prior period estimates have not been material for the years ended December 31, 2023 and 2022.

Warrant Liabilities

We have issued freestanding warrants to purchase shares of our common stock. Our outstanding common stock warrants are classified as liabilities in the balance sheet and are measured at fair value. We use the Monte Carlo option pricing model to value warrants, which requires management to estimate inputs including the probability of a fundamental transaction, expected volatility and the estimated term to exercise. These inputs are inherently subjective and require judgment to develop. The fair value of all warrants is re-measured at each financial reporting date with any changes in fair value being recognized as a gain or loss on warrant liability, in the Statements of Operations and Comprehensive Loss.

Stock-Based Compensation

We recognize compensation costs related to stock-based awards granted based on the estimated fair value of the awards on the date of grant, and we recognize forfeitures as they occur. For awards that vest solely based on service conditions or a combination of service and performance conditions, we estimate the grant date fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. The grant date fair value

of the awards is generally recognized on a straight-line basis over the requisite service period, which is typically their vesting period. We recognize forfeitures as they occur.

The market traded price of the shares of common stock underlying the stock-based awards is the fair value of our stock as reported on the Nasdaq Global Select Market on the grant date.

The Black-Scholes option-pricing model requires the use of highly subjective assumptions to determine the fair value of stock-based awards. These assumptions include:

- **Expected term**—The expected term represents the period that the stock-based awards are expected to be outstanding. We use, due to insufficient historical data, the simplified method to determine the expected term, which is based on the average of the time-to-vesting and the contractual life of the options.
- **Expected volatility**—Due to our limited trading history for our common stock, the expected volatility is estimated based on the average historical volatilities of common stock of comparable publicly traded entities over a period equal to the expected term of the stock option grants. The comparable companies are chosen based on their size, stage in the product development cycle or area of specialty. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available.
- **Risk-free interest rate**—The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the expected term of the awards.
- **Expected dividend**—We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

We have also granted stock options to certain key employees that vest in conjunction with certain market conditions. The Company uses the Monte-Carlo option-pricing model to estimate the fair value of stock option awards that contain only market conditions. The Monte-Carlo option pricing model uses similar input assumptions as the Black-Scholes model; however, it further incorporates into the fair-value determination the possibility that the market condition may not be satisfied.

As of December 31, 2023, we had \$3.9 million of unrecognized compensation expense related to unvested stock options and restricted stock units, which is expected to be recognized over an estimated weighted-average period of 0.9 years. For stock-based awards subject to ratable vesting, we recognize compensation cost on a straight-line basis over the service period for the entire award. In future periods, our stock-based compensation expense is expected to increase as a result of recognizing our existing unrecognized stock-based compensation for awards that will vest and as we issue additional stock-based awards to attract and retain our employees.

Recent Accounting Pronouncements

See Note 3 to our Financial Statements “Summary of Significant Accounting Policies” for information.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Cash, Cash Equivalents and Marketable Securities

We are exposed to market risks in the ordinary course of our business. These risks primarily relate to interest rate sensitivities. We had cash, cash equivalents, and marketable securities of \$43.2 million as of December 31, 2023, which consist of bank deposits, money market funds, and marketable securities. The primary objective of our investment activities is to preserve capital to fund our operations. We also seek to maximize income from our investments without assuming significant risk. Because our investments are primarily short-term in duration, we believe that our exposure to interest rate risk is not significant, and a 1% movement in market interest rates would not have a significant impact on the total value of our portfolio.

Item 8. Financial Statements and Supplementary Data.

**UNITY BIOTECHNOLOGY, INC.
Index to Financial Statements**

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Unity Biotechnology, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Unity Biotechnology, Inc. (“the Company”) as of December 31, 2023 and 2022, the related statements of operations and comprehensive loss, stockholders’ equity and cash flows for each of the three years in the period ended December 31, 2023, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with U.S. generally accepted accounting principles.

Restatement of 2022 Financial Statements

As discussed in Note 2 to the financial statements, the 2022 financial statements have been restated to correct a misstatement.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

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

Critical Audit Matters

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

Valuation of warrant liability

<i>Description of the Matter</i>	As discussed in Note 12 to the financial statements, the Company has issued warrants to purchase shares of its common stock in connection with financing activities. The Company
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accounted for the issuance of warrants as liabilities on the balance sheets and measured the warrants at fair value on the date of issuance. The fair value of the warrants is re-measured at each reporting date. The Company's warrant liability as of December 31, 2023 totaled \$5.9 million.

Auditing the fair value of the warrant liability was complex because of the probabilities associated with the occurrence of a prospective fundamental transaction used in the fair valuation of the warrant liability. Changes in this assumption could have significant effect on the fair value of the warrant liability and the associated change in fair value recorded in each period.

*How We
Addressed the
Matter in Our
Audit*

To test the Company's estimate fair valuation of the warrant liability, we involved our valuation specialists to assist in the evaluation of the valuation methodology. Our procedures to test the probabilities of a fundamental transaction at the issuance and subsequent periods included, among others, reviewing the meeting minutes of those charged with governance, evaluating external evidence pertaining to the Company and its peers, performing inquiries with Company executives and Board of Directors that are responsible for making strategic decisions for the Company, and assessing consistency of the information with evidence obtained in other areas of our audit.

Impairment of Long-Lived Assets

*Description of the
Matter*

As discussed in Note 9 to the financial statements, the Company's long-lived assets are assessed for recoverability whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When indicators of impairment exist, the Company compares the estimated future undiscounted net cash flows to the carrying amount of the asset group. If the carrying amount of the asset group exceeds the future undiscounted cash flows, an impairment is measured based on the difference between the carrying amount of the asset group and its fair value. An indicator of impairment was identified for the year ended December 31, 2023. As result the Company recorded an impairment charge of \$5.6 million for its right-of-use asset and related leasehold improvements.

Auditing the Company's impairment model was challenging due to the subjective assumption of market rental rates used as an input in determining the fair value of the right-of-use asset and related leasehold improvements.

*How We
Addressed the
Matter in Our
Audit*

To test the Company's accounting for the impairment over the right-of-use asset and related leasehold improvements, our audit procedures included, among others, utilizing our valuation specialists to assist in evaluating the reasonableness of the Company's valuation methodology and the market rental rate assumption, performing an evaluation of market rental rates by benchmarking to other properties of similar type and within the geographic area, and testing the completeness and accuracy of the inputs within the model.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2017.
San Mateo, California
April 15, 2024

UNITY BIOTECHNOLOGY, INC.
Balance Sheets
(in thousands, except for share amounts and par value)

	December 31,	
	2023	2022 (Restated)
Assets		
Current assets:		
Cash and cash equivalents	\$ 19,803	\$ 12,736
Short-term marketable securities	23,398	82,059
Prepaid expenses and other current assets	3,404	1,740
Total current assets	46,605	96,535
Property and equipment, net	5,082	7,825
Operating lease right-of-use asset	12,981	19,042
Long-term restricted cash	896	896
Other long-term assets	126	52
Total assets	<u>\$ 65,690</u>	<u>\$ 124,350</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 1,380	\$ 1,790
Accrued compensation	1,841	3,020
Accrued and other current liabilities	4,619	5,334
Current portion of long-term debt	—	9,476
Total current liabilities	7,840	19,620
Operating lease liability, net of current portion	23,539	26,991
Long-term debt, net	—	10,891
Warrant liability	5,913	10,764
Total liabilities	<u>37,292</u>	<u>68,266</u>
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of December 31, 2023 and 2022; 16,784,969 and 14,215,302 shares issued and outstanding as of December 31, 2023 and 2022, respectively ⁽¹⁾	2	1
Additional paid-in capital	512,773	500,827
Accumulated other comprehensive gain	(24)	(251)
Accumulated deficit	(484,353)	(444,493)
Total stockholders' equity	<u>28,398</u>	<u>56,084</u>
Total liabilities and stockholders' equity	<u>\$ 65,690</u>	<u>\$ 124,350</u>

⁽¹⁾ The Company effected a reverse stock split of its outstanding shares of common stock on October 19, 2022 where every ten shares of its common stock issued and outstanding was converted into one share of common stock. Any fractional post-split shares as a result of the reverse split were rounded down to the nearest whole post-split share. Shareholders of the Company previously authorized the Board of Directors to approve a reverse stock split at the annual meeting on October 18, 2022. All share amounts and per share amounts disclosed in this Annual Report on Form 10-K have been restated to reflect the reverse stock split on a retroactive basis in all periods presented.

See accompanying notes to the financial statements.

UNITY BIOTECHNOLOGY, INC.
Statements of Operations and Comprehensive Loss
(in thousands, except share and per share amounts)

	Year ended December 31,		
	2023	2022 (Restated)	2021
Licensing revenue – Related Party	\$ —	\$ 236	\$ 4,784
Operating expenses:			
Research and development	20,099	36,859	38,393
General and administrative	18,966	20,949	23,056
Impairment of long-lived assets	5,602	—	—
Total operating expenses	44,667	57,808	61,449
Loss from operations	(44,667)	(57,572)	(56,665)
Interest income	2,874	1,220	100
Interest expense	(2,452)	(3,558)	(3,177)
Gain (loss) on warrant liability	6,215	16,843	—
Other expense, net	(1,830)	(1,402)	(983)
Net loss	<u>\$ (39,860)</u>	<u>\$ (44,469)</u>	<u>\$ (60,725)</u>
Other comprehensive gain (loss)			
Unrealized gain (loss) on marketable debt securities	227	(207)	(49)
Comprehensive loss	<u>\$ (39,633)</u>	<u>\$ (44,676)</u>	<u>\$ (60,774)</u>
Net loss per share, basic and diluted	<u>\$ (2.70)</u>	<u>\$ (4.68)</u>	<u>\$ (10.88)</u>
Weighted average number of shares used in computing net loss per share, basic and diluted ⁽¹⁾	<u>14,773,612</u>	<u>9,494,421</u>	<u>5,581,587</u>

⁽¹⁾ The Company effected a reverse stock split of its outstanding shares of common stock on October 19, 2022 where every ten shares of its common stock issued and outstanding was converted into one share of common stock. Any fractional post-split shares as a result of the reverse split were rounded up to the nearest whole post-split share. Shareholders of the Company previously authorized the Board of Directors to approve a reverse stock split at the annual meeting on October 18, 2022. All share amounts and per share amounts disclosed in this Annual Report on Form 10-K have been restated to reflect the reverse stock split on a retroactive basis in all periods presented.

See accompanying notes to the financial statements.

UNITY BIOTECHNOLOGY, INC.
Statements of Stockholders' Equity
(in thousands, except share amounts)

	Common Stock ⁽¹⁾		Additional Paid-In Capital	Related Party Promissory Notes for Purchase of Common Stock	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount					
Balances at December 31, 2020	5,325,288	\$ 1	\$ 422,384	\$ (210)	\$	\$ (339,299)	\$ 82,881
Issuance of common stock, net of issuance costs, under ATM equity offering program	189,453	—	10,357	—	—	—	10,357
Issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	417,286	—	9,039	—	—	—	9,039
Issuance of common stock to Hercules Capital, net of issuance costs	172,736	—	2,704	—	—	—	2,704
Issuance of common stock upon exercise of stock options	49,754	—	1,795	—	—	—	1,795
Issuance of common stock under 2018 ESPP	11,704	—	347	—	—	—	347
Common stock granted to third party	40,005	—	1,457	—	—	—	1,457
Repurchase of early exercised shares	(3,337)	—	—	—	—	—	—
Vesting of restricted stock units	96,269	—	—	—	—	—	—
Stock-based compensation	—	—	11,553	—	—	—	11,553
Repayment of promissory note for purchase of common stock	—	—	—	210	—	—	210
Unrealized loss on available-for-sale marketable securities	—	—	—	—	(49)	—	(49)
Net loss	—	—	—	—	—	(60,725)	(60,725)
Balances at December 31, 2021	6,299,158	\$ 1	\$ 459,636	\$ —	\$ (44)	\$ (400,024)	\$ 59,569
Issuance of common stock, net of issuance costs, under ATM equity offering program	1,019,046	—	12,155	—	—	—	12,155
Sale of common stock under Follow-On Offering, net of issuance costs (Restated)	6,428,571	—	15,426	—	—	—	15,426
Issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	90,000	—	910	—	—	—	910
Issuance of common stock to Hercules Capital, net of issuance costs	262,761	—	3,179	—	—	—	3,179
Issuance of common stock under 2018 ESPP	25,482	—	142	—	—	—	142
Vesting of restricted stock units	90,284	—	—	—	—	—	—
Stock-based compensation	—	—	9,379	—	—	—	9,379
Unrealized loss on available-for-sale marketable securities	—	—	—	—	(207)	—	(207)
Net loss (Restated)	—	—	—	—	—	(44,469)	(44,469)
Balances at December 31, 2022 (Restated)	14,215,302	\$ 1	\$ 500,827	\$ —	\$ (251)	\$ (444,493)	\$ 56,084
Issuance of common stock, net of issuance costs, under ATM equity offering program	274,781	—	725	—	—	—	725
Issuance of common stock under the warrant inducement agreement, net of issuance costs	2,143,000	1	3,686	—	—	—	3,687
Issuance of common stock under 2018 ESPP	57,419	—	116	—	—	—	116
Vesting of restricted stock units	94,467	—	—	—	—	—	—
Stock-based compensation	—	—	7,419	—	—	—	7,419
Unrealized gain on available-for-sale marketable securities	—	—	—	—	227	—	227
Net loss	—	—	—	—	—	(39,860)	(39,860)
Balances at December 31, 2023	16,784,969	\$ 2	\$ 512,773	\$ —	\$ (24)	\$ (484,353)	\$ 28,398

⁽¹⁾ The Company effected a reverse stock split of its outstanding shares of common stock on October 19, 2022 where every ten shares of its common stock issued and outstanding was converted into one share of common stock. Any fractional post-split shares as a result of the reverse split were rounded down to the nearest whole post-split share. Shareholders of the Company previously authorized the Board of Directors to approve a reverse stock split at the annual meeting on October 18, 2022. All share amounts and per share amounts disclosed in this Annual Report on Form 10-K have been restated to reflect the reverse stock split on a retroactive basis in all periods presented.

See accompanying notes to the financial statements.

UNITY BIOTECHNOLOGY, INC.
Statements of Cash Flows
(in thousands)

	Year ended December 31,		
	2023	2022 (Restated)	2021
Operating activities			
Net loss	\$ (39,860)	\$ (44,469)	\$ (60,725)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	1,182	2,180	2,880
Amortization of debt issuance costs	705	1,318	813
Debt extinguishment loss upon paydown of principal	491	—	—
Debt extinguishment gain upon conversion to equity	—	(199)	(123)
Net accretion and amortization of premium and discounts on marketable securities	(1,503)	(276)	1,043
Other expense related to the commitment shares issued to Lincoln Park Capital Fund	—	—	825
Gain on disposal of property and equipment	(114)	(346)	—
Stock-based compensation	7,419	9,379	11,553
Common stock issued to third parties	—	—	1,457
Non-cash rent expense	(1,072)	(2,136)	(2,152)
Impairment of long-lived assets	5,602	—	—
(Gain) loss on warrant liability	(6,215)	(16,843)	—
Extinguishment loss and non-cash issuance costs on warrant	668	—	—
Changes in operating assets and liabilities:			
Prepaid expenses and other current assets	(1,664)	138	1,288
Other long-term assets	(74)	39	(91)
Accounts payable	(410)	(194)	(573)
Accrued compensation	(1,180)	(1,008)	(1,327)
Accrued liabilities and other current liabilities	(1,063)	26	(1,131)
Other long-term liabilities	—	(23)	24
Derivative liability related to debt	—	—	963
Deferred revenue	—	—	216
Net cash used in operating activities	<u>(37,088)</u>	<u>(52,414)</u>	<u>(45,060)</u>
Investing activities			
Purchase of marketable securities	(28,609)	(98,827)	(81,492)
Maturities of marketable securities	89,000	74,000	121,000
Sale of property and equipment	115	378	—
Purchase of property and equipment	(11)	(96)	(195)
Net cash provided by (used in) investing activities	<u>60,495</u>	<u>(24,545)</u>	<u>39,313</u>
Financing activities			
Payment of debt principal	(20,000)	—	—
Payment of debt issuance costs	(1,563)	—	—
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	725	12,155	10,357
Proceeds from sale of common stock and warrants under Follow-On Offering	—	45,000	—
Issuance costs for sale of common stock	—	(1,967)	—
Proceeds from the issuance of common stock and warrants under the warrant inducement agreement	4,382	—	—
Proceeds from issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	—	910	8,215
Proceeds from repayment of employee promissory notes	—	—	210
Proceeds from issuance of common stock upon exercise of stock options, net of repurchases	—	—	1,784
Proceeds from issuance of common stock under the 2018 ESPP	116	142	347
Current portion of long-term debt arrangement	—	—	(68)
Net cash provided by (used in) financing activities	<u>(16,340)</u>	<u>56,240</u>	<u>20,845</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	7,067	(20,719)	15,098
Cash, cash equivalents and restricted cash at beginning of year	13,632	34,351	19,253
Cash, cash equivalents and restricted cash at end of year	<u>\$ 20,699</u>	<u>\$ 13,632</u>	<u>\$ 34,351</u>
Supplemental Disclosures of Cash Flow Information:			
Cash paid for interest	<u>\$ 1,969</u>	<u>\$ 2,204</u>	<u>\$ 2,370</u>
Supplemental Disclosures of Non-Cash Investing and Financing Activities			
Issuance of common shares in payment of debt	<u>\$ —</u>	<u>\$ 3,179</u>	<u>\$ 2,704</u>

See accompanying notes to the financial statements.

UNITY BIOTECHNOLOGY, INC.
NOTES TO THE FINANCIAL STATEMENTS

1. Organization

Description of Business

Unity Biotechnology, Inc. (the “Company”) is a biotechnology company engaged in the research and development of therapeutics to slow, halt, or reverse diseases of aging. The Company devotes substantially all of its time and efforts to performing research and development and raising capital. The Company’s headquarters are located in South San Francisco, California. The Company was incorporated in the State of Delaware in 2009.

Liquidity

The Company’s Financial Statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business. The Company has incurred operating losses and has an accumulated deficit as a result of ongoing efforts to develop drug product candidates, including conducting preclinical and clinical trials and providing general and administrative support for these operations. The Company had an accumulated deficit of \$484.4 million as of December 31, 2023. During the year ended December 31, 2023, the Company incurred a net loss of \$39.9 million and used \$37.1 million of cash in operating activities. To date, none of the Company’s drug candidates have been approved for sale, and therefore, the Company has not generated any product revenue and does not expect positive cash flows from operations in the foreseeable future. The Company has financed its operations primarily through private placements of preferred stock and promissory notes, public equity issuances and more recently, from its ATM Offering Programs (as defined in Note 12), an Equity Purchase Agreement (as defined in Note 12), and the sale of common stock and warrants under a Follow-On Offering and the Inducement Offer (as defined in Note 12) and will continue to be dependent upon equity and/or debt financing until the Company is able to generate positive cash flows from its operations.

The Company anticipates operating losses and negative operating cash flows to continue for the foreseeable future. The Company had cash, cash equivalents and marketable securities of \$43.2 million as of December 31, 2023. The future viability of the Company is dependent on its ability to raise additional capital to finance its operations. Although the Company has been successful in raising capital in the past, there is no assurance that it will be successful in obtaining such additional financing. If sufficient funds on acceptable terms are not available when needed, the Company could be further required to significantly reduce its operating expenses and delay, reduce the scope of, or eliminate one or more of its development programs. Failure to manage discretionary spending or raise additional financing, as needed, may adversely impact the Company’s ability to achieve its intended business objectives, or the Company may be forced to liquidate assets where possible, or to cease operations or file for bankruptcy protection. The Company expects that its cash, cash equivalents, and marketable securities will be sufficient to fund its operations for a period of at least one year from the date the accompanying financial statements are filed with the Securities and Exchange Commission.

2. Restatement of Previously Issued Financial Statements

The Company has restated herein its audited financial statements for the fiscal year ended December 31, 2022, in accordance with Accounting Standards Codification (“ASC”) Topic 250, *Accounting Changes and Error Corrections*. In March 2024, the Company concluded the warrants issued in 2022 were incorrectly classified as equity and should have been recorded as liabilities.

Historically, the Existing Warrants were reflected as a component of equity as opposed to liabilities on the Balance Sheet. Additionally, the Statements of Operations and Comprehensive Loss did not include changes in the fair value of the Existing Warrants. The Company reassessed its accounting for the Existing Warrants and determined they should have been classified as liabilities and measured at fair value upon issuance with subsequent changes in fair value, as well as the issuance costs associated with the Existing Warrants, reported in the Company’s Statement of Operations and Comprehensive Loss.

We have also restated interim financial statement periods for the third quarter of 2022 and the first, second and third quarters of 2023, as further described in Note 18.

Impact of the Restatement

The following tables represent the restated amounts in the Balance Sheet, Statement of Operations and Comprehensive Loss, Statement of Changes in Stockholders' Equity and Statement of Cash Flows for the year ended December 31, 2022.

The amounts as previously reported for fiscal year 2022 was derived from the Annual Report on Form 10-K for the fiscal year ended December 31, 2022, filed on March 15, 2023 (Original Report). These amounts are labeled as "As Previously Reported" in the tables below. The amounts labeled "Adjustment" represent the effects of this restatement described above.

