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 001-41331

AN2 Therapeutics, Inc.

(Exact name of Registrant as specified in its Charter)

Delaware	**82-0606654**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
1800 El Camino Real, Suite D Menlo Park, California	**94027**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (650) 331-9090

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	ANTX	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's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

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

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

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the 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 $108,668,174.

The number of shares of Registrant's Common Stock outstanding as of March 22, 2024 was 29,770,375 shares of common stock, par value $0.00001, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's definitive proxy statement for its 2024 annual meeting of stockholders is incorporated by reference in Item 5 of Part II and Items 10, 11, 12, 13 and 14 of Part III.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K ("Annual Report") contains forward-looking statements. All statements other than statements of historical facts contained in this Annual Report, including