Balance Sheet

	December 31, 2022		
	As Previously Reported	Adjustment	As Restated
Assets			
Current assets:			
Cash and cash equivalents	\$ 12,736	\$ —	\$ 12,736
Short-term marketable securities	82,059	—	82,059
Prepaid expenses and other current assets	1,740	—	1,740
Total current assets	96,535	—	96,535
Property and equipment, net	7,825	—	7,825
Operating lease right-of-use asset	19,042	—	19,042
Long-term restricted cash	896	—	896
Other long-term assets	52	—	52
Total assets	<u>\$ 124,350</u>	<u>\$ —</u>	<u>\$ 124,350</u>
Liabilities and Stockholders' Equity			
Current liabilities:			
Accounts payable	\$ 1,790	\$ —	\$ 1,790
Accrued compensation	3,020	—	3,020
Accrued and other current liabilities	5,334	—	5,334
Current portion of long-term debt	9,476	—	9,476
Total current liabilities	19,620	—	19,620
Operating lease liability, net of current portion	26,991	—	26,991
Long-term debt, net	10,891	—	10,891
Warrant liability	—	10,764	10,764
Total liabilities	<u>57,502</u>	<u>10,764</u>	<u>68,266</u>
Commitments and contingencies			
Stockholders' equity:			
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—	—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of December 31, 2022; 14,215,302 shares issued and outstanding as of December 31, 2022	1	—	1
Additional paid-in capital	527,049	(26,222)	500,827
Accumulated other comprehensive loss	(251)	—	(251)
Accumulated deficit	(459,951)	15,458	(444,493)
Total stockholders' equity	<u>66,848</u>	<u>(10,764)</u>	<u>56,084</u>
Total liabilities and stockholders' equity	<u>\$ 124,350</u>	<u>\$ —</u>	<u>\$ 124,350</u>

Statement of Operations and Comprehensive Loss

	Year Ended December 31, 2022		
	As Previously Reported	Adjustment	As Restated
Licensing revenue - Related Party	\$ 236	\$ —	\$ 236
Operating expenses:			
Research and development	36,859	—	36,859
General and administrative	20,949	—	20,949
Total operating expenses	57,808	—	57,808
Loss from operations	(57,572)	—	(57,572)
Interest income	1,220	—	1,220
Interest expense	(3,558)	—	(3,558)
Gain (loss) on warrant liability	—	16,843	16,843
Other expense, net	(17)	(1,385)	(1,402)
Net loss	(59,927)	15,458	(44,469)
Other comprehensive loss			
Unrealized loss on marketable debt securities	(207)	—	(207)
Comprehensive loss	\$ (60,134)	\$ 15,458	\$ (44,676)
Net loss per share, basic and diluted	\$ (6.31)	\$ —	\$ (4.68)
Weighted average number of shares used in computing net loss per share, basic and diluted	9,494,421	—	9,494,421

Statement of Changes in Stockholders' Equity

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
As Previously Reported						
Balances at December 31, 2021	6,299,158	\$ 1	\$ 459,636	\$ (44)	\$ (400,024)	\$ 59,569
Issuance of common stock, net of issuance costs, under ATM equity offering program	1,019,046	—	12,155	—	—	12,155
Sale of common stock and warrants to purchase common shares under Follow-On Offering, net of issuance costs	6,428,571	—	41,648	—	—	41,648
Issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	90,000	—	910	—	—	910
Issuance of common stock Hercules Capital, net of issuance costs	262,761	—	3,179	—	—	3,179
Issuance of common stock under 2018 ESPP	25,482	—	142	—	—	142
Vesting of restricted stock units	90,284	—	—	—	—	—
Stock-based compensation	—	—	9,379	—	—	9,379
Unrealized loss on available-for-sale marketable securities	—	—	—	(207)	—	(207)
Net loss	—	—	—	—	(59,927)	(59,927)
Balances at December 31, 2022	14,215,302	\$ 1	\$ 527,049	\$ (251)	\$ (459,951)	\$ 66,848
Adjustment						
Balances at December 31, 2021	—	\$ —	\$ —	\$ —	\$ —	\$ —
Issuance of common stock, net of issuance costs, under ATM equity offering program	—	—	—	—	—	—
Sale of common stock and warrants to purchase common shares under Follow-On Offering, net of issuance costs	—	—	(26,222)	—	—	(26,222)
Issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	—	—	—	—	—	—
Issuance of common stock Hercules Capital, net of issuance costs	—	—	—	—	—	—
Issuance of common stock under 2018 ESPP	—	—	—	—	—	—
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	—	—	—	—
Unrealized loss on available-for-sale marketable securities	—	—	—	—	—	—
Net loss	—	—	—	—	15,458	15,458
Balances at December 31, 2022	—	\$ —	\$ (26,222)	\$ —	\$ 15,458	\$ (10,764)
As Restated						
Balances at December 31, 2021	6,299,158	\$ 1	\$ 459,636	\$ (44)	\$ (400,024)	\$ 59,569
Issuance of common stock, net of issuance costs, under ATM equity offering program	1,019,046	—	12,155	—	—	12,155
Sale of common stock under Follow-On Offering, net of issuance costs	6,428,571	—	15,426	—	—	15,426
Issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	90,000	—	910	—	—	910
Issuance of common stock Hercules Capital, net of issuance costs	262,761	—	3,179	—	—	3,179
Issuance of common stock under 2018 ESPP	25,482	—	142	—	—	142
Vesting of restricted stock units	90,284	—	—	—	—	—
Stock-based compensation	—	—	9,379	—	—	9,379
Unrealized loss on available-for-sale marketable securities	—	—	—	(207)	—	(207)
Net loss	—	—	—	—	(44,469)	(44,469)
Balances at December 31, 2022	14,215,302	\$ 1	\$ 500,827	\$ (251)	\$ (444,493)	\$ 56,084

Statement of Cash Flow

	Year Ended December 31, 2022		
	As Previously Reported	Adjustment	As Restated
Operating activities			
Net loss	\$ (59,927)	\$ 15,458	\$ (44,469)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	2,180	—	2,180
Amortization of debt issuance costs	1,318	—	1,318
Debt extinguishment gain upon conversion to equity	(199)	—	(199)
Net accretion and amortization of premium and discounts on marketable securities	(276)	—	(276)
Gain on disposal of property and equipment	(346)	—	(346)
Stock-based compensation	9,379	—	9,379
Non-cash rent expense	(2,136)	—	(2,136)
(Gain) loss on warrant liability	—	(16,843)	(16,843)
Changes in operating assets and liabilities:			
Prepaid expenses and other current assets	138	—	138
Other long-term assets	39	—	39
Accounts payable	(194)	—	(194)
Accrued compensation	(1,008)	—	(1,008)
Accrued liabilities and other current liabilities	26	—	26
Other long-term liabilities	(23)	—	(23)
Net cash used in operating activities	<u>(51,029)</u>	<u>(1,385)</u>	<u>(52,414)</u>
Investing activities			
Purchase of marketable securities	(98,827)	—	(98,827)
Maturities of marketable securities	74,000	—	74,000
Purchase of property and equipment	(96)	—	(96)
Sale of property and equipment	378	—	378
Net cash provided by (used in) investing activities	<u>(24,545)</u>	<u>—</u>	<u>(24,545)</u>
Financing activities			
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	12,155	—	12,155
Proceeds from sale of common stock and warrants under Follow-On Offering	41,648	3,352	45,000
Issuance costs for sale of common stock	—	(1,967)	(1,967)
Proceeds from issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	910	—	910
Proceeds from issuance of common stock under 2018 ESPP	142	—	142
Net cash provided by financing activities	<u>54,855</u>	<u>1,385</u>	<u>56,240</u>
Net increase (decrease) in cash, cash equivalents and restricted cash	<u>(20,719)</u>	<u>—</u>	<u>(20,719)</u>
Cash, cash equivalents and restricted cash at beginning of the period	34,351	—	34,351
Cash, cash equivalents and restricted cash at end of the period	<u>\$ 13,632</u>	<u>\$ —</u>	<u>\$ 13,632</u>
Supplemental Disclosures of Cash Flow Information:			
Cash paid for interest	<u>\$ 2,204</u>	<u>\$ —</u>	<u>\$ 2,204</u>
Supplemental Disclosures of Non-Cash Investing and Financing Activities			
Issuance of common stock in payment of debt	<u>\$ 3,179</u>	<u>\$ —</u>	<u>\$ 3,179</u>

The remainder of the notes to the Company's financial statements have been restated, as applicable, to reflect the impacts from the restatement discussed above.

3. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”) and the rules and regulations of Securities and Exchange Commission (“SEC”) for reporting.

The Company effected a reverse stock split on October 19, 2022 of its outstanding shares of common stock at a ratio of 1-for-10 pursuant to a Certificate of Amendment to the Company's Certificate of Incorporation filed with the Secretary of State of the State of Delaware. The reverse stock split was reflected on the Nasdaq Global Select Market beginning with the opening of trading on October 20, 2022. Accordingly, an amount equal to the par value of the decreased shares resulting from the reverse stock split was reclassified from "Additional paid-in capital" to "Common stock". Any fractional post-split shares as a result of the reverse stock split were rounded down to the nearest whole post-split share. The reverse stock split did not change the par value of the Company's common stock or the authorized number of shares of the Company's common stock. All share amounts and per share amounts disclosed in this Annual Report on Form 10-K have been restated to reflect the reverse stock split on a retroactive basis in all periods presented.

Warrants

The Company determines the accounting classification of warrants that are issued, as either liability or equity, by first assessing whether the warrants meet liability classification in accordance with ASC 480-10, *Distinguishing Liabilities from Equity*, and then in accordance with ASC 815-40, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*. Under ASC 480-10, warrants are considered liability classified if the warrants are mandatorily redeemable, obligate the issuer to settle the warrants or the underlying shares by paying cash or other assets, or must or may require settlement by issuing variable number of shares.

If warrants do not meet liability classification under ASC 480-10, the Company assesses the requirements under ASC 815-40, which states that contracts that require or may require the issuer to settle the contract for cash are liabilities recorded at fair value, irrespective of the likelihood of the transaction occurring that triggers the net cash settlement feature. If the warrants do not require liability classification under ASC 815-40, in order to conclude equity classification, the Company assesses whether the warrants are indexed to its common stock and whether the warrants are classified as equity under ASC 815-40 or other applicable principles of GAAP. After all relevant assessments are made, the Company concludes whether the warrants are classified as liability or equity. Liability classified warrants are required to be accounted for at fair value both on the date of issuance and on subsequent accounting periods with changes in fair value recorded in the Statements of Operations and Comprehensive Loss under "Gain or (loss) on warrant liability".

If warrants are issued together with the sale of common stock, for the issuance costs that are not specifically attributed to either the common stock or warrants issued, the Company allocates the issuance costs between the common stock and warrants based on their relative fair value. The Company expenses issuance costs allocated to the warrants that are classified as liabilities and the issuance costs allocated to common stock or warrants that are classified as equity are recognized as reduction to the equity.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. The Company bases its estimates on historical experience and market-specific or other relevant assumptions that it believes are reasonable under the circumstances. The amounts of assets and liabilities reported in the Company's balance sheets and the amount of expenses and income reported for each of the periods presented are affected by estimates and assumptions, which are used for, but are not limited to, determining the fair value of assets and liabilities, the fair value of right-of-use asset and lease liabilities, embedded derivatives and stock-based compensation. Actual results could differ from such estimates or assumptions.

Estimating fair values of liability-classified financial instruments requires the development of estimates that may, and are likely to, change over the duration of the instrument with related changes in internal and external market factors. In addition, derivatives liabilities are highly volatile and sensitive to changes in the market price of the Company's common stock. Because liability-classified financial instruments are initially and subsequently carried at fair value, the Company's financial results will reflect the volatility in these estimate and assumption changes. Changes in

estimated fair value are recognized as a component of "Other expense, net" in the Statements of Operations and Comprehensive Loss.

Segments

The Company has one operating segment. The Company's chief operating decision maker, its Chief Executive Officer, manages the Company's operations on a consolidated basis for the purposes of allocating resources.

Cash, Cash Equivalents, and Restricted Cash

The Company considers all highly liquid investments with original maturities of 90 days or less from the date of purchase to be cash equivalents. Cash equivalents primarily include money market funds that invest in U.S. Treasury obligations which are stated at fair value.

The Company has issued letters of credit under its lease agreements which have been collateralized. This cash is classified as noncurrent restricted cash on the balance sheet based on the term of the underlying lease.

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

	December 31,		
	2023	2022	2021
Cash and cash equivalents	\$ 19,803	\$ 12,736	\$ 32,905
Restricted cash	896	896	1,446
Total cash, cash equivalents, and restricted cash	<u>\$ 20,699</u>	<u>\$ 13,632</u>	<u>\$ 34,351</u>

Marketable Securities

The Company generally invests its excess cash in investment grade, short to intermediate-term, fixed income securities. Such investments are considered available-for-sale debt securities and reported at fair value with unrealized gains and losses included as a component of stockholders' equity. Marketable securities with original maturities of greater than 90 days from the date of purchase but less than one year from the balance sheet date that are available to be converted into cash to fund current operations are classified as short-term, while marketable securities with maturities in one year or beyond one year from the balance sheet date are classified as long-term. The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity, which is included in "Interest income" on the Statements of Operations and Comprehensive Loss. Realized gains and losses and declines in value judged to be other-than-temporary, if any, on marketable securities are included in "Other expense, net". The cost of securities sold is determined using the specific identification method.

The Company periodically evaluates whether declines in fair values of its marketable securities below their book value are other-than-temporary. This evaluation consists of several qualitative and quantitative factors regarding the severity and duration of the unrealized loss as well as the Company's ability and intent to hold the marketable security until a forecasted recovery occurs. Additionally, the Company assesses whether it has plans to sell the security or it is more likely than not it will be required to sell any marketable securities before recovery of its amortized cost basis. Factors considered include quoted market prices, recent financial results and operating trends, implied values from any recent transactions or offers of investee securities, credit quality of debt instrument issuers, other publicly available information that may affect the value of the marketable security, duration and severity of the decline in value, and management's strategy and intentions for holding the marketable security. To date, the Company has not recorded any impairment charges on its marketable securities related to other-than-temporary declines in market value.

Fair Value Measurements

The Company's financial instruments during the periods presented consist of cash and cash equivalents, restricted cash, marketable securities, strategic investments, prepaid expenses and other current assets, accounts payable, accrued compensation, accrued and other current liabilities, derivative liabilities related to debt and long-term debt. Fair value estimates of these instruments are made at a specific point in time, based on relevant market information. Level 3 instruments incorporate certain unobservable inputs such as the selected discount rate of the related loan. These estimates may be subjective in nature and involve uncertainties and matters of judgment.

Revenue Recognition

The Company recognizes revenue in accordance with the provisions of Accounting Standards Codification Topic 606, Revenue from Contracts with Customers, or Topic 606. In determining the appropriate amount and timing of revenue to be recognized under this guidance, the Company performs the following five steps: (i) identifies the contract(s) with our customer; (ii) identifies the promised goods or services in the agreement and determine whether they are performance obligations, including whether they are distinct in the context of the agreement; (iii) measures the transaction price, including the constraint on variable consideration; (iv) allocates the transaction price to the performance obligations based on stand-alone selling prices; and (v) recognizes revenue when (or as) the Company satisfies each performance obligation.

A performance obligation is a promise in an agreement to transfer a distinct good or service to the customer and is the unit of account in Topic 606. Significant management judgment is required to determine the level of effort required and the period over which completion of the performance obligations is expected under an agreement. If reasonable estimates regarding when performance obligations are either complete or substantially complete cannot be made, then revenue recognition is deferred until a reasonable estimate can be made. Revenue is then recognized over the remaining estimated period of performance using the cumulative catch-up method.

The Company allocates the total transaction price to each performance obligation based on the estimated relative stand-alone selling prices of the promised goods or services underlying each performance obligation. The total consideration which the Company expects to collect in exchange for the Company's products is an estimate and may be fixed or variable. The Company constrains the estimated variable consideration when it assesses it is probable that a significant reversal in the amount of cumulative revenue recognized may occur in future periods. The transaction price is re-evaluated, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur. The allocation of the transaction price is performed based on standalone selling prices, which are based on estimated amounts that the Company would charge for a performance obligation if it were sold separately. Revenue is recognized when, or as, performance obligations in the contracts are satisfied, in the amount reflecting the expected consideration to be received from the goods or services transferred to the customers. Consideration received in advance are recorded as deferred revenue and are recognized as the related performance obligation is satisfied.

Following is a description of the principal activities from which the Company generates revenue. License revenue primarily represent amounts earned under agreements that license our intellectual property to other companies. See Note 5, "License Revenue, Agreements and Strategic Investment" for further detail. Consideration under these contracts generally includes a nonrefundable upfront payment, development, regulatory and commercial milestones and royalties based on net sales of approved products.

Licenses of Intellectual Property. If the Company determines the license to intellectual property is distinct from the other performance obligations identified in the agreement and the licensee can use and benefit from the license, the Company recognizes revenue from the estimated transaction price that is allocated to the license. Licensing arrangements are analyzed to determine whether the promised goods or services, which may include licenses, transfer of know-how, transfer of materials, research and development services and governance committee services, are distinct or whether they must be accounted for as part of a combined performance obligation. If the license is considered not to be distinct, the license would then be combined with other promised goods or services as a combined performance obligation. If the Company is involved in a governance committee, it assesses whether its involvement constitutes a separate performance obligation. When governance committee services are determined to be separate performance obligations, the Company determines the fair value to be allocated to this promised service.

Milestone Payments: At the inception of each agreement that includes milestone payments, the Company evaluates whether the milestones are considered probable of being achieved and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the value of the associated milestone is included in the transaction price. For milestones that the Company do not deem to be probable of being achieved, the associated milestone payments are fully constrained and the value of the milestone is excluded from the transaction price with no revenue being recognized. For example, milestone payments that are not within our control, such as regulatory-related accomplishments, are not considered probable of being achieved until those accomplishments have been communicated by the relevant regulatory authority. Once the assessment of probability of achievement becomes probable, the Company recognizes revenue for the milestone payment. At each reporting date, the Company assesses the probability of achievement of each milestone under our current agreements.

Royalties. For agreements with sales-based royalties, including milestone payments based on the level of sales, where the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (a) when the related sales occur, or (b) when the performance obligation, to which some or all of the royalty has been allocated, has been satisfied (or partially satisfied). At each reporting date, the Company estimates the sales incurred by each licensee during the reporting period based on historical experience and accrues the associated royalty amount.

Concentrations of Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, restricted cash, and marketable securities. Substantially all of the Company's cash and cash equivalents and restricted cash is deposited in accounts with financial institutions that management believes are of high credit quality. Such deposits have and will continue to exceed federally insured limits. The Company maintains its cash with accredited financial institutions and accordingly, such funds are subject to minimal credit risk. The Company has not experienced any losses on its cash deposits.

The Company's investment policy limits investments in marketable securities to certain types of securities issued by the U.S. government, its agencies and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. The Company is exposed to credit risk in the event of a default by the financial institutions holding its cash, cash equivalents, restricted cash and marketable securities and issuers of marketable securities to the extent recorded on the balance sheets. As of December 31, 2023 and 2022, the Company had no off-balance sheet concentrations of credit risk.

The Company depends on third-party suppliers for key raw materials used in its manufacturing processes and is subject to certain risks related to the loss of these third-party suppliers or their inability to supply the Company with adequate raw materials.

Research and Development Expenses and Accruals

Costs related to research, design, and development of drug candidates are charged to research and development expense as incurred. Research and development costs include, but are not limited to, payroll and personnel expenses for personnel contributing to research and development activities, laboratory supplies, outside services, licenses acquired to be used in research and development, manufacturing of clinical material, pre-clinical testing and consultants and allocated overhead, including rent, equipment, depreciation, and utilities. Research and development costs are expensed as incurred unless there is an alternative future use in other research and development projects. Payments made prior to the receipt of goods or services to be used in research and development are deferred and recognized as expense in the period in which the related goods are received or services are rendered. Such payments are evaluated for current or long-term classification based on when they will be realized.

As part of the process of preparing its financial statements, the Company is required to estimate expenses resulting from its obligations under contracts with vendors and consultants and clinical site agreements in connection with conducting clinical trials. The financial terms of these contracts are subject to negotiations which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided under such contracts. The Company's objective is to reflect the appropriate expenses in its financial statements by matching those expenses with the period in which services and efforts are expended. The Company accounts for these expenses according to the progress of the production of clinical trial materials or based on progression of the clinical trial, as measured by patient progression and the timing of various aspects of the trial. The Company determines accrual estimates by taking into account discussion with applicable personnel and outside service providers as to the progress or state of consummation of goods and services, or the services completed.

During the course of a clinical trial, the rate of expense recognition is adjusted if actual results differ from the Company's estimates. The Company makes estimates of accrued expenses as of each balance sheet date in its financial statements based on the facts and circumstances known at that time. The clinical trial accrual is dependent in part upon the timely and accurate reporting of contract research organizations, contract manufacturers, and other third-party vendors. Although the Company does not expect its estimates to be materially different from amounts actually incurred, its 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 reporting changes in estimates in any particular period. Adjustments to prior period estimates have not been material for the years ended December 31, 2023 and 2022.

Contingent Consideration Liability

The Company has entered into and may continue to enter into, license agreements to access and utilize certain technology. In each case, the Company evaluates whether the license agreement results in the acquisition of an asset or a business. To date, all of the Company's license agreements have been considered acquisitions of assets and none have been considered acquisitions of a business. For license agreements that are considered to be acquisitions of assets, the upfront payments for such license, as well as any future milestone payments made before product approval, are immediately recognized as research and development expense when due, provided there is no alternative future use of the rights in other research and development projects. Some of the Company's license agreements also include contingent consideration in the form of an obligation to issue additional shares of the Company's common stock based on the achievement of certain milestones. The Company assesses on a continuous basis whether (i) such contingent consideration meets the definition of a derivative, and (ii) whether it can be classified within stockholders' equity. Until such time when equity classification criteria are met or the milestones expire, the contingent consideration is classified as a liability. The derivative related to this contingent consideration is measured at fair value as of each balance sheet date with the related change in fair value being reflected in operating expenses. Upon a reassessment event that results in the contingent consideration no longer meeting the definition of a derivative and/or meeting equity classification criteria, the final change in fair value of the instrument is recorded within operating expenses and the liability is reclassified into stockholders' equity.

Property and Equipment, Net

Property and equipment are stated at cost, less accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the respective assets, generally three years. Leasehold improvements are amortized on a straight-line basis over the shorter of their estimated useful lives or the term of the lease. Depreciation and amortization begin at the time the asset is placed in service. Maintenance and repairs are charged to expense as incurred and costs of improvement are capitalized.

Leases

The Company determines whether the arrangement is or contains a lease at the inception of the arrangement and if so, whether such a lease is classified as a financing lease or an operating lease. Operating leases are included in operating lease right-of-use asset, ("ROU asset"), operating lease liabilities, net of current portion, and accrued and other current liabilities on the Company's balance sheets. The Company has elected not to recognize on the balance sheets leases with terms of one year or less. Operating lease ROU assets represent the Company's right to use an underlying asset for the lease term and are considered long-lived assets for purposes of identifying, recognizing and measuring impairment. Operating lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and operating lease liabilities are recognized based on the present value of lease payments over the expected lease term. As the Company's leases do not provide an implicit rate, the Company uses its incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment, in determining the present value of lease payments. The operating lease ROU asset also includes any lease payments made or incentives received and impairment charges if the Company determines the ROU asset is impaired and excludes lease incentives. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise such options to extend or terminate the lease. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

The Company has elected to not separate lease and non-lease components for its leased assets and accounts for all lease and non-lease components of its agreements as a single lease component. The lease components resulting in a ROU asset have been recorded on the balance sheets and are amortized as lease expense on a straight-line basis over the lease term.

The Company has subleased a majority of its South San Francisco, California facility under agreements considered to be operating leases according to ASC 842. The Company has not been legally released from its primary obligations under the original leases and therefore it continues to account for the original leases as it did before commencement of the subleases. The Company records both fixed and variable payments received from the sublessee in its statements of operations on a straight-line basis as an offset to rent expense.

Impairment of Long-Lived Assets

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be fully recoverable. If indicators of impairment exist and the undiscounted future cash flows that the assets are expected to generate are less than the carrying value of the assets, the Company reduces the carrying amount of the assets through an impairment charge, to their estimated fair value based on a discounted cash flow approach or, when available and appropriate, to comparable market values. See Note 9, "Commitments and Contingencies".

Determining estimated discounted cash flows for purposes of an impairment analysis requires the Company to make estimates and assumptions regarding the amount of market rent, timing of sublease income, and risk-adjusted discount rates. There are often risks and uncertainties associated with the intent to sublease offices and laboratory space. Consequently, the eventual realized sublease income may vary from estimates as of the impairment testing date and adjustments may occur in future periods.

Stock-Based Compensation

The Company measures compensation expense for all stock-based awards based on their grant date fair value. For stock-based awards with service conditions only, stock-based compensation expense is recognized over the requisite service period using the straight-line method. For awards with performance conditions, the Company evaluates the probability of achieving performance condition at each reporting date. The Company begins to recognize stock-based compensation expense using an accelerated attribution method when it is deemed probable that the performance condition will be met. Forfeitures are recognized as they occur.

The Company uses the Black-Scholes option-pricing model to estimate the fair value of stock option awards that do not contain market conditions. The Black-Scholes option-pricing model requires assumptions to be made related to the expected term of an award, expected dividends, expected volatility and risk-free rate.

The Company has used the Monte-Carlo option-pricing model to estimate the fair value of stock option awards that contain only market conditions. The Monte-Carlo option pricing model uses similar input assumptions as the Black-Scholes model; however, it further incorporates into the fair-value determination the possibility that the market condition may not be satisfied.

Embedded Derivatives of the Loan Agreement

The Company measures derivative liability related to debt at fair value. Estimated fair value of the derivative liability related to debt, initially measured and recorded on the date of the amendment of the loan and security agreement, is considered to be a Level 3 instrument. The fair value of the derivative liability related to debt is based on the term loan principal, the date of maturity, the contractual term loan interest rate, the convertible discount factor, and the selected discount rate of the loan. The derivative liability related to debt is recorded at fair value at the end of each reporting period with changes in estimated fair values recognized as a component of "Other expense, net" in the Statements of Operations and Comprehensive Loss.

Restructuring

The Company recognizes restructuring charges related to reorganization plans that have been committed to by management and when liabilities have been incurred. In connection with these activities, the Company records restructuring charges at fair value for a) contractual employee termination benefits when obligations are associated to services already rendered, rights to such benefits have vested, and payment of benefits is probable and can be reasonably estimated, and b) one-time employee termination benefits when management has committed to a plan of termination, the plan identifies the employees and their expected termination dates, the details of termination benefits are complete, it is unlikely changes to the plan will be made or the plan will be withdrawn and communication to such employees has occurred.

One-time employee termination benefits are recognized in their entirety when communication has occurred, and future services are not required. Contract termination costs to be incurred over the remaining contract term without economic benefit are recorded in their entirety when the contract is canceled.

The recognition of restructuring charges requires the Company to make certain judgments and estimates regarding the nature, timing and amount of costs associated with the planned reorganization plan. At the end of each reporting period, the Company evaluates the remaining accrued restructuring balances to ensure that no excess accruals are

retained, and the utilization of the provisions are for their intended purpose in accordance with developed restructuring plans.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes, in which deferred tax assets and liabilities are recognized for future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be reversed. The effect on deferred tax assets and liabilities of a change in tax rates is recognized as income in the period that includes the enactment date. A valuation allowance is established if it is more likely than not that all or a portion of the deferred tax asset will not be realized.

The Company's tax positions are subject to income tax audits. The Company recognizes the tax benefit of an uncertain tax position only if it is more likely than not that the position is sustainable upon examination by the taxing authority, based on the technical merits. The tax benefit recognized is measured as the largest amount of benefit which is more likely than not to be realized upon settlement with the taxing authority. The Company recognizes interest accrued and penalties related to unrecognized tax benefits in its tax provision. The Company evaluates uncertain tax positions on a regular basis. The evaluations are based on a number of factors, including changes in facts and circumstances, changes in tax law, correspondence with tax authorities during the course of the audit, and effective settlement of audit issues. The provision for income taxes includes the effects of any accruals that the Company believes are appropriate, as well as the related net interest and penalties.

Net Loss per Common Share

Basic net loss per share is calculated by dividing net loss by the weighted average number of shares outstanding for the period. Diluted net loss per share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common shares outstanding plus the effect of dilutive potential common shares outstanding during the period determined using the treasury-stock method.

In all periods presented, the Company's outstanding stock options, convertible preferred stock, early exercised common stock subject to future vesting, warrants and presumed issuance of additional shares as contingent consideration were excluded from the calculation of diluted net loss per share because their effects were antidilutive.

Comprehensive Loss

Comprehensive loss includes net loss and certain changes in stockholders' equity that are excluded from net loss, primarily unrealized losses on the Company's marketable securities.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments-Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments, as clarified in subsequent amendments. ASU 2016-13 changes the impairment model for certain financial instruments. The new model is a forward-looking expected loss model and will apply to financial assets subject to credit losses and measured at amortized cost and certain off-balance sheet credit exposures. This includes loans, held-to-maturity debt securities, loan commitments, financial guarantees and net investments in leases, as well as trade receivables. For available-for-sale debt securities with unrealized losses, credit losses will be measured in a manner similar to today, except that the losses will be recognized as allowances rather than reductions in the amortized cost of the securities. In October 2019, the FASB voted to delay the effective date of this standard. Topic 326 will be effective for the Company for fiscal years beginning after December 15, 2022. Early adoption is permitted. We adopted ASU 2016-13 on January 1, 2023 and the adoption did not have a material impact on the Company's financial statements and related disclosures.

In November 2021, the FASB issued ASU 2021-10, Government Assistance, or Topic 832, which requires enhanced disclosures of transactions with governments that are accounted for by applying a grant or contribution model. The new pronouncement requires entities to provide information about the nature of the transaction, terms and conditions associated with the transaction and financial statement line items affected by the transaction. The Company adopted the standard for the annual period beginning January 1, 2023. The employee retention credit received under the CARES Act qualifies as a government assistance program under Topic 832 and resulted in enhanced required disclosures, as described in Note 7, "Government Assistance Program".

Recently Issued Accounting Pronouncements Not Yet Adopted

In December 2023, the Financial Accounting Standards Board (FASB) issued ASU 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures, which enhances the disclosures required for income taxes in our annual financial statements. ASU 2023-09 is effective for the Company in its annual reporting for fiscal 2025 on a prospective basis. Early adoption and retrospective reporting are permitted. The Company is currently evaluating the impact of ASU 2023-09 on its Financial Statements.

4. Fair Value Measurements

The Company determines the fair value of financial and non-financial assets and liabilities based on the assumptions that market participants would use in pricing the asset or liability in an orderly transaction between market participants at the measurement date. The identification of market participant assumptions provides a basis for determining what inputs are to be used for pricing each asset or liability. A fair value hierarchy has been established which gives precedence to fair value measurements calculated using observable inputs over those using unobservable inputs. This hierarchy prioritized the inputs into three broad levels as follows:

- Level 1: Quoted prices in active markets for identical instruments
- Level 2: Other significant observable inputs (including quoted prices in active markets for similar instruments)
- Level 3: Significant unobservable inputs (including assumptions in determining the fair value of certain investments)

The carrying amounts of financial instruments such as cash and cash equivalents, restricted cash, prepaid expenses and other current assets, accounts payable, accrued compensation, accrued and other current liabilities approximate to their related fair values due to the short-term nature of these instruments.

The Company's financial assets and liabilities subject to fair value measurements on a recurring basis and the level of inputs used in such measurements were as follows (in thousands):

	December 31, 2023			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	\$ 12,864	\$ 12,864	\$ —	\$ —
U.S. treasuries	2,989	—	2,989	—
Total cash equivalents	<u>15,853</u>	<u>12,864</u>	<u>2,989</u>	<u>—</u>
Short-term marketable securities:				
U.S. treasuries	7,849	—	7,849	—
U.S. government debt securities	15,549	—	15,549	—
Total short-term marketable securities	<u>23,398</u>	<u>—</u>	<u>23,398</u>	<u>—</u>
Restricted Cash equivalents:				
Money market funds	896	896	—	—
Total restricted cash equivalents	<u>896</u>	<u>896</u>	<u>—</u>	<u>—</u>
Total assets subject to fair value measurements on a recurring basis	<u>\$ 40,147</u>	<u>\$ 13,760</u>	<u>\$ 26,387</u>	<u>\$ —</u>
Liabilities:				
Warrant Liability	\$ 5,913	\$ —	\$ —	\$ 5,913
Total liabilities subject to fair value measurements on a recurring basis	<u>5,913</u>	<u>—</u>	<u>—</u>	<u>5,913</u>

	December 31, 2022 (Restated)			
	Total	Level 1	Level 2	Level 3 (Restated)
Assets:				
Cash equivalents:				
Money market funds	\$ 5,083	\$ 5,083	\$ —	\$ —
Total cash equivalents	<u>5,083</u>	<u>5,083</u>	<u>—</u>	<u>—</u>
Short-term marketable securities:				
U.S. treasuries	30,758	—	30,758	—
U.S. government debt securities	51,301	—	51,301	—
Total short-term marketable securities	<u>82,059</u>	<u>—</u>	<u>82,059</u>	<u>—</u>
Total assets subject to fair value measurements on a recurring basis	<u>\$ 87,142</u>	<u>\$ 5,083</u>	<u>\$ 82,059</u>	<u>\$ —</u>
Liabilities:				
Warrant Liability (Restated)	\$ 10,764	\$ —	\$ —	\$ 10,764
Total liabilities subject to fair value measurements on a recurring basis	<u>10,764</u>	<u>—</u>	<u>—</u>	<u>10,764</u>

The Company estimates the fair value of its money market funds, U.S. treasuries, and U.S. government debt securities by taking into consideration valuations obtained from third-party pricing services. The pricing services utilize industry standard valuation models, including both income and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of and broker/dealer quotes on the same or similar securities, issuer credit spreads; benchmark securities; prepayment/default projections based on historical data; and other observable inputs. See Note 5, “Marketable Securities,” for further information regarding the carrying value of the Company's financial instruments.

August 2022 Warrants ('Existing Warrants')

The common stock warrants are classified as a liability on the balance sheets and are measured at fair value with the change in fair value recorded within “Gain (loss) on warrant liability” on the Statement of Operations and Comprehensive Loss. The estimated fair value of the outstanding common warrants were \$27.6 million, \$16.6 million, \$10.7 million, \$5.3 million, \$8.7 million, \$8.4 million, and \$2.8 million as of August 22, 2022 (i.e., the issuance date), September 30, 2022, December 31, 2022, March 31, 2023, June 30, 2023, September 30, 2023, and December 31, 2023, respectively. In November 2023, 2,143,000 shares of the common warrants were exercised through an Inducement Offer, for a reduced exercise price of \$2.045. See Note 12, ‘Equity Financing’.

The Company estimates the fair value of its warrant liability using a Monte Carlo simulation model based on significant inputs not observable in the market, which represents a Level 3 measurement. The Company used the following key assumptions within its valuation. In all scenarios, the Company also applied the likelihood of a fundamental transaction and the related impact on the Company’s common stock price and volatility.

	August 22, 2022 (issuance)	September 30, 2022	December 31, 2022	March 31, 2023	June 30, 2023	September 30, 2023	November 14, 2023 (exercise)	December 31, 2023
Common stock price	\$ 6.10	\$ 3.95	\$ 2.74	\$ 1.63	\$ 2.55	\$ 2.40	\$ 1.72	\$ 1.93
Exercise price per share	\$ 8.50	\$ 8.50	\$ 8.50	\$ 8.50	\$ 8.50	\$ 8.50	\$ 2.045	\$ 8.50
Estimated volatility	87.5%	90.0%	95.0%	100.0%	95.0%	100.0%	80.0%	80.0%
Risk-free interest rate	3.17%	4.07%	4.03%	3.66%	4.28%	4.71%	4.42%	3.85%
Contractual term (in years)	5.00	4.89	4.64	4.39	4.14	3.89	3.77	3.64

November 2023 Inducement Offer ('New Warrants')

In November 2023, the Company issued common stock warrants to purchase an aggregate of 2,143,000 shares of common stock at an exercise price of \$1.92 per warrant. Additionally, 128,580 common stock warrants were issued to the Placement Agent ("Placement Agent Warrants") at an exercise price of \$2.5563 per warrant. The New Warrants and Placement Agent warrants are recorded for as a liability on the balance sheet and are adjusted to estimated fair value at period end through "Gain (loss) on warrant liability" on the Statement of Operations and Comprehensive Loss. The estimated fair value of the New Warrants were \$2.7 million on November 14, 2023 (i.e., the issuance date) and \$3.1 million as of December 31, 2023.

The Company estimates the fair value of its Level 3 warrant liabilities using a Monte Carlo simulation model. The Company used the following key assumptions within its valuation. In all scenarios, the Company also applied the likelihood of a fundamental transaction and the related impact on the Company's common stock price and volatility.

	November 14, 2023 (issuance)	December 31, 2023
Common stock price	\$ 1.72	\$ 1.93
Exercise price per share	\$ 1.92-2.5563	\$ 1.92-2.5563
Expected volatility	80.0%	80.0%
Risk-free interest rate	4.42%	3.85%
Contractual term (in years)	5.00	4.87

The following is a roll forward of the fair value of Level 3 warrants:

	Warrant Liability Fair Value
Beginning balance at December 31, 2021	\$ —
Warrants Issued	27,607
Change in fair value	(16,842)
Ending balance at December 31, 2022 (Restated)	10,765
Warrants Issued	2,724
Warrants Exercised	(1,361)
Change in fair value	(6,215)
Balance at December 31, 2023	<u>\$ 5,913</u>

5. Marketable Securities

Marketable securities, which are classified as available-for-sale, consisted of the following (in thousands):

	December 31, 2023			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	\$ 12,864	\$ —	\$ —	\$ 12,864
U.S. treasuries	2,989	—	—	2,989
Total cash equivalents	15,853	—	—	15,853
Short-term marketable securities:				
U.S. treasuries	7,853	4	(8)	7,849
U.S. government debt securities	15,570	1	(22)	15,549
Total short-term marketable securities	23,423	5	(30)	23,398
Restricted Cash equivalents:				
Money market funds	896	—	—	\$ 896
Total restricted cash equivalents	896	—	—	896
Total	<u>\$ 40,172</u>	<u>\$ 5</u>	<u>\$ (30)</u>	<u>\$ 40,147</u>

	December 31, 2022			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	\$ 5,083	\$ —	\$ —	\$ 5,083
Total cash equivalents	5,083	—	—	5,083
Short-term marketable securities:				
U.S. treasuries	51,491	6	(196)	51,301
U.S. government debt securities	30,820	1	(63)	30,758
Total short-term marketable securities	82,311	7	(259)	82,059
Total	\$ 87,394	\$ 7	\$ (259)	\$ 87,142

At December 31, 2023, the remaining contractual maturities of available-for-sale debt securities were less than a year. There have been no significant realized gains or losses on available-for-sale debt securities for the periods presented. As of December 31, 2023, the Company did not hold any individual securities in an unrealized loss position for 12 months or greater. The Company has the ability and intent to hold all marketable securities that have been in a continuous loss position until maturity or recovery. No significant facts or circumstances have arisen to indicate that there has been any significant deterioration in the creditworthiness of the issuers of the securities held by the Company. The Company considered the current and expected future economic and market conditions and determined that the estimate of credit losses was not significantly impacted. Thus, there has been no change in estimate of expected credit loss during the year ended December 31, 2023 and no allowance for credit loss was recorded at December 31, 2023. The Company will continue to assess the current and expected future economic and market conditions as further development arises.

See Note 4, “Fair Value Measurements,” for further information regarding the fair value of the Company's financial instruments.

6. License Revenue, Agreements and Strategic Investment

The Company has entered into license agreements with other pharmaceutical and biotechnology companies. The Company's accounts receivable balances may contain billed and unbilled amounts from milestones and other contingent payments. The Company performs a regular review of its customers' credit risk and payment histories, including payments made after period end. Historically, the Company has not experienced credit loss from its accounts receivable and, therefore, has not recorded a reserve for estimated credit losses as of December 31, 2023.

In accordance with the license agreements, the Company recognized revenue as follows:

	Year ended December 31,		
	2023	2022	2021
Jocasta Neuroscience, Inc. ⁽¹⁾	\$ —	\$ 236	\$ 4,784
	\$ —	\$ 236	\$ 4,784

⁽¹⁾ Jocasta Neuroscience, Inc. was deemed a related party at the effective time the agreement was made on December 17, 2021.

License Agreement with Jocasta Neuroscience, Inc.

In December 2021, the Company signed a License Agreement with Jocasta Neuroscience, Inc. (“the Jocasta Agreement”) to exclusively license its rights in the α -Klotho asset for development and commercialization, and included a sublicense agreement under the original license agreement with the University of California, San Francisco. Under the Jocasta Agreement, the Company received a \$5.0 million upfront cash payment from Jocasta Neuroscience, Inc. The Company may also receive additional payments based on development milestones, approval milestones, and

sales-based royalties, per indication. The Jocasta agreement is recognized in accordance with ASC 606, *Revenue from Contracts with Customers*, and is classified under License Revenue.

Promises that the Company concluded were distinct performance obligations in the License Agreement included: (1) the license of intellectual property and delivery of know-how, and (2) the transfer of licensed compounds and materials.

In order to determine the transaction price, the Company evaluated all the payments to be received during the duration of the contract. Fixed consideration exists in the form of the upfront payment. Regulatory milestones and royalties were considered variable consideration. The estimated variable consideration is constrained until the Company determines it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur in future periods. Milestone payments are constrained and not included in the transaction price due to the uncertainties of research and development. The Company will re-evaluate the transaction price, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur. The Company determined that the initial transaction price consists of the upfront payment of \$5.0 million. The allocation of the transaction price is performed based on standalone selling prices, which are based on estimated amounts that the Company would charge for a performance obligation if it were sold separately. The transaction price allocated to the license of intellectual property and delivery of know-how was recognized upon grant of license and delivery of know-how. The transaction price allocated to the transfer of licensed compounds and materials, will be recognized over time as the materials are delivered. Consideration received in advance are recorded as deferred revenue and will be recognized as the performance obligations are satisfied.

For the years ended December 31, 2023, 2022 and 2021, the Company recognized zero, \$0.2 million and \$4.8 million, respectively, of license revenue related to the Jocasta Agreement.

License Agreements with Research Institutions

In May 2019, the Company entered into a license agreement with The Regents of the University of California on behalf its San Francisco campus (collectively, “UCSF”) which provides the Company the rights to certain patents and related know-how to make, use, sell, offer for sale and import certain products and practice certain methods for use in the development of human therapeutics, which excludes the provision of services to third parties for consideration of any kind. The license to the Company is subject to UCSF’s reserved rights under the licensed intellectual property for educational and non-commercial research purposes and a requirement to substantially manufacture any licensed products in the United States. The Company is obligated to use diligent efforts to develop and obtain regulatory approval for at least one product commercialized pursuant to the agreement, and must meet certain regulatory and development milestones. The Company is obligated to pay an annual license maintenance fee and may be obligated to make milestone payments or issue up to an additional 3,400 shares of its common stock upon the occurrence of specified development events, up to aggregate milestone payments of \$13.6 million for each product licensed under the agreement, and upon commercialization, to make royalty payments in the low single digit percentages (subject to a specified minimum annual royalty) based on net sales of products commercialized pursuant to the agreement. None of these events had occurred and no milestone payments or royalty payments had been recognized as of December 31, 2023. In December 2021, the Company entered an agreement to exclusively license its rights in the α -Klotho asset to Jocasta Neuroscience, Inc. for development and commercialization. Under the license agreement, Jocasta Neuroscience, Inc. is, in addition to the payments due to the Company, required to make all payments due to UCSF from the Company under the UCSF License.

The Company has also entered into license agreements with various research institutions which have provided the Company with rights to patents, and in certain cases, research “know-how” and proprietary research tools to research, develop and commercialize drug candidates. In addition to upfront consideration paid to these various research institutions in either cash or shares of the Company’s common stock, the Company may be obligated to make milestone payments, payable in cash and/or the issuance of shares of the Company’s common stock upon achievement of certain specified clinical development and/or sales events. The contingent consideration liability considered to be a derivative associated with the potential issuance of common stock related to these license agreements was not

significant at December 31, 2023 and 2022. To date, none of these events has occurred and no contingent consideration, milestone or royalty payments have been recognized.

Ascentage Commercial Agreements

The Company was a party to three agreements (the "Commercial Agreements") with Ascentage Pharma: (a) a compound library and option agreement executed in February 2016, the Library Agreement, granting the Company the right to research and nominate an active compound from Ascentage's library of Bcl compounds and subsequently nominate a development candidate from any active compound in order to begin GLP toxicology work for indications outside of oncology, which expired in February 2022; (b) a license agreement executed in February 2016 granting the Company rights to an Ascentage Pharma compound known as APG1252, or the APG1252 License Agreement, which the Company terminated in July 2020 due to the Company's decision to prioritize the progression of UBX1325; and (c) a second license agreement executed in January 2019 granting the Company world-wide rights to develop and commercialize UBX0601, the active parent molecule of our lead drug candidate UBX1325, outside of Greater China, or the Original Bcl Agreement, for indications outside of oncology.

The Commercial Agreements referenced above include cash payments of up to \$70.3 million as well as the equity payments of up to an aggregate of (a) 93,333 shares of common stock in the event there is only one licensed product, and (b) 133,333 shares of common stock in the event there are two or more licensed products, in each case to be issued based on the Company's achievement of certain preclinical and clinical development and sales milestone events. The Company is required to make 80% of all equity payments to Ascentage Pharma and the remaining 20% to an academic institution from whom Ascentage Pharma had previously licensed the technology. The milestones include the advancement of additional compounds into Investigational New Drug application ("IND") enabling studies, the filing of an IND, the commencement of clinical studies, Food and Drug Administration ("FDA") and/or European Medicines Agency approval, and a net sales threshold. The Original Bcl License Agreement also includes tiered royalties in the low-single digits based on sales of licensed products. To date, no royalties were due from the sales of licensed products. The Company issued no shares pursuant to these agreements during the year ended December 31, 2023.

7. Balance Sheet Components

Prepaid Expenses and Other Current Assets

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

	December 31,	
	2023	2022
Prepaid research and development expenses	\$ 415	\$ 378
Prepaid insurance expenses	541	710
Tax credit receivable	1,493	—
Interest receivable	84	235
Other prepaid expenses and current assets	871	417
	<u>\$ 3,404</u>	<u>\$ 1,740</u>

Property and Equipment, Net

Property and equipment, net, consists of the following (in thousands):

	December 31,	
	2023	2022
Laboratory equipment	\$ 3,894	\$ 4,197
Computer equipment	303	412
Furniture and fixtures	627	726
Leasehold improvements	9,519	15,244
Total property and equipment	14,343	20,579
Less: accumulated depreciation and amortization	(9,261)	(12,754)
Total property and equipment, net	<u>\$ 5,082</u>	<u>\$ 7,825</u>

Depreciation and amortization expense related to property and equipment was \$1.2 million, \$2.2 million and \$2.9 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Accrued and Other Current Liabilities

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

	<u>December 31,</u>	
	<u>2023</u>	<u>2022</u>
Operating lease liability - current portion	\$ 3,451	\$ 3,100
Accrued research and development	839	1,623
Liability related to early exercise shares	10	10
Accrued other	319	601
	<u>\$ 4,619</u>	<u>\$ 5,334</u>

8. Government Assistance Program

Under the CARES Act, the Company met eligibility criteria and was approved for a \$1.5 million refundable employee retention credit. The Company recorded contra-expense to personnel related costs within general and administrative expense of \$0.4 million and research and development expense of \$1.1 million for the year ended December 31, 2023. No such amounts were recorded for the year ended December 31, 2022.

The Company had an employee retention credit receivable due from the U.S. Department of Treasury of \$1.5 million in other current assets as of December 31, 2023 in the balance sheet. There was no employee retention credit receivable due from the U.S. Department of Treasury as of December 31, 2022.

9. Commitments and Contingencies

Leases

In February 2019, the Company entered into a lease agreement for new office and laboratory space in South San Francisco, California. The term of the lease agreement commenced in May 2019. The lease has an initial term from occupancy of approximately ten years ending on December 31, 2029 with an option to extend the term for an additional eight years at then-market rental rates. The total base rent payment escalates annually based on a fixed percentage beginning from the 13th month of the lease agreement. The Company will also be responsible for the operating expenses and real estate taxes allocated to the building and common areas. Pursuant to the lease agreement, the landlord provided the Company with a tenant improvement allowance of \$10.7 million, which was included in deferred rent and leasehold improvements on the balance sheet at December 31, 2019. In connection with the execution of the lease agreement, the Company delivered a letter of credit of approximately \$0.9 million to the landlord.

The Company's operating leases include various covenants, indemnities, defaults, termination rights, security deposits and other provisions customary for lease transactions of this nature.

The following table summarizes the components of lease expense, which are included in operating expenses in the Company's Statements of Operations and Comprehensive Loss (in thousands):

	<u>Year ended December 31,</u>		
	<u>2023</u>	<u>2022</u>	<u>2021</u>
Operating lease expense	\$ 3,739	\$ 4,264	\$ 4,357
Variable lease expense	748	1,318	1,633
Sublease income	(3,988)	(4,317)	(2,578)
Total lease expense	<u>\$ 499</u>	<u>\$ 1,265</u>	<u>\$ 3,412</u>

Variable lease payments include amounts relating to common area maintenance, real estate taxes and insurance and are recognized in the Statements of Operations and Comprehensive Loss as incurred.

The following table summarizes supplemental information related to operating leases (in thousands):

	Year ended December 31,		
	2023	2022	2021
Cash paid for amounts included in the measurement of lease liabilities	\$ 4,810	\$ 6,283	\$ 6,653
Weighted-average remaining lease term (years)	6.0	7.0	7.7
Weighted-average discount rate (percentage)	6.0%	6.0%	5.9%

The following table summarizes the maturities of lease liabilities as of December 31, 2023 (in thousands):

	Amount
2024	\$ 4,964
2025	5,123
2026	5,287
2027	5,457
2028	5,633
Thereafter	5,801
Total future minimum lease payments	32,265
Less: Amount representing interest	(5,275)
Present value of future minimum lease payments	26,990
Less: Current portion of operating lease liability	(3,451)
Noncurrent portion of operating lease liability	<u>\$ 23,539</u>

In February 2021, the Company entered into an agreement to sublease the first floor of the Brisbane, California facility (the Company's previous offices and laboratory space), consisting of approximately 27,000 square feet, to Zymergen, Inc., through August 31, 2022. The base sublease rent rate is \$3.53 per rental square foot per month and will increase by 3% on March 1, 2022 through expiration of the agreement. Additionally, the subtenant is required to pay approximately 41% of operating expenses and property management fees that the Company is required to pay under the lease for the Brisbane, California facility. In May 2021, the Company entered into an agreement to sublease the second floor of the Brisbane, California facility, consisting of approximately 11,500 square feet, to CareDx, Inc., through September 30, 2022. The base sublease rent rate is \$1.00 per rental square foot per month through expiration of the agreement. Additionally, the subtenant is required to pay approximately 30% of operating expenses and property management fees that the Company is required to pay under the lease for the Brisbane, California facility. The Company incurred initial direct costs of \$0.1 million in sublease commissions related to entering into the agreements to sublease the Brisbane, California facility. To account for the commissions, the Company capitalized the total commissions amount and will amortize the balance over the term of the sublease. Sublease income from this facility was zero, \$1.3 million and \$1.5 million for the years ended December 31, 2023, 2022 and 2021, respectively, which was offset against total rent expense.

In June 2021, the Company entered into an agreement to sublease a portion of the first floor of the South San Francisco facility, consisting of approximately 23,000 square feet, to Freenome Holdings, Inc., through July 31, 2024. The base sublease rent rate is \$6.25 per rental square foot per month and will increase annually by 3.5% through expiration of the agreement. Additionally, the subtenant is required to pay approximately 37% of operating expenses and property management fees that the Company is required to pay under the lease for the South San Francisco, California facility. The Company incurred initial direct costs of \$0.2 million in sublease commissions related to entering into the agreements to sublease the South San Francisco, California facility. To account for the commissions, the Company capitalized the total commissions amount and will amortize the balance over the term of the sublease. Sublease income related to this facility and this specific sub-tenant was \$2.3 million, \$2.2 million and \$1.1 million for the years ended December 31, 2023, 2022 and 2021, respectively, which was offset against total rent expense.

In May 2022, the Company entered into an agreement to sublease a portion of the second floor of the South San Francisco, California facility, consisting of approximately 15,000 square feet, to Initial Therapeutics, Inc. ("Initial Therapeutics"). The original sublease term commenced on July 1, 2022 and continued through June 30, 2024 and further extended through June 30, 2026 upon execution of an amendment as defined below. The base sublease rent rate is \$7.80 per rental square foot per month and will increase by 3.5% annually through the expiration of the agreement. Additionally, the subtenant is required to pay approximately 24% of operating expenses and property management fees that the Company is required to pay under the lease for the South San Francisco, California facility.

The Company incurred initial direct costs of \$0.1 million in sublease commissions related to entering into the agreements to sublease the South San Francisco, California facility. To account for the commissions, the Company capitalized the total commissions amount and will amortize the balance over the term of the sublease.

On September 15, 2023, the Company entered into an amendment with Initial Therapeutics to sublease the remainder of the second floor of the South San Francisco, California facility, consisting of an additional 17,000 square feet. The sublease term commenced on October 1, 2023 and extends the existing sublease agreement that commenced on July 1, 2022 through June 30, 2026. The additional space will be subleased at a monthly rent rate of \$1.00 per square foot starting a month after Initial Therapeutics first takes possession of the additional space through June 30, 2024. Starting July 1, 2024, the rent rate for the entirety of Initial Therapeutics' subleased space will be \$6.02 per rental square foot per month and will increase 3.5% on December 1, 2024 and 2025. Additionally, Initial Therapeutics will be required to pay approximately 51% of operating expenses and property management fees that the Company is required to pay under the lease for the South San Francisco, California facility. The Company incurred initial direct costs of \$0.3 million in sublease commissions. Sublease income related to this amendment was \$1.7 million for the year ended December 31, 2023 which was offset against total rent expense.

On September 15, 2023, the Company entered into a sublease agreement with GT Biopharma, Inc. to sublease a portion of its first floor at 8000 Marina Boulevard, Brisbane, California, consisting of 4,500 square feet. The sub-sublease term will commence on October 6, 2023 through June 30, 2024. The space will be subleased at a rent rate of \$2.00 per rent square feet.

Impairment of Operating Lease Right-of-Use Asset and Other Long-Lived Assets

As the Company is subleasing its South San Francisco facility through June 30, 2026, the Company determined an impairment indicator was present. The Company determined all of its long-lived assets represent entity wide asset group for the purpose of the long-lived asset impairment assessment. The Company concluded that the carrying value of the entity wide asset group was not recoverable as it exceeded the future net undiscounted cash flows that are expected to be generated from the use and eventual disposition of the assets within the asset group. To allocate and recognize the impairment loss, the Company determined the fair value of the Company using the adjusted net asset method under the cost approach. The implied allocated impairment loss to any individual asset within the long-lived asset group shall not reduce the carrying amount of that asset below its fair value. To determine the fair value of the individual assets within the asset group, the Company utilized the discounted cash flow method using the income approach. Based on this analysis, the Company recognized a non-cash impairment charge of \$5.6 million, including \$4.0 million for the right-of-use asset and \$1.6 million for the leasehold improvements during the year ended December 31, 2023. This represents a Level 3 nonrecurring fair value measurement. Calculating the fair value of the assets involves significant estimates and assumptions. These estimates and assumptions include, among others, projected future cash flows, risk-adjusted discount rates and market rental rates. Changes in the factors and assumptions used could materially affect the amount of impairment loss recognized in the period the asset was considered impaired.

Indemnifications

The Company indemnifies each of its officers and directors for certain events or occurrences, subject to certain limits, while the officer or director is or was serving at the Company's request in such capacity, as permitted under Delaware law and in accordance with the Company's amended and restated certificate of incorporation and bylaws. The term of the indemnification period lasts as long as an officer or director may be subject to any proceeding arising out of acts or omissions of such officer or director in such capacity.

The maximum amount of potential future indemnification is unlimited; however, the Company currently holds director and officer liability insurance. This insurance allows the transfer of risk associated with the Company's exposure and may enable the Company to recover a portion of any future amounts paid. The Company believes that the fair value of these potential indemnification obligations is minimal. Accordingly, the Company has not recognized any liabilities relating to these obligations for any period presented.

10. Term Loan Facility

On August 3, 2020, the Company entered into a Loan and Security Agreement (as amended, restated, supplemented or otherwise modified, the "Hercules Loan Agreement") with Hercules Capital, Inc. ("Hercules"), as administrative agent and collateral agent for the lenders, and certain banks and other financial institutions or entities from time to

time parties thereto, for an aggregate principal amount of up to \$80.0 million secured term loan facility (the "Hercules Facility") subject to certain terms and conditions. The first tranche of \$25.0 million was advanced to the Company on the date the Loan Agreement was executed. The maturity date under the Hercules Loan Agreement was August 1, 2024.

On September 6, 2023, the Company and Hercules entered into a payoff letter for a voluntary prepayment with respect to the Hercules Loan Agreement (the "Payoff Letter"). Pursuant to the Payoff Letter, the Company paid a total of \$15.0 million to Hercules, representing the outstanding principal, accrued and unpaid interest, fees, costs and expenses due to Hercules under the Hercules Facility and the Hercules Loan Agreement and related loan documents, in repayment of the Company's outstanding obligations under the Hercules Facility and the Hercules Loan Agreement and related loan documents, and thereby terminated the Hercules Loan Agreement and the Hercules Facility and related loan documents. Under the terms of the Hercules Loan Agreement, no early termination penalty was payable as a result of such prepayment and termination as of such date. The Company recorded a loss on extinguishment of debt of \$0.5 million under "Other expense, net" in the financial statements for the year ended December 31, 2023 related to the write-off of the remaining balance of unamortized debt discount.

Pursuant to the Payoff Letter, the lenders' commitments to extend further credit to the Company terminated. Hercules released and terminated all liens or security interests granted to secure the obligations under the Hercules Loan Agreement and the Company was unconditionally released from its respective guaranties and obligations under the Hercules Facility and the Hercules Loan Agreement and related loan documents without further action (other than with respect to customary provisions and agreements that are expressly specified to survive the termination). Hercules returned to the Company, for the benefit of the Company, all of the collateral that it had in its possession.

Interest expense relating to the term loan, which is included in interest expense in the Statements of Operations and Comprehensive Loss was \$2.5 million, \$3.6 million and \$3.2 million for the years ended December 31, 2023, 2022 and 2021, respectively.

11. Related Party Transactions

Licensing Revenue – Related Party

In December 2021, the Company entered into a license agreement with Jocasta Neuroscience, Inc. A member of the Board of Directors of the Company is also an affiliate of Jocasta Neuroscience, Inc. The agreement provides for an upfront fee of \$5.0 million and the opportunity for future research and development services to be provided. The Company recognized zero, \$0.2 million and \$4.8 million of licensing revenue for the years ended December 31, 2023, 2022 and 2021, respectively.

12. Equity Financing

On October 19, 2022, the Company effected a reverse stock split of its outstanding share of common stock at a ratio of 1-for-10 pursuant to a Certificate of Amendment to the Company's Certificate of Incorporation filed with the Secretary of State of the State of Delaware. The reverse stock split was reflected on the Nasdaq Global Select Market beginning with the opening of trading on October 20, 2022. All share amounts and per share amounts disclosed in this Annual Report on Form 10-K have been restated to reflect the reverse stock split on a retroactive basis in all periods presented.

The Company has 10,000,000 shares of convertible preferred stock authorized for issuance, par value of \$0.0001 per share. As of December 31, 2023 and 2022, no shares of preferred stock were issued and outstanding.

The Company has 300,000,000 shares of common stock authorized for issuance, par value of \$0.0001 per share. Holders of the Company's common stock are entitled to one vote per share. As of December 31, 2023 and 2022, there were 16,784,969 and 14,215,302 shares, respectively, of common stock issued and outstanding.

Follow-On Offering (Restated)

In August 2022, the Company closed an underwritten offering (the "Follow-On Offering") in which the Company issued and sold an aggregate of 6,428,571 of the Company's common stock together with warrants (the "Existing Warrants") to purchase up to 6,428,572 of the Company's common stock at an offering price of at an aggregate

offering price of \$7.00 per unit. The Existing Warrants have an exercise price of \$8.50 per warrant. The gross proceeds to the Company were \$45.0 million before deducting underwriting discounts and commissions and other offering expenses. The net proceeds of the Follow-On Offering were approximately \$41.7 million.

The Existing Warrants are exercisable at any time after their original issuance and on or prior to the five-year anniversary of the original issuance date. A holder of Existing Warrants may not exercise the warrant if the holder, together with its affiliates, would beneficially own more than 4.99% of the number of shares of common stock outstanding immediately after giving effect to such exercise. As of December 31, 2023, 2,143,000 warrants have been exercised.

The Company recorded the Existing Warrants as liabilities based upon the guidance of ASC 480 and ASC 815. The Company evaluated the Existing Warrants under ASC 815-40 and concluded that they do not meet the criteria to be classified in stockholders' equity. Specifically, the settlement value in a scenario of a fundamental transaction precluded the Existing Warrants from being indexed to the Company's own stock and Company believes that the scope exception related to the occurrence of a fundamental transaction in ASC 815-40 is not met. Since the Existing Warrants meet the definition of a derivative, they are recorded as liabilities and measured at fair value at initial recognition. Any subsequent changes in their respective fair values is recognized in the Statement of Operations and Comprehensive Loss at each reporting date.

At issuance, the Company valued the Existing Warrants using a Monte-Carlo valuation model due to the more than de-minimis probability of a fundamental transaction which triggered a settlement value that is not indexed to the Company's own stock. The Monte Carlo valuation model resulted in a fair value of \$27.6 million on the Existing Warrant issuance date. The difference between the gross proceeds of \$45.0 million and \$27.6 million fair value of warrants issued, was recorded to the stockholders' equity under Common stock and Additional paid-in capital. Additionally, the Company also incurred an issuance cost of \$3.3 million which was allocated to Existing Warrants and common stock based on their relative fair value. The issuance cost of \$1.4 million attributed to the Existing Warrants were expensed under "Other expense, net" in the Statement of Operations and Comprehensive Loss. The remaining issuance cost of \$1.9 million attributed to the common stock was recorded as a reduction to Additional paid-in capital.

At December 31, 2023 and 2022, the Company updated the estimated fair value of the outstanding Existing Warrants using a Monte-Carlo valuation model resulting in an estimated fair value of \$2.8 million (subsequent to the exercise of the Existing Warrants as described in the section below) and \$10.7 million. The change in fair value for the year ended December 31, 2023 and 2022 of \$6.6 million and \$16.8 million was recorded as the Gain (loss) on warrant liability in the Statements of Operations and Comprehensive Loss for the year ended December 31, 2023 and 2022.

Inducement Offer

On November 9, 2023, the Company entered into an inducement offer letter agreement (the "Inducement Offer") with certain holders (collectively, the "Holders") of the Company's Existing Warrants to purchase up to an aggregate of 2,143,000 shares of common stock. The Holders agreed to exercise for cash their Existing Warrants to purchase an aggregate of 2,143,000 shares of common stock at a reduced exercise price of \$2.045 per share in consideration of the Company's agreement to issue new unregistered common stock purchase warrants (the "New Warrants") to purchase up to an aggregate of 2,143,000 shares of the Company's common stock.

Each New Warrant will have an exercise price equal to \$1.92 per share. The New Warrants will be exercisable on or after the initial issue date until the five-year anniversary of such date. The exercise price and number of New Warrant Shares issuable upon exercise of the New Warrants is subject to appropriate adjustment in the event of stock dividends, stock splits, subsequent rights offerings, pro rata distributions, reorganizations, or similar events affecting the Company's common stock and the exercise price.

The Company engaged H.C. Wainwright & Co., LLC (the "Placement Agent") to act as its exclusive placement agent in connection with the transactions summarized above. The Company also issued to the Placement Agent or its designees warrants to purchase up to 128,580 shares of common stock. The Placement Agent Warrants have substantially the same terms as the New Warrants, except that the Placement Agent Warrants have an exercise price equal to \$2.5563 per share.

The Company recorded the New Warrants and Placement Agent Warrants (together "2023 Warrants") as liabilities based upon the guidance of ASC 480 and ASC 815. The Company evaluated the 2023 Warrants under ASC 815-40

and concluded that they do not meet the criteria to be classified in stockholders' equity. Specifically, the settlement value in a scenario of a fundamental transaction precludes the 2023 Warrants from being indexed to the Company's own stock and Company believes that the scope exception related to the occurrence of a fundamental transaction in ASC 815-40 is not met. Since the 2023 Warrants are recorded as liabilities on the balance sheet at fair value, any subsequent changes in their respective fair values are recognized in the statement of operations and comprehensive loss at each reporting date.

The Company received aggregate gross proceeds of \$4.4 million from the exercise of the Existing Warrants by the Holders (the "Exercise"), before deducting placement agent fees and other offering expenses payable by the Company.

The Company issued common stock at fair value of \$3.7 million and 2023 Warrants at fair value of \$2.7 million. The extinguished the Existing Warrants Liability of \$1.4 million. The issuance costs related to 2023 Warrants and loss on extinguishment of Existing Warrants Liability of \$1.0 million were expensed under "Other expense, net" in the Statement of Operations and Comprehensive Loss.

At-the-Market Offering

In June 2019, the Company filed a Registration Statement on Form S-3 (the "Shelf Registration Statement"), covering the offering of up to \$250.0 million of common stock, preferred stock, debt securities, warrants and units. The Shelf Registration Statement included a prospectus covering the offering, issuance and sale of up to \$75.0 million of the Company's common stock from time to time through an "at-the-market" offering under the Securities Act of 1933, as amended (the "Initial ATM Offering Program"). The SEC declared the Shelf Registration Statement effective on June 6, 2019.

In June 2019, the Company also entered into a sales agreement (the "June 2019 Sales Agreement") with Cowen and Company, LLC ("Cowen") to sell shares of the Company's common stock, from time to time, with aggregate gross sales proceeds of up to \$75.0 million, through the ATM Offering Program under which Cowen acts as its sales agent. Cowen is entitled to compensation for its services equal to up to 3.0% of the gross proceeds of any shares of common stock sold through Cowen under the June 2019 Sales Agreement. During the year ended December 31, 2020, the Company issued and sold 500,226 shares of its common stock through its ATM Offering Program and received net proceeds of approximately \$37.3 million, after deducting commissions and other offering expenses of \$1.3 million.

In July 2020, the Company filed an additional prospectus supplement to the Shelf Registration Statement. This prospectus supplement covers the offering, issuance and sale of up to an additional \$50.0 million of the Company's common stock from time to time through an additional "at-the-market" offering under the Securities Act of 1933, as amended (the "Additional ATM Offering Program"). The Initial ATM Offering Program and Additional ATM Offering Program are collectively called the "ATM Offering Programs".

In July 2020, the Company entered into sales agreement (the "July 2020 Sales Agreements") with Cowen to sell shares of the Company's common stock, from time to time, with aggregate gross sales proceeds of up to \$50.0 million, through the Additional ATM Offering Program under which Cowen will act as its sales agent. The issuance and sale of shares of common stock by the Company pursuant to the July 2020 Sales Agreement are also deemed an "at-the-market" offering under the Securities Act of 1933, as amended (the "Securities Act"). Cowen is entitled to compensation for its services equal to up to 3.0% of the gross proceeds of any shares of common stock sold through Cowen under the July 2020 Sales Agreement. During the year ended December 31, 2021, there were 118,707 shares of the Company's common stock sold through the Initial ATM Offering Program and 70,746 shares of the Company's common stock sold through the Additional ATM Offering Program and received total net proceeds of approximately \$10.4 million, after deducting commissions and other offering expenses of \$0.3 million.

In March 2022, the Company filed a Registration Statement on Form S-3 (the "March 2022 Shelf Registration Statement"), covering the offering of up to \$125.0 million of common stock, preferred stock, debt securities, warrants, and units, which was declared effective by the SEC in May 2022. In March 2022, the Company also entered into a sales agreement (the "March 2022 Sales Agreement") with Cowen and Company, LLC ("Cowen") as sales agent to sell shares of the Company's common stock, from time to time, with aggregate gross sales proceeds of up to \$50.0 million pursuant to the March 2022 Shelf Registration Statement as an "at-the-market" offering under the Securities Act (the "March 2022 ATM Offering Program"). Cowen is entitled to up to 3.0% of the gross proceeds of any shares of common stock sold under the March 2022 Sales Agreement. For so long as its public float is less than \$75.0 million, it may not sell more than the equivalent of one-third of its public float during any 12 consecutive months pursuant to the "baby shelf" rules. During the year ended December 31, 2023, there were 274,781 shares of the Company's

common stock sold pursuant to the March 2022 Sales Agreement and the Company received total net proceeds of approximately \$1.0 million, after deducting commissions and other offering expenses which were insignificant. On August 17, 2022, the Company entered into Amendment No. 1 (the "Amendment") to the March 2022 Sales Agreement, which Amendment decreased the amount of the Company's common stock that can be sold by the Company through Cowen under the March 2022 Sales Agreement, from an aggregate offering of up to \$50.0 million to an aggregate offering of up to \$25.0 million. Following the Amendment, \$14.6 million of shares of common stock remained available for sale under the March 2022 Sales Agreement, as amended, as of December 31, 2023. On March 17, 2023, the Company entered into Amendment No. 2 (the "Second Amendment"), accompanied by a prospectus supplement, to the March 2022 Sales Agreement. The Second Amendment added the limitations imposed on the Program by General Instruction I.B.6 of Form S-3 ("Instruction I.B.6") to the Sales Agreement. Pursuant to Instruction I.B.6, in no event will the Company sell ATM Shares through the Program with a value exceeding more than one-third of the Company's "public float" (the market value of the Company's outstanding common stock held by non-affiliates) in any twelve-month period so long as the Company's public float remains below \$75.0 million.

In October 2022, the Company filed a Registration Statement on Form S-3 (the "October 2022 Shelf Registration Statement"), covering the offering of up to \$250.0 million of common stock, preferred stock, debt securities, warrants, and units. In October 2022, the Company also entered into a sales agreement (the "October 2022 Sales Agreement") with Cowen as sales agent to sell shares of the Company's common stock, from time to time, with aggregate gross sales proceeds of up to \$50.0 million pursuant to the October 2022 Shelf Registration Statement as an "at-the-market" offering under the Securities Act. Cowen is entitled to up to 3.0% of the gross proceeds of any shares of common stock sold under the October 2022 Sales Agreement. During the year ended December 31, 2023, there were no shares of the Company's common stock sold pursuant to the October 2022 Sales Agreement.

Equity Purchase Agreement

In September 2021, the Company entered into an equity purchase agreement (the "Purchase Agreement" or "Equity Purchase Agreement") and a registration rights agreement with Lincoln Park Capital Fund, LLC ("Lincoln Park" or "Investor") which provides for the sale to Lincoln Park up to \$30,000,000 of shares (the "Purchase Shares") of its common stock over the thirty-six (36) month term of the Purchase Agreement. In connection with the Purchase Agreement, Lincoln Park purchased 102,040 Purchase Shares at a purchase price of \$2.94 per share, for a total gross purchase price of \$3.0 million (the "Initial Purchase"), and the Company issued 25,244 shares of common stock to Lincoln Park as a commitment fee in connection with entering into the Purchase Agreement. The Company recognized \$0.8 million of other expense relating to the commitment fee share issuance. From the date of the agreement through December 31, 2022, the Company had initiated the purchase of an additional 380,000 shares of the Company's common stock amounting to \$6.2 million in gross proceeds. The Company has initiated no purchases through the Purchase Agreement for the year ended December 31, 2023.

Under the Purchase Agreement, the Company has sole discretion, subject to certain conditions, on any business day selected by the Company to require Lincoln Park to purchase up to 10,000 shares of common stock (the "Regular Purchase Amount") at the Purchase Price (as defined below) per purchase notice (each such purchase, a "Regular Purchase"). The Regular Purchase Amount may be increased as follows: up to 15,000 shares if the closing price is not below \$35.00, up to 20,000 shares if the closing price is not below \$50.00, and up to 25,000 shares if the closing price is not below \$70.00. Lincoln Park's committed obligation under each Regular Purchase is capped at \$2,000,000, unless the parties agree otherwise. The purchase price for Regular Purchases (the "Purchase Price") shall be equal to the lesser of: (i) the lowest sale price of the common shares during the Purchase Date, or (ii) the average of the three (3) lowest closing sale prices of the common shares during the ten (10) business days prior to the Purchase Date.

In addition to Regular Purchases and subject to certain conditions and limitations, the Company in its sole discretion may require Lincoln Park on each Purchase Date to purchase on the following business day up to the lesser of (i) three (3) times the number of shares purchased pursuant to such Regular Purchase or (ii) 30% of the trading volume on the Accelerated Purchase Date (the "Accelerated Purchase") (unless the Parties agree otherwise) at a purchase price equal to the lesser of 97% of (i) the closing sale price on the Accelerated Purchase Date, or (ii) the Accelerated Purchase Date's volume weighted average price (the "Accelerated Purchase Price"). The Company has the sole right to set a minimum price threshold for each Accelerated Purchase in the notice provided with respect to such Accelerated Purchase and under certain circumstances and in accordance with the Purchase Agreement the Company may direct multiple Accelerated Purchases in a day.

The aggregate number of shares that the Company can sell to Lincoln Park under the Purchase Agreement may not exceed 1,106,580 shares of the common stock (which is equal to approximately 19.99% of the shares of the common

stock outstanding immediately prior to the execution of the Purchase Agreement) (the “Exchange Cap”), unless (i) shareholder approval is obtained to issue Purchase Shares above the Exchange Cap, in which the Exchange Cap will no longer apply, or (ii) the average price of all applicable sales of common stock to Lincoln Park under the Purchase Agreement equals or exceeds \$29.40 per share; provided that at no time may Lincoln Park (together with its affiliates) beneficially own more than 9.99% of the Company’s issued and outstanding common stock.

The Purchase Agreement contains customary representations, warranties, covenants, closing conditions, indemnification and termination provisions. The Purchase Agreement may be terminated by the Company at any time, at its sole discretion, without any cost or penalty, by giving one business day notice to Lincoln Park. Further, Lincoln Park has covenanted not to engage in any direct or indirect short selling or hedging of the Common Shares. There are no limitations on the use of proceeds, financial or business covenants, restrictions on future financings (other than restrictions on the Company’s ability to enter into a similar type of agreement or Equity Line of Credit during the Term, excluding an At-The-Market transaction with a registered broker-dealer), rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement. Issuances under the Purchase Agreement were to be made pursuant to the Company’s Registration Statement on Form S-3 filed in July 2019, which has since expired. The Company would need to file a new prospectus supplement covering issuances under the Purchase Agreement in order to continue using the facility.

13. Corporate Restructuring

In February 2022, the Company implemented a corporate restructuring to align its resources to focus on its UBX1325 program while further extending operating capital. The restructuring resulted in an elimination of 29 positions, or approximately 50% of the Company’s workforce, in the first nine months of 2022. The Company incurred a one-time employee benefits and severance charge of approximately \$1.9 million in operating expenses which was primarily recorded in the first nine months of 2022. Restructuring charges incurred under this plan primarily consisted of employee termination benefits. Employee termination benefits include \$1.6 million of severance costs, \$0.2 million of employee-related benefits, \$0.1 million of payroll taxes and supplemental one-time termination payments. Charges and other costs related to the workforce reduction and structure realignment, and non-cash share-based compensation credits related to the forfeiture of stock options for \$1.7 million, are included in operating expenses in the Statements of Operations and Comprehensive Loss. Of the total charge, \$1.4 million was recorded to research and development expenses and \$0.5 million was recorded to general and administrative expenses during the year ended December 31, 2022.

In May 2023, the Company implemented a reduction in its workforce to align operations with the changes in its corporate strategy to focus on resource optimization to enable the initiation and advancement of key data readouts. The reduction decreased its headcount by nine employees, or approximately 29% of the Company’s workforce, effective as of May 31, 2023. Six employees departed as of the effective date and three employees departed as of June 30, 2023. The Company recognized the employee benefits and severance charge of approximately \$0.6 million in operating expenses in the second quarter of 2023. Restructuring charges primarily consisted of employee termination benefits, which included \$0.5 million of severance costs, \$0.1 million of employee-related benefits, and a negligible amount of payroll taxes. Charges and other costs related to the restructuring, and non-cash share-based compensation credits related to the forfeiture of stock options were negligible and are included in operating expenses in the Statements of Operations and Comprehensive Loss. Of the total charge, \$0.4 million was recorded to research and development expenses and \$0.2 million was recorded to general and administrative expenses during the year ended December 31, 2023.

14. Stock-Based Compensation

Summary of Equity Incentive Plans

In March 2018, the Company’s board of directors adopted the Company’s 2018 Incentive Award Plan (the “2018 Plan”). The 2018 Plan was approved by the Company’s stockholders in April 2018 and became effective in May 2018. The 2018 Plan initially reserved 428,994 shares for the issuance of stock options as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2018 Plan. Awards granted under the 2018 Plan expire no later than ten years from the date of grant. For stock options, the option price shall not be less than 100% of the estimated fair value on the day of grant. Options granted typically vest over a four-year period but may be granted with different vesting terms. Unvested options not exercised at the time of an employee’s termination of employment are added back to the 2018 Plan.

Following the Company's IPO and in connection with the effectiveness of the 2018 Plan, the 2013 Equity Incentive Plan (the "2013 Plan") terminated and no further awards will be granted under that plan. All outstanding awards under the 2013 Plan will continue to be governed by their existing terms and the shares that remained outstanding for issuance under the 2013 Plan were transferred into the 2018 Plan. As of December 31, 2023, there were in aggregate 2,182,500 shares of common stock authorized for issuance under the 2018 Plan.

Prior to its termination, the 2013 Plan provided for the granting of incentive stock options ("ISOs"), non-statutory stock options ("NSOs") and restricted shares to employees, directors, and consultants at the discretion of management and the board of directors. The exercise price of an ISO and NSO shall not be less than 100% of the estimated fair value of the shares on the date of grant, and the exercise price of an ISO and NSO granted to a 10% stockholder shall not be less than 110% of the estimated fair value of the shares on the date of grant. For awards granted between September 2017 and February 2018 with an exercise price of \$3.42, a deemed fair value ranging from \$3.95 to \$8.47 per share was used in calculating stock-based compensation expense, which was determined using management hindsight. Options granted under the 2013 Plan expire no later than ten years from the date of grant and generally vest over a four-year period but may be granted with different vesting terms. Unvested options not exercised at the time of an employee's termination of employment are added back to the 2018 Plan.

Under the 2013 Plan, the Company permitted early exercise of certain stock options prior to vesting. These unvested shares are subject to repurchase by the Company at the original issuance price in the event the optionee's employment is terminated either voluntarily or involuntarily. The amounts paid for shares purchased under an early exercise of stock options and subject to repurchase by the Company are reported as a liability and reclassified into additional paid-in capital as the shares vest.

In March 2020, the Company's board of directors approved the Company's 2020 Employment Inducement Incentive Plan ("the 2020 Plan"), to provide for grants to newly hired employees as a material inducement for them to commence employment with the Company. The 2020 Plan initially reserved 110,000 shares for the issuance of stock options, and in November 2020, the Company reserved an additional 150,000 shares of common stock for future issuance under the 2020 Plan. In February 2023, the Company reserved an additional 300,000 shares of common stock for future issuance under the 2020 Plan. Awards granted under the 2020 Plan expire no later than ten years from the date of grant. For stock options, the option price shall not be less than 100% of the estimated fair value on the day of grant. Options granted typically vest over a four-year period but may be granted with different vesting terms. Unvested options not exercised at the time of an employee's termination of employment are added back to the 2020 Plan. As of December 31, 2023, there were in aggregate 542,000 shares of common stock authorized for issuance under the 2020 Plan.

Equity Incentive Plan Activity

The following sections summarize activity under the Company's equity incentive plans.

Stock Options and Restricted Stock Units (RSUs) Activity

A summary of the Company's stock option activity under the 2013 Plan, 2018 Plan and 2020 Plan for the year ended December 31, 2023 is as follows:

	Shares Available for Grant	Outstanding Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contract Term (in Years)	Aggregate Intrinsic Value (in thousands)
Balance at December 31, 2022	68,838	1,609,938	\$ 27.51	8.3	\$ 251
Shares added	1,010,831	—	—		
Granted	(446,200)	446,200	2.79		
Exercised	—	—	—		
Canceled	153,367	(142,793)	7.96		
Balance at December 31, 2023	<u>786,836</u>	<u>1,913,345</u>	\$ 14.23	7.1	\$ 5
Vested and exercisable at December 31, 2023		<u>1,179,366</u>	\$ 20.51	6.0	\$ —
Vested and expected to vest at December 31, 2023		<u>1,913,345</u>	\$ 14.23	7.1	\$ 5

The total intrinsic value of options exercised was zero for the years ended December 31, 2023 and 2022, respectively. The weighted-average estimated fair value of stock options granted was \$2.79 and \$3.11 for the years ended December 31, 2023 and 2022, respectively.

The aggregate intrinsic value of options exercisable was zero as of December 31, 2023 and 2022.

In September 2020, the board of directors granted retention stock-based awards to employees covering an aggregate of 320,000 shares of common stock, including options to purchase an aggregate of 25,000 shares of common stock and 295,985 of restricted stock units. The awards are all time-based vesting and vest over three to four years.

During the years ended December 31, 2023 and 2022, there were no shares issued in settlement of stock-based compensation awards accounted for as liability awards.

The following table summarizes the Company's RSU activity for the year ended December 31, 2023:

	Shares	Weighted-Average Grant Date Fair Value
Unvested at December 31, 2022	146,333	\$ 27.66
Granted	—	\$ —
Released	(94,534)	\$ 28.39
Canceled	(10,574)	\$ 11.27
Unvested at December 31, 2023	<u>41,225</u>	\$ 30.18

As of December 31, 2023, the total stock-based compensation cost related to options and RSUs granted but not yet amortized was \$3.9 million and will be recognized over a weighted-average period of approximately 0.9 years. The total grant date fair value of RSUs and RSAs vested during the years ended December 31, 2023 and 2022 was approximately \$0.3 million and \$0.6 million, respectively.

In March 2020, the board of directors granted the Company's newly hired Chief Executive Officer stock-based awards covering an aggregate of 110,000 shares of common stock, including options to purchase an aggregate of 80,000 shares of common stock, 12,000 RSUs, 15,000 PSUs, and 3,000 RSAs that immediately vested on the grant date. The stock-based awards were granted pursuant to the 2020 Employment Inducement Incentive Plan, which was approved

by the board of directors in March 2020 to provide for grants to newly hired employees as a material inducement for them to commence employment with the Company.

In February 2022, the Company's board of directors approved the granting of retention awards to critical and important Company personnel. The awards consisted of 189,333 stock options and 46,332 restricted stock units with a grant date total fair value of \$2.0 million and \$0.5 million, respectively.

Valuation of Stock Options

The Company uses the Black-Scholes option-pricing model for determining the estimated fair value and stock-based compensation related to stock options and ESPP awards. The fair value of stock options granted to employees was estimated on the date of grant using the Black-Scholes option pricing model using the following assumptions:

	Year ended December 31,		
	2023	2022	2021
Expected term of options (in years)	5.79	5.55	6.0
Expected stock price volatility	94.11%-98.92%	86.22%-93.17%	85.7%-88.5%
Risk-free interest rate	3.36%-4.13%	2.41%-4.01%	1.08%-1.35%
Expected dividend yield	—	—	—

The valuation assumptions were determined as follows:

Expected Term—The expected term represents the period that the options 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) as the Company has concluded that its stock option exercise history does not provide a reasonable basis upon which to estimate expected term.

Expected Volatility—Due to limited historical data, the Company estimates stock price volatility based on a combined weighted-average of the Company's historical average volatility and that of a selected peer group of comparable publicly traded companies within the biotechnology and pharmaceutical industry that were deemed to be representative of future stock price trends over the expected life of the award.

Risk-Free Interest Rate—The Company based the risk-free interest rate over the expected term of the options based on the constant maturity rate of U.S. Treasury securities with similar maturities as of the date of the grant.

Expected Dividend Yield—The Company has never paid any dividends and does not plan to pay dividends in the foreseeable future. Therefore, the expected dividend yield is zero.

The fair value of ESPP awards was not material for all periods presented.

Performance Stock Units

The PSUs were originally scheduled to vest as to 5,000 PSUs upon the attainment of (a) a volume-weighted average per share closing trading price of the Company's common stock of at least \$368.75 over a trailing 30-day period or (b) a change in control transaction in which the price per share to the holders of the Company's common stock is at least \$368.75 and as to 10,000 PSUs (x) at such time as the Company's market capitalization reaches at least \$2.5 billion, as measured based on the volume weighted-average closing trading price over a trailing 30 day period or (y) a change in control transaction in which the consideration paid to the Company's stockholders is equal to at least \$2.5 billion, as determined by the Company's board of directors. In January 2021, the board of directors modified the PSUs to vest as to 5,000 PSUs upon the attainment of (a) a volume-weighted average per share closing trading price of the Company's common stock of at least \$180.00 over a trailing 30-day period or (b) a change in control transaction in which the price per share to the holders of the Company's common stock is at least \$180.00 and as to 10,000 PSUs upon the attainment of (x) a volume-weighted average per share closing trading price of the Company's common stock of at least \$360.00 over a trailing 30-day period or (y) a change in control transaction in which the price per share to the holders of the Company's common stock is at least \$360.00, as determined by the Company's board of directors.

For the PSU awards, the Company used the Monte-Carlo option pricing model to determine the fair value of awards at the date of grant. The Monte-Carlo option pricing model uses similar input assumptions as the Black-Scholes model;

however, it further incorporates into the fair-value determination the possibility that the market condition may not be satisfied. Compensation costs related to awards with a market-based condition are recognized regardless of whether the market condition is ultimately satisfied. Compensation cost is not reversed if the achievement of the market condition does not occur. The total grant date fair value of the PSU awards was determined to be \$0.7 million and will be recognized as compensation expense over the weighted-average derived service period of approximately 4.3 years. The incremental fair value of the PSUs on the modification date of \$31,000 are added to the unamortized value of the original grant of \$569,000 and will be amortized to expense over the new implied service periods of 1.63 years to 2.79 years.

Performance and Market Contingent Stock Options

In January 2021, the board of directors modified 1,747 performance and market contingent stock options with vesting conditions that required the combination of a liquidity event, change of control or IPO with a market condition at prescribed levels. The modification removed the performance condition and lowered the market conditions to a volume-weighted average per share closing trading price of the Company's common stock of at least \$180.00 over a trailing 30-day period for one tranche and at least \$360.00 over a trailing 30-day period for the second tranche. The fair value of the options on the modification date of \$81,000 will be amortized to expense over the implied service periods of 1.46 years to 2.52 years.

In June 2021, the board of directors modified 3,336 performance and market contingent stock options with vesting conditions that required the combination of a liquidity event, change of control or IPO with a market condition at prescribed levels. The modification removed the performance condition and adjusted the market conditions to a date on which the Company attains a valuation of at least one billion dollars measured by the volume-weighted average per share closing trading price of the Company's common stock over a trailing 30-day period. The fair value of the options on the modification date of \$102,000 will be amortized to expense over the implied service periods of 1.85 years.

As of December 31, 2023, there were 3,336 market contingent stock option awards outstanding with a total fair value of \$0.1 million.

2018 Employee Stock Purchase Plan

In March 2018, the Company's board of directors adopted the Company's 2018 Employee Stock Purchase Plan (the "2018 ESPP"). The 2018 ESPP was approved by the Company's stockholders in April 2018 and became effective on May 2, 2018. The 2018 ESPP reserved 53,624 shares of common stock for issuance pursuant to future awards, as well as any automatic increases in the number of shares of the Company's common stock reserved for future issuance under this plan.

Under the 2018 ESPP, employees are offered the option to purchase the Company's common stock at a discount during the offering periods, at semi-annual intervals, with their accumulated payroll deductions. The option purchase price will be 85% of the lower of the closing trading price per share at the beginning of the offering period or at the purchase date. The 2018 ESPP provides for consecutive offering periods and eligible employees may elect to withhold up to 15% of their compensation through payroll deductions during the offering period for the purchase of stock. The maximum number of shares that may be purchased by any one participant is limited to 15,000 shares in each offering period and \$25,000 in fair market value during any calendar year per the Internal Revenue Code limits. The first offering period commenced on September 16, 2018.

Stock-Based Compensation Expense

The following table sets forth the total stock-based compensation expense for all options granted to employees and nonemployees and costs associated with the 2018 ESPP included in the Company's statement of operations (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Research and development	\$ 1,947	\$ 3,526	\$ 4,809
General and administrative	5,472	5,853	6,744
Total	<u>\$ 7,419</u>	<u>\$ 9,379</u>	<u>\$ 11,553</u>

During the years ended December 31, 2023, 2022 and 2021, stock-based compensation expense recognized related to nonemployee options was \$0.4 million, \$0.2 million and \$0.4 million, respectively.

Repricing

On May 4, 2023, and in accordance with the terms of the Company's 2018 Plan, the Company's Board of Directors approved a stock option repricing (the "Repricing") for employees and certain service providers that were not affected by the reduction in its workforce, as well as affected employees and certain service providers entering into or subject to a continuing consulting agreement, as of May 11, 2023. Pursuant to the terms of the Repricing, the exercise price of each outstanding option to purchase shares of the Company's common stock granted under its 2018 Plan that had an original exercise price above \$6.00, was reduced to an exercise price of \$2.77, the closing price for the Company's common stock on May 11, 2023, the effective date of the Repricing.

On the effective date of the Repricing, 26 employees and certain service providers held 444,273 shares of the Company's common stock under option grants that met the eligibility criteria. Eligible outstanding options continue to remain outstanding in accordance with their current terms and conditions. On the effective date of the Repricing, the Company recognized \$0.2 million of additional stock-based compensation from 251,821 shares of its common stock under vested options. The Company anticipates an additional \$0.1 million will be expensed over the period from the effective date of the Repricing through 2025 relating to 170,189 shares of the Company's common stock under unvested options.

Stock option and awards modification

In connection with the corporate restructuring, the Company's executed consulting agreements with five of the 9 employees that were terminated as part of the reduction in force. The consulting agreements allowed for the non-employee to continue vesting in their option and awards, resulting in a modification to all then vested and outstanding option and awards. The modification resulted in an incremental compensation charge recognized upfront on the date of modification of \$0.3 million. These costs were recorded as part of the stock compensation expense within "Research and development" and "General and administrative" costs within the Statement of Operations and Comprehensive Loss. There was no material incremental compensation expense as a result of modifications during the year ended December 31, 2022 and 2021.

15. Net Loss per Common Share

Basic net loss per share is calculated by dividing net loss by the weighted-average number of shares outstanding for the period. Diluted net loss per share is calculated by dividing net loss by the weighted-average number of shares of common stock and potential dilutive common stock equivalents outstanding during the period if the effect is dilutive.

The calculation of diluted earnings (loss) per share also requires the consideration of the effect of dilutive potential common shares outstanding during the period determined using the treasury-stock related to the warrants outstanding.

A reconciliation of the numerators and denominators used in computing net loss from continuing operations per share is as follows (in thousands, except per share amounts):

	Year ended December 31,		
	2023	2022 (Restated)	2021
	(in thousands, except share and per share amounts)		
Numerator:			
Net loss	\$ (39,860)	\$ (44,469)	\$ (60,725)
Denominator:			
Weighted average number of shares outstanding—basic and diluted	14,773,612	9,494,421	5,581,587
Net loss per share—basic and diluted	<u>\$ (2.70)</u>	<u>\$ (4.68)</u>	<u>\$ (10.88)</u>

The Company was in a net loss position for all periods presented, basic net loss per common share is the same as diluted net loss per common share as the inclusion of all potential securities outstanding would have been anti-dilutive.

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

	Year ended December 31,		
	2023	2022	2021
Options to purchase common stock	1,913,345	1,609,938	866,696
Outstanding warrants to purchase common stock	6,557,152	6,428,572	—
Early exercised common stock subject to future vesting	3,336	3,336	3,336
RSUs subject to future vesting	41,225	146,333	199,094
Shares subject to future vesting relating to the 2018 ESPP	47,389	65,939	14,774
Total	<u>8,562,447</u>	<u>8,254,118</u>	<u>1,083,900</u>

Up to 3,390 shares may be contingently issued, if certain performance conditions are met under the Company's in-licensing agreements. See Note 6, "License Revenue, Agreements and Strategic Investment".

16. Defined Contribution Plan

The Company sponsors a 401(k) Plan that stipulates that eligible employees can elect to contribute to the 401(k) Plan, subject to certain limitations, on a pretax basis. In January 2019, the Company began to match 4% of employees' salary. During the years ended December 31, 2023, 2022 and 2021, the Company recorded matching contributions of \$0.3 million, \$0.4 million and \$0.5 million, respectively.

17. Income Taxes

The Company has incurred net operating losses for all the periods presented. The Company has not reflected the benefit of any such net operating loss carryforwards in the accompanying financial statements. The Company has established a full valuation allowance against its deferred tax assets due to the uncertainty surrounding the realization of such assets. All losses to date have been incurred domestically as the Company has no international operations or subsidiaries.

No provision for U.S. income taxes exists due to tax losses incurred in all periods presented. All losses incurred were U.S. based.

The effective tax rate for the years ended December 31, 2023, 2022 and 2021 is different from the federal statutory rate primarily due to the valuation allowance against deferred tax assets as a result of insufficient sources of income. The effective tax rate of the Company's provision for income taxes differs from the federal statutory rate as follows:

	Year ended December 31,		
	2023	2022 (Restated)	2021
Taxes at the U.S. statutory income tax rate	21.0 %	21.0 %	21.0 %
State tax, net of federal benefit	9.0	9.1	4.4
Other	0.5	(0.8)	(0.4)
Warrant activity	2.8	7.3	—
Stock-based compensation	(2.5)	(6.6)	(1.6)
Research and development tax credits	1.8	2.9	3.2
Rate change	(8.8)	4.7	3.8
ASC 740-10	—	(7.5)	(4.2)
Change in valuation allowance	<u>(23.7)</u>	<u>(30.1)</u>	<u>(26.2)</u>
Total provision for income taxes	<u>— %</u>	<u>— %</u>	<u>— %</u>

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards.

The tax effects of significant items comprising the Company's deferred income taxes are as follows:

	December 31,	
	2023	2022
	(in thousands)	
Deferred tax assets:		
Federal and state operating loss carryforwards	\$ 81,094	\$ 73,322
Research and development tax credits	9,552	8,646
Stock-based compensation	5,078	4,589
Accruals and other	320	587
Intangibles	1,343	5,329
Section 174 capitalization research expenses	10,117	6,624
Charitable contributions	—	12
Operating lease liabilities	6,280	6,908
Total deferred tax assets	<u>113,784</u>	<u>106,017</u>
Deferred tax liabilities:		
Operating lease right-of-use asset	(3,041)	(4,371)
Fixed assets	(1,033)	(1,299)
Total deferred tax liabilities	<u>(4,074)</u>	<u>(5,670)</u>
Valuation allowance	(109,710)	(100,347)
Net deferred tax assets	<u>\$ —</u>	<u>\$ —</u>

The tax benefit of net operating losses, temporary differences and credit carryforwards should be recorded as an asset to the extent that management assesses that their realization is "more likely than not." Realization of the future tax benefits is dependent on the Company's ability to generate sufficient taxable income within the carryforward period. Because of the Company's recent history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not likely to be realized and, accordingly, has provided a valuation allowance.

Realization of the net deferred tax assets is dependent upon future taxable income, if any, the amount and timing of which is uncertain. Based on the weight of available positive and negative objective evidence, management believes it more likely than not that the Company's deferred tax assets are not realizable. Accordingly, the net deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by \$9.4 million and \$13.4 million during the years ended December 31, 2023 and 2022, respectively.

Net operating losses and tax credit carryforwards as of December 31, 2023 are as follows:

	Amount (in thousands)	Expiration Years
Net operating losses, federal (post December 31, 2017)	\$ 305,873	Do Not Expire
Net operating losses, federal (pre January 1, 2018)	64,136	2029 - 2037
Net operating losses, state	185,897	2034 - 2043
Research and development tax credits, federal	8,799	2034 - 2043
Research and development tax credits, California	7,070	Indefinite

Federal and state laws impose restrictions on the utilization of net operating loss carryforwards and R&D credit carryforwards in the event of a change in ownership of the Company, which constitutes an 'ownership change' as defined by Internal Revenue Code Section 382 and 383. The Company experienced an ownership change in the past that impacts the availability of its net operating losses and tax credits. The amounts indicated in the above tables reflect the reduction of net operating losses and credit carryforwards as a result of previous ownership changes that the Company experienced. In August 2022, the Company's Follow-On Offering may have resulted in an ownership change, which could substantially restrict the ability to utilize existing net operating losses, credits and other attribute carryforwards as well. The Company is still analyzing the impact of the Follow-On Offering relative to Internal Revenue Code Sections 382 and 383.

The Inflation Reduction Act 2022 which incorporates a Corporate Alternative Minimum Tax (CAMT) was signed on August 16, 2022. The changes will be effective for the tax years beginning after December 31, 2022. The new tax will require companies to compute two separate calculations for federal income tax purposes and pay the greater of the new minimum tax or their regular tax liability. The IRA is not expected to have a material impact for the Company.

The Company determines its uncertain tax positions based on a determination of whether and how much of a tax benefit taken by the Company in its tax filings is more likely than not to be sustained upon examination by the relevant income tax authorities.

The following table summarizes the activity related to the Company's unrecognized tax benefits:

	Year ended December 31,		
	2023	2022 (in thousands)	2021
Gross unrecognized tax benefits at January 1	\$ 17,605	\$ 13,221	\$ 7,142
Additions for tax positions taken in the current year	84	4,395	3,457
Reductions for tax positions taken in the prior year	(232)	(11)	2,622
Gross unrecognized tax benefits at December 31	<u>\$ 17,457</u>	<u>\$ 17,605</u>	<u>\$ 13,221</u>

If recognized, none of the unrecognized tax benefits as of December 31, 2023 and 2022 would reduce the annual effective tax rate, primarily due to corresponding adjustments to the valuation allowance. The Company will recognize both accrued interest and penalties related to unrecognized benefits in income tax expense. As of December 31, 2023 and 2022, no liability has been recorded for potential interest or penalties. The Company does not expect the unrecognized tax benefits to change significantly over the next 12 months.

The Company files income tax returns in the U.S. federal jurisdiction and Arizona, California, Colorado, Delaware, Florida, Illinois, Massachusetts, Rhode Island and Washington. The Company is not currently under audit by the Internal Revenue Service or other similar state or local authorities. All tax years remain open to examination by major taxing jurisdictions to which the Company is subject.

18. Quarterly Financial Information (Unaudited)

The previously reported financial information for the three and nine months ended September 30, 2022, the three months ended March 31, 2023, the three and six months ended June 30, 2023 and the three and nine months ended September 30, 2023, have been restated. Relevant restated financial information for each relevant period is included in this Annual Report on Form 10-K in the tables that follow. As part of the Warrants restatement (as noted below in the section titled '*Warrant Adjustments*' for which the amounts restated are included with reference (a) in the table below), the Company has corrected certain other immaterial errors. While these other errors are quantitatively and qualitatively immaterial, individually and in the aggregate, because the Company is correcting for the material errors, the Company has corrected other errors as well. These adjustments are described in more detail in restated references (b), (c) and (d) in the section titled '*Other Adjustments impacting only the interim periods for 2022 and 2023*'.

Warrant Adjustment

(a) In March 2024, the Company concluded that it incorrectly classified certain warrants (the "Existing Warrants") that were issued to investors in connection with a public offering of the Company's common stock ("Common Stock") in August 2022.

Historically, the Existing Warrants were reflected as a component of equity as opposed to liabilities on the balance sheet. Additionally, the Statements of Operations and Comprehensive Loss did not include the subsequent non-cash changes in the fair value of the Existing Warrants. The Company reassessed its accounting for the Existing Warrants and determined that the Existing Warrants should be classified as liabilities measured at fair value upon issuance with subsequent changes in fair value reported, as well as the issuance cost associated with the Existing Warrants, in the Company's Statement of Operations and Comprehensive Loss.

Other Adjustments impacting only the interim periods for 2022 and 2023

The Company has corrected other immaterial errors. While these other errors are quantitatively and qualitatively immaterial, individually and in the aggregate, because the Company is correcting for the material errors, the Company has decided to correct these other errors as well. The adjustments to correct errors related to the out-of-period expenses are as follows:

(b) The Company had previously understated its accrued and other current liability and overstated its prepaid expenses and other current assets as of September 30, 2022 and understated its research and development operating expense for the three- and nine- months ended September 30, 2023 by \$0.9 million.

The impact of the above other adjustment is reflected in the restatement tables below, as indicated by reference (b).

(c) The Company had previously overstated the amortization of debt issuance cost. This resulted in the understatement of the long-term debt liability as of June 30, 2023 and the overstatement of interest expense for the three- and six-months ended June 30, 2023 by \$0.1 million.

The impact of the above other adjustment is reflected in the restatement tables below, as indicated by reference (c).

(d) The Company had previously overstated its stock-compensation expense in the three months ended March 31, 2023 by \$0.1 million, three- and six- months ended June 30, 2023 by \$0.1 million and \$0.2 million, respectively, and for the three- and nine- months ended September 30, 2023 by \$0.3 million and \$0.6 million, respectively.

The impact of the above other adjustment is reflected in the restatement tables below as indicated by reference (d).

The unaudited interim financial statements reflect all adjustments which are, in the opinion of management, necessary for a fair statement of the results for the interim periods presented (in thousands).

Balance Sheets

	September 30, 2022 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated
Assets				
Current assets:				
Cash and cash equivalents	\$ 22,576	\$ —		\$ 22,576
Short-term marketable securities	76,364	—		76,364
Prepaid expenses and other current asset	3,234	(150)	b	3,084
Restricted cash	550	—		550
Total current assets	102,724	(150)		102,574
Property and equipment, net	8,202	—		8,202
Operating lease right-of-use assets	19,515	—		19,515
Long-term marketable securities	4,980	—		4,980
Long-term restricted cash	896	—		896
Other long-term assets	76	—		76
Total assets	\$ 136,393	\$ (150)		\$ 136,243
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable	\$ 2,444	\$ —		\$ 2,444
Accrued compensation	2,961	—		2,961
Accrued and other current liabilities	4,593	728	b	5,321
Current portion of long-term debt	6,776	—		6,776
Total current liabilities	16,774	728	b	17,502
Operating lease liability, net of current portion	27,792	—		27,792
Long-term debt, net	13,262	—		13,262
Warrant liability	—	16,633	a	16,633
Total liabilities	57,828	17,361		75,189
Commitments and contingencies				
Stockholders' equity:				
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—		—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of September 30, 2022 ; 14,036,249 shares issued and outstanding as of September 30, 2022	1	—		1
Additional paid-in capital	524,623	(26,222)	a	498,401
Accumulated other comprehensive loss	(275)	—		(275)
Accumulated deficit	(445,784)	8,711	a,b	(437,073)
Total stockholders' equity	78,565	(17,511)		61,054
Total liabilities and stockholders' equity	\$ 136,393	\$ (150)		\$ 136,243

	March 31, 2023 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated
Assets				
Current assets:				
Cash and cash equivalents	\$ 22,972	\$ —		\$ 22,972
Short-term marketable securities	60,420	—		60,420
Prepaid expenses and other current assets	2,989	—		2,989
Total current assets	86,381	—		86,381
Property and equipment, net	7,496	—		7,496
Operating lease right-of-use asset	18,557	—		18,557
Long-term deposits	896	—		896
Long-term restricted cash	896	—		896
Other long-term assets	29	—		29
Total assets	\$ 114,255	\$ —		\$ 114,255
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable	\$ 1,470	\$ —		\$ 1,470
Accrued compensation	1,983	—		1,983
Accrued and other current liabilities	5,343	—		5,343
Current portion of long-term debt	13,062	—		13,062
Total current liabilities	21,858	—		21,858
Operating lease liability, net of current portion	26,150	—		26,150
Long-term debt, net	7,619	—		7,619
Warrant liability	—	5,273	a	5,273
Total liabilities	55,627	5,273		60,900
Commitments and contingencies				
Stockholders' equity:				
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—		—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of March 31, 2023; 14,359,214 shares issued and outstanding as of March 31, 2023	1	—		1
Additional paid-in capital	529,593	(26,317)	a,d	503,276
Accumulated other comprehensive loss	(150)	—		(150)
Accumulated deficit	(470,816)	21,044	a,d	(449,772)
Total stockholders' equity	58,628	(5,273)		53,355
Total liabilities and stockholders' equity	\$ 114,255	\$ —		\$ 114,255

June 30, 2023 (unaudited)

	As Previously Reported	Adjustment	Reference	As Restated
Assets				
Current assets:				
Cash and cash equivalents	\$ 19,118	\$ —		\$ 19,118
Short-term marketable securities	49,974	—		49,974
Prepaid expenses and other current assets	3,874	—		3,874
Total current assets	72,966	—		72,966
Property and equipment, net	7,181	—		7,181
Operating lease right-of-use asset	18,061	—		18,061
Long-term marketable securities	1,899	—		1,899
Long-term restricted cash	896	—		896
Other long-term assets	5	—		5
Total assets	\$ 101,008	\$ —		\$ 101,008
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable	\$ 1,449	\$ —		\$ 1,449
Accrued compensation	1,652	—		1,652
Accrued and other current liabilities	5,417	—		5,417
Current portion of long-term debt	13,704	(81)	c	13,623
Total current liabilities	22,222	(81)		22,141
Operating lease liability, net of current portion	25,297	—		25,297
Long-term debt, net	4,082	(15)	c	4,067
Warrant liability	—	8,734	a	8,734
Total liabilities	51,601	8,638		60,239
Commitments and contingencies				
Stockholders' equity:				
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—		—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of June 30, 2023; 14,595,477 shares issued and outstanding as of June 30, 2023	1	—		1
Additional paid-in capital	532,563	(26,431)	a,d	506,132
Accumulated other comprehensive loss	(136)	—		(136)
Accumulated deficit	(483,021)	17,793	a,c,d	(465,228)
Total stockholders' equity	49,407	(8,638)		40,769
Total liabilities and stockholders' equity	\$ 101,008	\$ —		\$ 101,008

	September 30, 2023 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated
Assets				
Current assets:				
Cash and cash equivalents	\$ 7,876	\$ —		\$ 7,876
Short-term marketable securities	38,063	—		38,063
Prepaid expenses and other current assets	3,599	—		3,599
Total current assets	49,538	—		49,538
Property and equipment, net	5,314	—		5,314
Operating lease right-of-use asset	13,522	—		13,522
Long-term restricted cash	896	—		896
Total assets	<u>\$ 69,270</u>	<u>\$ —</u>		<u>\$ 69,270</u>
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable	\$ 1,149	\$ —		\$ 1,149
Accrued compensation	2,226	—		2,226
Accrued and other current liabilities	5,258	—		5,258
Total current liabilities	8,633	—		8,633
Operating lease liability, net of current portion	24,431	—		24,431
Warrant liability	—	8,481	a	8,481
Total liabilities	<u>33,064</u>	<u>8,481</u>		<u>41,545</u>
Commitments and contingencies				
Stockholders' equity:				
Convertible preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding	—	—		—
Common stock, \$0.0001 par value; 300,000,000 shares authorized as of September 30, 2023; 14,614,890 shares issued and outstanding as of September 30, 2023	1	—		1
Additional paid-in capital	534,570	(26,781)	a,d	507,789
Accumulated other comprehensive loss	(55)	—		(55)
Accumulated deficit	(498,310)	18,300	a,d	(480,010)
Total stockholders' equity	<u>36,206</u>	<u>(8,481)</u>		<u>27,725</u>
Total liabilities and stockholders' equity	<u>\$ 69,270</u>	<u>\$ —</u>		<u>\$ 69,270</u>

Quarterly and Year to Date Statements of Operations and Comprehensive Loss

	Three Months Ended September 30, 2022 (unaudited)				Nine Months Ended September 30, 2022 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated	As Previously Reported	Adjustment	Reference	As Restated
Licensing revenue								
- related party	\$ —	\$ —		\$ —	\$ 236	\$ —		\$ 236
Operating expenses:								
Research and development	8,208	878	b	9,086	28,222	878	b	29,100
General and administrative	4,922	—		4,922	15,669	—		15,669
Total operating expenses	13,130	878		14,008	43,891	878		44,769
Loss from operations	(13,130)	(878)		(14,008)	(43,655)	(878)		(44,533)
Interest income	329	—		329	416	—		416
Interest expense	(866)	—		(866)	(2,568)	—		(2,568)
Gain (loss) on warrant liability	—	10,974	a	10,974	—	10,974	a	10,974
Other expense, net	(41)	(1,385)	a	(1,426)	49	(1,385)	a	(1,336)
Net loss	(13,708)	8,711		(4,997)	(45,758)	8,711		(37,047)
Other comprehensive loss								
Unrealized loss on marketable debt securities	(88)	—		(88)	(231)	—		(231)
Comprehensive loss	\$ (13,796)	\$ 8,711		\$ (5,085)	\$ (45,989)	\$ 8,711		\$ (37,278)
Net loss per share, basic and diluted	\$ (1.36)	\$ —		\$ (0.50)	\$ (5.77)	\$ —		\$ (4.67)
Weighted average number of shares used in computing net loss per share, basic and diluted	10,072,077	—		10,072,077	7,928,729	—		7,928,729

	Three Months Ended March 31, 2023 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated
Operating expenses:				
Research and development	5,835	(75)	d	5,760
General and administrative	4,818	(20)	d	4,798
Total operating expenses	10,653	(95)		10,558
Loss from operations	(10,653)	95		(10,558)
Interest income	855	—		855
Interest expense	(1,002)	—		(1,002)
Gain (loss) on warrant liability	—	5,491	a	5,491
Other expense, net	(65)	—		(65)
Net loss	(10,865)	5,586		(5,279)
Other comprehensive gain				
Unrealized gain on marketable debt securities	101	—		101
Comprehensive loss	\$ (10,764)	\$ 5,586		\$ (5,178)
Net loss per share, basic and diluted	\$ (0.76)	\$ —		\$ (0.37)
Weighted average number of shares used in computing net loss per share, basic and diluted	14,312,887	—		14,312,887

	Three Months Ended June 30, 2023 (unaudited)				Six Months Ended June 30, 2023 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated	As Previously Reported	Adjustment	Reference	As Restated
Licensing revenue - related party	\$ —	\$ —		\$ —	\$ —	\$ —		\$ —
Operating expenses:								
Research and development	6,529	(94)	d	6,435	12,364	(169)	d	12,195
General and administrative	5,433	(20)	d	5,413	10,252	(40)	d	10,212
Total operating expenses	11,962	(114)		11,848	22,616	(209)		22,407
Loss from operations	(11,962)	114		(11,848)	(22,616)	209		(22,407)
Interest income	805	—		805	1,660	—		1,660
Interest expense	(979)	96	c	(883)	(1,981)	96	c	(1,885)
Gain (loss) on warrant liability	—	(3,461)	a	(3,461)	—	2,030	a	2,030
Other expense, net	(69)	—		(69)	(133)	—		(133)
Net loss	(12,205)	(3,251)		(15,456)	(23,070)	2,335		(20,735)
Other comprehensive gain								
Unrealized gain on marketable debt securities	14	—		14	115	—		115
Comprehensive loss	\$ (12,191)	\$ (3,251)		\$ (15,442)	\$ (22,955)	\$ 2,335		\$ (20,620)
Net loss per share, basic and diluted	\$ (0.85)	\$ —		\$ (1.07)	\$ (1.61)	\$ —		\$ (1.44)
Weighted average number of shares used in computing net loss per share, basic and diluted	14,425,775	—		14,425,775	14,369,643	—		14,369,643

	Three Months Ended September 30, 2023 (unaudited)				Nine Months Ended September 30, 2023 (unaudited)			
	As Previously Reported	Adjustment	Reference	As Restated	As Previously Reported	Adjustment	Reference	As Restated
Operating expenses:								
Research and development	4,901	(269)	d	4,632	17,266	(438)	d	16,828
General and administrative	4,428	(81)	d	4,347	14,681	(121)	d	14,560
Impairment of long-lived assets	5,602	—		5,602	5,602	—		5,602
Total operating expenses	14,931	(350)		14,581	37,549	(559)		36,990
Loss from operations	(14,931)	350		(14,581)	(37,549)	559		(36,990)
Interest income	689	—		689	2,349	—		2,349
Interest expense	(470)	(96)	c	(566)	(2,451)	—		(2,451)
Gain (loss) on warrant liability	—	253	a	253	—	2,283	a	2,283
Other expense, net	(577)	—		(577)	(711)	—		(711)
Net loss	(15,289)	507		(14,782)	(38,362)	2,842		(35,520)
Other comprehensive gain								
Unrealized gain on marketable debt securities	81	—		81	196	—		196
Comprehensive loss	\$ (15,208)	\$ 507		\$ (14,701)	\$ (38,166)	\$ 2,842		\$ (35,324)
Net loss per share, basic and diluted	\$ (1.05)	\$ —		\$ (1.01)	\$ (2.66)	\$ —		\$ (2.46)
Weighted average number of shares used in computing net loss per share, basic and diluted	14,598,218	—		14,598,218	14,446,672	—		14,446,672

Statements of Changes in Stockholders' Equity

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
As Previously Reported						
Balances at June 30, 2022	6,958,494	\$ 1	\$ 472,193	\$ (187)	\$ (432,076)	\$ 39,931
Issuance of common stock, net of issuance costs, under ATM equity offering program	633,464	—	8,570	—	—	8,570
Sale of common stock and warrants to purchase common shares under Follow-On Offering, net of issuance costs	6,428,571	—	41,650	—	—	41,650
Vesting of restricted stock units	15,720	—	—	—	—	—
Stock-based compensation	—	—	2,210	—	—	2,210
Unrealized loss on available-for-sale marketable securities	—	—	—	(88)	—	(88)
Net loss	—	—	—	—	(13,708)	(13,708)
Balances at September 30, 2022	<u>14,036,249</u>	<u>\$ 1</u>	<u>\$ 524,623</u>	<u>\$ (275)</u>	<u>\$ (445,784)</u>	<u>\$ 78,565</u>
Adjustment						
Balances at June 30, 2022	—	\$ —	\$ —	\$ —	\$ —	\$ —
Issuance of common stock, net of issuance costs, under ATM equity offering program	—	—	—	—	—	—
Sale of common stock and warrants to purchase common shares under Follow-On Offering, net of issuance costs	—	—	(26,222)	—	—	(26,222)
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	—	—	—	—
Unrealized loss on available-for-sale marketable securities	—	—	—	—	—	—
Net loss	—	—	—	—	8,711	8,711
Balances at September 30, 2022	<u>—</u>	<u>\$ —</u>	<u>\$ (26,222)</u>	<u>\$ —</u>	<u>\$ 8,711</u>	<u>\$ (17,511)</u>
As Restated						
Balances at June 30, 2022	6,958,494	\$ 1	\$ 472,193	\$ (187)	\$ (432,076)	\$ 39,931
Issuance of common stock, net of issuance costs, under ATM equity offering program	633,464	—	8,570	—	—	8,570
Sale of common stock under Follow-On Offering, net of issuance costs	6,428,571	—	15,428	—	—	15,428
Vesting of restricted stock units	15,720	—	—	—	—	—
Stock-based compensation	—	—	2,210	—	—	2,210
Unrealized loss on available-for-sale marketable securities	—	—	—	(88)	—	(88)
Net loss	—	—	—	—	(4,997)	(4,997)
Balances at September 30, 2022	<u>14,036,249</u>	<u>\$ 1</u>	<u>\$ 498,401</u>	<u>\$ (275)</u>	<u>\$ (437,073)</u>	<u>\$ 61,054</u>

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
As Previously Reported						
Balances at December 31, 2022	14,215,302	\$ 1	\$ 527,049	\$ (251)	\$ (459,951)	\$ 66,848
Issuance of common stock, net of issuance costs, under ATM equity offering program	106,781	—	274	—	—	274
Vesting of restricted stock units	37,131	—	—	—	—	—
Stock-based compensation	—	—	2,270	—	—	2,270
Unrealized gain on available-for-sale marketable securities	—	—	—	101	—	101
Net loss	—	—	—	—	(10,865)	(10,865)
Balances at March 31, 2023	<u>14,359,214</u>	<u>\$ 1</u>	<u>\$ 529,593</u>	<u>\$ (150)</u>	<u>\$ (470,816)</u>	<u>\$ 58,628</u>
Adjustment						
Balances at December 31, 2022	—	\$ —	\$ (26,222)	\$ —	\$ 15,458	\$ (10,764)
Issuance of common stock, net of issuance costs, under ATM equity offering program	—	—	—	—	—	—
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	(95)	—	—	(95)
Unrealized loss on available-for-sale marketable securities	—	—	—	—	—	—
Net loss	—	—	—	—	5,586	5,586
Balances at March 31, 2023	<u>—</u>	<u>\$ —</u>	<u>\$ (26,317)</u>	<u>\$ —</u>	<u>\$ 21,044</u>	<u>\$ (5,273)</u>
As Restated						
Balances at December 31, 2022	14,215,302	\$ 1	\$ 500,827	\$ (251)	\$ (444,493)	\$ 56,084
Issuance of common stock, net of issuance costs, under ATM equity offering program	106,781	—	274	—	—	274
Vesting of restricted stock units	37,131	—	—	—	—	—
Stock-based compensation	—	—	2,175	—	—	2,175
Unrealized gain on available-for-sale marketable securities	—	—	—	101	—	101
Net loss	—	—	—	—	(5,279)	(5,279)
Balances at March 31, 2023	<u>14,359,214</u>	<u>\$ 1</u>	<u>\$ 503,276</u>	<u>\$ (150)</u>	<u>\$ (449,772)</u>	<u>\$ 53,355</u>

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
As Previously Reported						
Balances at March 31, 2023	14,359,214	\$ 1	\$ 529,593	\$ (150)	\$ (470,816)	\$ 58,628
Issuance of common stock, net of issuance costs, under ATM equity offering program	168,000	—	518	—	—	518
Issuance of common stock under 2018 ESPP	41,497	—	91	—	—	91
Vesting of restricted stock units	26,766	—	—	—	—	—
Stock-based compensation	—	—	2,361	—	—	2,361
Unrealized gain on available-for-sale marketable securities	—	—	—	14	—	14
Net loss	—	—	—	—	(12,205)	(12,205)
Balances at June 30, 2023	<u>14,595,477</u>	<u>\$ 1</u>	<u>\$ 532,563</u>	<u>\$ (136)</u>	<u>\$ (483,021)</u>	<u>\$ 49,407</u>
Adjustment						
Balances at March 31, 2023	—	\$ —	\$ (26,317)	\$ —	\$ 21,044	\$ (5,273)
Issuance of common stock, net of issuance costs, under ATM equity offering program	—	—	—	—	—	—
Issuance of common stock under 2018 ESPP	—	—	—	—	—	—
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	(114)	—	—	(114)
Unrealized gain on available-for-sale marketable securities	—	—	—	—	—	—
Net loss	—	—	—	—	(3,251)	(3,251)
Balances at June 30, 2023	<u>—</u>	<u>\$ —</u>	<u>\$ (26,431)</u>	<u>\$ —</u>	<u>\$ 17,793</u>	<u>\$ (8,638)</u>
As Restated						
Balances at March 31, 2023	14,359,214	\$ 1	\$ 503,276	\$ (150)	\$ (449,772)	\$ 53,355
Issuance of common stock, net of issuance costs, under ATM equity offering program	168,000	—	518	—	—	518
Issuance of common stock under 2018 ESPP	41,497	—	91	—	—	91
Vesting of restricted stock units	26,766	—	—	—	—	—
Stock-based compensation	—	—	2,247	—	—	2,247
Unrealized gain on available-for-sale marketable securities	—	—	—	14	—	14
Net loss	—	—	—	—	(15,456)	(15,456)
Balances at June 30, 2023	<u>14,595,477</u>	<u>\$ 1</u>	<u>\$ 506,132</u>	<u>\$ (136)</u>	<u>\$ (465,228)</u>	<u>\$ 40,769</u>

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
As Previously Reported						
Balances at June 30, 2023	14,595,477	\$ 1	\$ 532,563	\$ (136)	\$ (483,021)	\$ 49,407
Fees related to the ATM offering program	—	—	(48)	—	—	(48)
Vesting of restricted stock units	19,413	—	—	—	—	—
Stock-based compensation	—	—	2,055	—	—	2,055
Unrealized gain on available-for-sale marketable securities	—	—	—	81	—	81
Net loss	—	—	—	—	(15,289)	(15,289)
Balances at September 30, 2023	<u>14,614,890</u>	<u>\$ 1</u>	<u>\$ 534,570</u>	<u>\$ (55)</u>	<u>\$ (498,310)</u>	<u>\$ 36,206</u>
Adjustment						
Balances at June 30, 2023	—	\$ —	\$ (26,431)	\$ —	\$ 17,793	\$ (8,638)
Fees related to the ATM offering program	—	—	—	—	—	—
Vesting of restricted stock units	—	—	—	—	—	—
Stock-based compensation	—	—	(350)	—	—	(350)
Unrealized gain on available-for-sale marketable securities	—	—	—	—	—	—
Net loss	—	—	—	—	507	507
Balances at September 30, 2023	<u>—</u>	<u>\$ —</u>	<u>\$ (26,781)</u>	<u>\$ —</u>	<u>\$ 18,300</u>	<u>\$ (8,481)</u>
As Restated						
Balances at June 30, 2023	14,595,477	\$ 1	\$ 506,132	\$ (136)	\$ (465,228)	\$ 40,769
Fees related to the ATM offering program	—	—	(48)	—	—	(48)
Vesting of restricted stock units	19,413	—	—	—	—	—
Stock-based compensation	—	—	1,705	—	—	1,705
Unrealized gain on available-for-sale marketable securities	—	—	—	81	—	81
Net loss	—	—	—	—	(14,782)	(14,782)
Balances at September 30, 2023	<u>14,614,890</u>	<u>\$ 1</u>	<u>\$ 507,789</u>	<u>\$ (55)</u>	<u>\$ (480,010)</u>	<u>\$ 27,725</u>

Statements of Cash Flows

	Nine Months Ended September 30, 2022			
	As Previously Reported	Adjustment	Reference	As Restated
Operating activities				
Net loss	\$ (45,758)	\$ 8,711	a,b	\$ (37,047)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization	1,771	—		1,771
Amortization of debt issuance costs	989	—		989
Debt extinguishment gain upon conversion to equity	(199)	—		(199)
Net accretion and amortization of premium and discounts on marketable securities	155	—		155
Gain on disposal of property and equipment	(247)	—		(247)
Stock-based compensation	7,120	—		7,120
Non-cash rent expense	(1,891)	—		(1,891)
(Gain) loss on warrant liability	—	(10,974)	a	(10,974)
Changes in operating assets and liabilities:				
Prepaid expenses and other current assets	(1,355)	150	b	(1,205)
Other long-term assets	15	—		15
Accounts payable	459	—		459
Accrued compensation	(1,067)	—		(1,067)
Accrued liabilities and other current liabilities	(632)	728	b	96
Other long-term liabilities	(23)	—		(23)
Net cash used in operating activities	<u>(40,663)</u>	<u>(1,385)</u>		<u>(42,048)</u>
Investing activities				
Purchase of marketable securities	(86,567)	—		(86,567)
Maturities of marketable securities	62,000	—		62,000
Purchase of property and equipment	(59)	—		(59)
Sale of property and equipment	272	—		272
Net cash used in investing activities	<u>(24,354)</u>	<u>—</u>		<u>(24,354)</u>
Financing activities				
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	12,003	—		12,003
Proceeds from sale of common stock and warrants under Follow-On Offering	41,650	3,350	a	45,000
Issuance costs for sale of common stock	—	(1,965)	a	(1,965)
Proceeds from issuance of common stock to Lincoln Park Capital Fund, net of issuance costs	910	—		910
Proceeds from issuance of common stock under 2018 ESPP	125	—		125
Net cash provided by financing activities	<u>54,688</u>	<u>1,385</u>		<u>56,073</u>
Net decrease in cash, cash equivalents and restricted cash	<u>(10,329)</u>	<u>—</u>		<u>(10,329)</u>
Cash, cash equivalents and restricted cash at beginning of the period	34,351	—		34,351
Cash, cash equivalents and restricted cash at end of the period	<u>\$ 24,022</u>	<u>\$ —</u>		<u>\$ 24,022</u>
Supplemental Disclosures of Cash Flow Information:				
Cash paid for interest	<u>\$ 1,577</u>	<u>\$ —</u>		<u>\$ 1,577</u>
Supplemental Disclosures of Non-Cash Investing and Financing Activities				
Issuance of common stock in payment of debt	<u>\$ 3,179</u>	<u>\$ —</u>		<u>\$ 3,179</u>
Cash and cash equivalents	<u>\$ 22,576</u>	<u>\$ —</u>		<u>\$ 22,576</u>
Restricted cash	<u>1,446</u>	<u>—</u>		<u>\$ 1,446</u>
Total cash, cash equivalents and restricted cash	<u>\$ 24,022</u>	<u>\$ —</u>		<u>\$ 24,022</u>

	Three Months Ended March 31, 2023			
	As Previously Reported	Adjustment	Reference	As Restated
Operating activities				
Net loss	\$ (10,865)	\$ 5,586	a,d	\$ (5,279)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization	329	—		329
Amortization of debt issuance costs	314	—		314
Net accretion and amortization of premium and discounts on marketable securities	(433)	—		(433)
Stock-based compensation	2,270	(95)	d	2,175
Non-cash rent expense	(270)	—		(270)
(Gain) loss on warrant liability	—	(5,491)	a	(5,491)
Changes in operating assets and liabilities:				
Prepaid expenses and other current assets	(1,249)	—		(1,249)
Other long-term assets	23	—		23
Accounts payable	(320)	—		(320)
Accrued compensation	(1,037)	—		(1,037)
Accrued liabilities and other current liabilities	(78)	—		(78)
Net cash used in operating activities	<u>(11,316)</u>	<u>—</u>		<u>(11,316)</u>
Investing activities				
Purchase of marketable securities	(5,973)	—		(5,973)
Maturities of marketable securities	27,251	—		27,251
Net cash provided by investing activities	<u>21,278</u>	<u>—</u>		<u>21,278</u>
Financing activities				
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	274	—		274
Net cash provided by financing activities	<u>274</u>	<u>—</u>		<u>274</u>
Net increase in cash, cash equivalents and restricted cash	10,236	—		10,236
Cash, cash equivalents and restricted cash at beginning of the period	<u>13,632</u>	<u>—</u>		<u>13,632</u>
Cash, cash equivalents and restricted cash at end of the period	<u>\$ 23,868</u>	<u>\$ —</u>		<u>\$ 23,868</u>
Supplemental Disclosures of Cash Flow Information:				
Cash paid for interest	<u>\$ 680</u>	<u>\$ —</u>		<u>\$ 680</u>
Cash and cash equivalents	\$ 22,972	\$ —		\$ 22,972
Restricted cash	896	—		896
Total cash, cash equivalents and restricted cash	<u>\$ 23,868</u>	<u>\$ —</u>		<u>\$ 23,868</u>

	Six Months Ended June 30, 2023			
	As Previously Reported	Adjustment	Reference	As Restated
Operating activities				
Net loss	\$ (23,070)	\$ 2,335	a,c,d	\$ (20,735)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization	643	—		643
Amortization of debt issuance costs	653	(96)	c	557
Net accretion and amortization of premium and discounts on marketable securities	(831)	—		(831)
Stock-based compensation	4,631	(209)	d	4,422
Non-cash rent expense	(540)	—		(540)
(Gain) loss on warrant liability	—	(2,030)	a	(2,030)
Changes in operating assets and liabilities:				
Prepaid expenses and other current assets	(2,134)	—		(2,134)
Other long-term assets	47	—		47
Accounts payable	(341)	—		(341)
Accrued compensation	(1,368)	—		(1,368)
Accrued liabilities and other current liabilities	(89)	—		(89)
Net cash used in operating activities	<u>(22,399)</u>	<u>—</u>		<u>(22,399)</u>
Investing activities				
Purchase of marketable securities	(21,868)	—		(21,868)
Maturities of marketable securities	53,000	—		53,000
Net cash provided by investing activities	<u>31,132</u>	<u>—</u>		<u>31,132</u>
Financing activities				
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	792	—		792
Repayment of term loan debt	(3,234)	—		(3,234)
Proceeds from issuance of common stock under 2018 ESPP	91	—		91
Net cash used in financing activities	<u>(2,351)</u>	<u>—</u>		<u>(2,351)</u>
Net increase in cash, cash equivalents and restricted cash	6,382	—		6,382
Cash, cash equivalents and restricted cash at beginning of the period	13,632	—		13,632
Cash, cash equivalents and restricted cash at end of the period	<u>\$ 20,014</u>	<u>\$ —</u>		<u>\$ 20,014</u>
Supplemental Disclosures of Cash Flow Information:				
Cash paid for interest	<u>\$ 1,362</u>	<u>\$ —</u>		<u>\$ 1,362</u>
Cash and cash equivalents	\$ 19,118	\$ —		\$ 19,118
Restricted cash	896	—		896
Total cash, cash equivalents and restricted cash	<u>\$ 20,014</u>	<u>\$ —</u>		<u>\$ 20,014</u>

Nine Months Ended September 30, 2023

	As Previously Reported	Adjustment	Reference	As Restated
Operating activities				
Net loss	\$ (38,362)	\$ 2,842	a,d	\$ (35,520)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization	951	—		951
Amortization of debt issuance costs	705	—		705
Debt extinguishment loss upon paydown of principal	491	—		491
Net accretion and amortization of premium and discounts on marketable securities	(1,199)	—		(1,199)
Stock-based compensation	6,686	(559)	d	6,127
Non-cash rent expense	(811)	—		(811)
Impairment of long-lived assets	5,602	—		5,602
(Gain) loss on warrant liability	—	(2,283)	a	(2,283)
Changes in operating assets and liabilities:				
Prepaid expenses and other current assets	(1,858)	—		(1,858)
Other long-term assets	52	—		52
Accounts payable	(642)	—		(642)
Accrued compensation	(793)	—		(793)
Accrued liabilities and other current liabilities	(335)	—		(335)
Net cash used in operating activities	<u>(29,513)</u>	<u>—</u>		<u>(29,513)</u>
Investing activities				
Purchase of marketable securities	(28,609)	—		(28,609)
Maturities of marketable securities	74,000	—		74,000
Purchase of property and equipment	(11)	—		(11)
Sale of property and equipment	1	—		1
Net cash provided by investing activities	<u>45,381</u>	<u>—</u>		<u>45,381</u>
Financing activities				
Payment of debt principal	(20,000)	—		(20,000)
Payment of debt issuance costs	(1,563)	—		(1,563)
Proceeds from issuance of common stock under ATM offering program, net of issuance costs	744	—		744
Proceeds from issuance of common stock under 2018 ESPP	91	—		91
Net cash used in financing activities	<u>(20,728)</u>	<u>—</u>		<u>(20,728)</u>
Net decrease in cash, cash equivalents and restricted cash	(4,860)	—		(4,860)
Cash, cash equivalents and restricted cash at beginning of the period	13,632	—		13,632
Cash, cash equivalents and restricted cash at end of the period	<u>\$ 8,772</u>	<u>\$ —</u>		<u>\$ 8,772</u>
Supplemental Disclosures of Cash Flow Information:				
Cash paid for interest	<u>\$ 1,969</u>	<u>\$ —</u>		<u>\$ 1,969</u>
Cash and cash equivalents	\$ 7,876	\$ —		\$ 7,876
Restricted cash	896	—		896
Total cash, cash equivalents and restricted cash	<u>\$ 8,772</u>	<u>\$ —</u>		<u>\$ 8,772</u>

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our chief executive and financial officers, evaluated the effectiveness of our disclosures controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of December 31, 2023. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation, and as a result of the material weakness described below, our chief executive officer and chief financial officer concluded that, as of December 31, 2023, our disclosure controls and procedures were not effective at a reasonable assurance level.

Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States and includes those policies and procedures that:

- Pertain to the maintenance of records that accurately and fairly reflect in reasonable detail the transactions and dispositions of the assets of our company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- Provide reasonable assurances regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material adverse effect on our financial statements.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2023. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO, in Internal Control-Integrated Framework (2013 framework). Based on this assessment, management concluded that the Company's internal control over financial reporting was not effective as of December 31, 2023 due to the material weakness discussed below.

Material Weakness

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company’s annual and interim financial statements will not be detected or prevented on a timely basis.

As described in Note 2 of the Financial Statements, the Company concluded that the Existing Warrants in 2022 were incorrectly classified as equity and should have been recorded as liabilities. As a result, we concluded that the Company’s internal control over financial reporting was not effective as of the end of each of the periods covered by the restatement.

Management identified a material weakness in the design and operating effectiveness of the Company's review procedures related to complex security transactions. The reviewer had insufficient technical resources supporting the assessment of the complex securities accounting model and review procedures were not performed at a level of

precision to prevent or detect a material misstatement on a timely basis in the normal course of the review. Based on this assessment, management believes that our internal control over financial reporting was not effective as of December 31, 2023.

Remediation Measures

We have identified and begun to implement steps, as further described below, designed to remediate the foregoing material weakness. The elements of our remediation plan can only be accomplished over time, and we can offer no assurance that these initiatives will ultimately have the intended effects.

To remediate this material weakness, we are in the process of expanding and improving our review process for complex security transactions and related accounting standards. We plan to improve this process by specifically incorporating the review of the accounting conclusions for each significant relevant contractual term, by using a robust accounting literature tool, and engaging third-party subject matter experts with relevant experience to determine the appropriate accounting for complex security transactions.

While the foregoing measures are intended to effectively remediate the material weakness described in this Item 9A, it is possible that additional remediation steps will be necessary. As such, as we continue to evaluate and implement our plan to remediate the material weakness, our management may decide to take additional measures to address the material weakness or modify the remediation steps described above. Until this material weakness is remediated, we plan to continue to perform additional analyses and other procedures to help ensure that our financial statements are prepared in accordance with GAAP.

Changes in Internal Control over Financial Reporting

Except for the material weakness noted above, there has been no change in the Company's internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) that occurred during the quarter ended December 31, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Attestation Report of the Registered Public Accounting Firm

This Annual Report on Form 10-K does not include an attestation report of our registered public accounting firm because we are deemed a “non-accelerated filer” and “smaller reporting company” within the definition of Rule 12b-2 of the Exchange Act, as our public float was below the specified thresholds as of June 30, 2023. Accordingly, this Annual Report on Form 10-K does not include an attestation report of our independent registered accounting firm.

Item 9B. Other Information.

On April 11, 2024, the Board of Directors (the "Board") of the Company approved and adopted amended and restated bylaws (the "Bylaws"), which became effective the same day. Article II, Section 2.8 of the Bylaws was amended to modify the quorum required for the transaction of business at a meeting of stockholders of the Company to provide that the presence, in person or by proxy, of holders of one-third (1/3rd) of the voting power of the shares of stock issued and outstanding and entitled to vote at the meeting will constitute a quorum for the transaction of business at such meeting, except as otherwise provided by applicable law, the Certificate of Incorporation or the Bylaws. Prior to this amendment, the presence, in person or by proxy, of holders of a majority of the voting power of the shares of stock issued and outstanding and entitled to vote at the meeting would constitute a quorum for the transaction of business at such meeting. The change to the quorum requirement for stock holder meetings was made to improve the Company's ability to hold stockholder meetings when called.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not Applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information required by this Item is incorporated herein by reference to the sections titled “Executive Officers,” “Election of Directors,” “Corporate Governance” and “Section 16(a) Beneficial Ownership and Reporting Compliance” in our Definitive Proxy Statement with respect to our 2023 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 11. Executive Compensation.

Information required by this Item is incorporated herein by reference to the section titled “Executive Compensation,” “Director Compensation” and “Corporate Governance” in our Definitive Proxy Statement with respect to our 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information required by this Item is incorporated herein by reference to the section titled “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” in our Definitive Proxy Statement with respect to our 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information required by this Item is incorporated herein by reference to the section titled “Certain Relationships and Related Party Transactions” and “Corporate Governance” in our Definitive Proxy Statement with respect to our 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 14. Principal Accounting Fees and Services.

Information required by this Item is incorporated herein by reference to the section titled “Ratification of Selection of Independent Registered Public Accounting Firm” in our Definitive Proxy Statement with respect to our 2024 Annual Meeting of Stockholders to be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as part of this report:

1. Financial Statements

See Index to Financial Statements in Part II Item 8 of this Annual Report on Form 10-K.

2. Financial Statement Schedules

All schedules are omitted because they are not applicable or the required information is shown in the financial statements or notes thereto.

3. Exhibits

Exhibit Index

Exhibit Number	Description	Incorporated by Reference			Filed Herewith
		Form	Number	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of Unity Biotechnology, Inc.	8-K	3.1	5-7-18	
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation of Unity Biotechnology, Inc.	8-K	3.1	10-19-22	
3.3	Amended and Restated Bylaws of Unity Biotechnology, Inc.				X
4.1	Reference is made to exhibits 3.1 through 3.2.				
4.2	Form of Common Stock Certificate.	10-Q	4.2	11-8-22	
4.3	Form of Warrant.	8-K	4.1	8-22-22	
4.4	Form of New Warrant	8-K	4.1	11-13-23	
4.5	Amended and Restated Investors' Rights Agreement, dated as of March 15, 2018, by and among Unity Biotechnology, Inc. and the investors party thereto.	S-1	4.3	4-5-18	
4.6	Description of Unity's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934.	10-K	4.5	3-15-23	
10.1(a)	Lease Agreement, dated as of May 13, 2016, by and between Unity Biotechnology, Inc. and BMR-Bayshore Boulevard L.P.	S-1	10.1(a)	4-5-18	
10.1(b)	First Amendment to Lease Agreement, dated as of May 23, 2017, by and between Unity Biotechnology, Inc. and BMR-Bayshore Boulevard L.P.	S-1	10.1(b)	4-5-18	
10.2(a)	Space License Agreement, dated as of October 20, 2016, by and between Unity Biotechnology, Inc. and BMR-Bayshore Boulevard L.P.	S-1	10.2(a)	4-5-18	
10.2(b)	First Amendment to Space License Agreement, dated as of December 5, 2016, by and between Unity Biotechnology, Inc. and BMR-Bayshore Boulevard L.P.	S-1	10.2(b)	4-5-18	
10.2(c)	Second Amendment to Space License Agreement, dated as of January 30, 2017, by and between Unity Biotechnology, Inc. and BMR-Bayshore Boulevard L.P.	S-1	10.2(c)	4-5-18	
10.3(a)#	2013 Equity Incentive Plan.	S-1	10.3(a)	4-5-18	
10.3(b)#	Form of Stock Option Agreement under 2013 Equity Incentive Plan.	S-1	10.3(b)	4-5-18	
10.4(a)#	2018 Incentive Award Plan.	S-1	10.4(a)	4-23-18	
10.4(b)#	Form of Stock Option Grant Notice and Stock Option Agreement under the 2018 Incentive Award Plan.	S-1	10.4(b)	4-5-18	
10.4(c)#	Form of Restricted Stock Award Grant Notice and Restricted Stock Award Agreement under the 2018 Incentive Award Plan.	S-1	10.4(c)	4-5-18	
10.4(d)#	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under the 2018 Incentive Award Plan.	S-1	10.4(d)	4-5-18	
10.5#	2018 Employee Stock Purchase Plan.	S-1	10.5	4-23-18	
10.6#	Amended and Restated Non-Employee Director Compensation Program (Effective January 1, 2019)	10-K	10.6	3-6-19	
10.7#	Form of Indemnification Agreement for directors and officers.	S-1	10.7	4-5-18	
10.8#	Employment Agreement, dated January 29, 2018, by and between Unity Biotechnology, Inc. and Jamie Dananberg.	S-1	10.11	4-5-18	
10.9+	Compound Library and Option Agreement, dated as of February 2, 2016, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	10-K	10.14	3-23-21	

10.10+	APG1252 License Agreement, dated as of February 2, 2016, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	10-K	10.15	3-23-21
10.11†	Research Services Agreement, dated as of February 2, 2016, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	S-1	10.16	4-5-18
10.12+	Amendment to APG1252 License Agreement, dated as of March 28, 2018, by and between Ascentage Pharma Group Corp. Ltd.	10-K	10.17	3-23-21
10.13+	Amendment to Compound Library and Option Agreement, dated as of March 28, 2018, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	10-K	10.18	3-23-21
10.14(a)+	Exclusive License Agreement, dated as of June 28, 2013, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(a)	3-23-21
10.14(b)+	Amendment No. 1 to Exclusive License Agreement, dated as of September 10, 2014, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(b)	3-23-21
10.14(c)†	Amendment No. 2 to Exclusive License Agreement, dated as of November 17, 2014, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	S-1	10.19(c)	4-23-18
10.14(d)+	Amendment No. 3 to Exclusive License Agreement, dated as of May 5, 2015, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(d)	3-23-21
10.14(e)+	Amendment No. 4 to Exclusive License Agreement, dated as of September 15, 2016, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(e)	3-23-21
10.14(f)+	Addendum to Amendment No. 4 to Exclusive License Agreement, dated as of September 15, 2016, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(f)	3-23-21
10.14(g)+	Amendment No. 5 to Exclusive License Agreement, dated as of October 12, 2016, by and between the Mayo Foundation for Medical Education and Research and Unity Biotechnology, Inc.	10-K	10.19(g)	3-23-21
10.15+	Amended and Restated License Agreement, dated as of January 27, 2017, by and between the Buck Institute for Research on Aging and Unity Biotechnology, Inc.	10-K	10.20	3-23-21
10.16††	License Agreement for APG1197, dated as of January 2, 2019, by and between Ascentage Pharma Group Corp. Ltd. And Unity Biotechnology, Inc.	10-K	10.22	3-6-19
10.17	Lease Agreement, dated as of February 28, 2019, by and between Unity Biotechnology, Inc. and Bayside Area Development, LLC	10-K	10.23	3-6-19
10.18††††	First Amendment to Compound License Agreement for APG1197, dated as of November 19, 2019, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	8-K	10.1	11-25-19
10.19†††	Second Amendment to APG1252 License Agreement, dated as of November 19, 2019, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	10-K	10.25	3-11-20
10.20††††	Second Amendment to Compound Library and Option Agreement, dated as of January 8, 2020, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	10-K	10.26	3-11-20

10.21#	Amendment to Employment Agreement, dated March 9, 2020, by and between Unity Biotechnology, Inc. and Nathaniel E. David.	10-K	10.27	3-11-20	
10.22#	Amendment to Employment Agreement, dated March 9, 2020, by and between Unity Biotechnology, Inc. and Jamie Dananberg.	10-K	10.29	3-11-20	
10.23#	Employment Agreement, dated March 30, 2020, by and between Unity Biotechnology, Inc. and Anirvan Ghosh.	8-K	10.1	3-30-20	
10.24#	Amended and Restated Non-Employee Director Compensation Program (effective as of March 30, 2020)	10-Q	10.2	5-7-20	
10.25†††	Third Amendment to Compound License Agreement for APG-1197, dated June 29, 2020, by and between Ascentage Pharma Group Corp. Ltd. and Unity Biotechnology, Inc.	8-K	10.1	7-1-20	
10.26#	Employment Agreement, dated August 1, 2020, by and between Unity Biotechnology, Inc. and Lynne Sullivan.	10-Q	10.2	11-4-20	
10.27#	Amendment to Employment Agreement, dated September 1, 2020, by and between Unity Biotechnology, Inc. and Lynne Sullivan.	10-Q	10.3	11-4-20	
10.28†††	Loan and Security Agreement, dated August 3, 2020, between Unity Biotechnology, Inc. and Hercules Capital, Inc.	8-K	10.1	8-4-20	
10.29	Amendment No. 1 to Loan and Security Agreement, dated December 15, 2021, by and between the Company and Hercules Capital, Inc.	8-K	10.1	12-15-21	
10.30	Purchase Agreement, dated September 29, 2021, by and between the Unity Biotechnology, Inc. and Lincoln Park Capital Fund, LLC.	8-K	10.1	9-29-21	
10.31	Registration Rights Agreement, dated September 29, 2021, by and between Unity Biotechnology and Lincoln Park Capital Fund, LLC.	8-K	10.2	9-29-21	
10.32	Sales Agreement, dated March 15, 2022, by and between Unity Biotechnology, Inc. and Cowen and Company, LLC.	S-3	1.2	3-15-22	
10.33	Amendment No. 1 to Sales Agreement, dated August 17, 2022, by and between Unity Biotechnology, Inc. and Cowen and Company, LLC.	8-K	1.1	8-19-22	
10.34	Sales Agreement, dated October 14, 2022, by and between Unity Biotechnology, Inc. and Cowen and Company, LLC.	S-3	1.2	10-14-22	
10.35#	Separation Agreement, dated April 27, 2023, by and between Unity Biotechnology, Inc. and Jamie Dananberg.	10-Q	10.1	5-9-23	
10.36#	Consulting Agreement, dated April 27, 2023, by and between Unity Biotechnology, Inc. and Jamie Dananberg.	10-Q	10.2	5-9-23	
10.37#	Second Amended and Restated Non-Employee Director Compensation Program (effective March 17, 2023).	10-Q	10.3	5-9-23	
10.38	Amendment No. 2 to Loan and Security Agreement, dated January 25, 2023, by and between the Company and Hercules Capital, Inc.	10-Q	10.4	5-9-23	
10.39	Amendment No. 2 to Sales Agreement, dated March 17, 2023, by and between Unity Biotechnology, Inc. and Cowen and Company LLC.	8-K	1.1	3-17-23	
10.40	Inducement Offer to Exercise Common Stock Purchase Warrants Issued in November 9, 2023	8-K	10.1	11-13-23	
10.41#	Third Amended and Restated Non-Employee Director Compensation Program.	10-K			X
23.1	Consent of Independent Registered Public Accounting Firm				X
24.1	Power of Attorney. Reference is made to the signature page.				X
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities				X

	<u>Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>	
31.2	<u>Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>	X
32.1**	<u>Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>	X
97.1	<u>Policy for Recovery of Erroneously Awarded Compensation</u>	X
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.	X
101.SCH	Inline XBRL Taxonomy Extension Schema Document	X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	X
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)	X

† Confidential treatment has been granted for certain information contained in this exhibit. Such information has been omitted and filed separately with the Securities and Exchange Commission.

†† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment filed separately with the Securities and Exchange Commission.

††† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to Regulation S-K, Item 601(b)(10). Such omitted information is not material and would likely cause competitive harm to the registrant if publicly disclosed.

†††† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to Regulation S-K, Item 601(b)(10). Such omitted information is not material and would likely cause competitive harm to the registrant if publicly disclosed. Additionally, schedules and attachments to this exhibit have been omitted pursuant to Regulation S-K, Item 601(a)(5).

+ Certain confidential portions of this exhibit have been omitted from this exhibit in accordance with Regulation S-K 601(b)(10). Exhibit being refiled upon expiration of confidential treatment previously granted by the SEC.

Indicates management contract or compensatory plan.

** The certification attached as Exhibit 32.1 that accompanies this Annual Report on Form 10-K is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Unity Biotechnology, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Annual Report on Form 10-K, irrespective of any general incorporation language contained in such filing.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

Unity Biotechnology, Inc.

Date: April 15, 2024

By: /s/ Anirvan Ghosh
Anirvan Ghosh, Ph.D.
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints each of Anirvan Ghosh, Alexander Nguyen, and Lynne Sullivan his or her true and lawful attorney-in-fact and agent, with full power of substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that all said attorneys-in-fact and agents, or their, his or her substitutes or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Anirvan Ghosh</u> Anirvan Ghosh, Ph.D.	Chief Executive Officer and Director (Principal Executive Officer)	April 15, 2024
<u>/s/ Lynne Sullivan</u> Lynne Sullivan	Chief Financial Officer (Principal Financial and Accounting Officer)	April 15, 2024
<u>/s/ Keith R. Leonard Jr.</u> Keith R. Leonard Jr.	Chairman	April 15, 2024
<u>/s/ Paul L. Berns</u> Paul L. Berns	Director	April 15, 2024
<u>/s/ Nathaniel E. David</u> Nathaniel E. David, Ph. D.	Director	April 15, 2024
<u>/s/ Gilmore O'Neill</u> Gilmore O'Neill, M.B.	Director	April 15, 2024
<u>/s/ Margo Roberts</u> Margo Roberts, Ph.D.	Director	April 15, 2024
<u>/s/ Michael P. Samar</u> Michael P. Samar	Director	April 15, 2024
<u>/s/ Camille D. Samuels</u> Camille D. Samuels	Director	April 15, 2024

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statements (Form S-3 Nos. 333-275924, 333-267886, 333-263574) of Unity Biotechnology, Inc.,
- (2) Registration Statement (Form S-8 No. 333-270567) pertaining to the 2018 Incentive Award Plan, 2018 Employee Stock Purchase Plan and 2020 Employment Inducement Incentive Award Plan, as amended of Unity Biotechnology, Inc.,
- (3) Registration Statements (Form S-8 Nos. 333-263576, 333-254619, 333-237088, 333-230086) pertaining to the 2018 Incentive Award Plan and 2018 Employee Stock Purchase Plan of Unity Biotechnology, Inc.,
- (4) Registration Statement (Form S-8 No. 333-250926) pertaining to the 2020 Employment Inducement Incentive Award Plan, as amended of Unity Biotechnology, Inc.,
- (5) Registration Statement (Form S-8 No. 333-237474) pertaining to the 2020 Employment Inducement Incentive Plan of Unity Biotechnology, Inc.,
- (6) Registration Statement (Form S-8 No. 333-224726) pertaining to the 2013 Equity Incentive Plan, 2018 Incentive Award Plan, and 2018 Employee Stock Purchase Plan of Unity Biotechnology, Inc.

of our report dated April 15, 2024, with respect to the financial statements of Unity Biotechnology, Inc. included in this Annual Report (Form 10-K) of Unity Biotechnology, Inc. for the year ended December 31, 2023.

/s/ Ernst & Young LLP

San Mateo, California
April 15, 2024

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Anirvan Ghosh, certify that:

1. I have reviewed this Annual Report on Form 10-K of Unity Biotechnology, Inc. for the year ended December 31, 2023;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 15, 2024

By: _____ /s/ Anirvan Ghosh
Anirvan Ghosh, Ph.D.
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Lynne Sullivan, certify that:

1. I have reviewed this Annual Report on Form 10-K of Unity Biotechnology, Inc. for the year ended December 31, 2023;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 15, 2024

By: _____ /s/ Lynne Sullivan
Lynne Sullivan
Chief Financial Officer
(Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Unity Biotechnology, Inc. (the “Company”) on Form 10-K for the year ending December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Anirvan Ghosh, Chief Executive Officer of the Company, and Lynne Sullivan, Chief Financial Officer of the Company, do each hereby certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: April 15, 2024

By: _____
/s/ Anirvan Ghosh
Anirvan Ghosh, Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Date: April 15, 2024

By: _____
/s/ Lynne Sullivan
Lynne Sullivan
Chief Financial Officer
(Principal Financial and Accounting Officer)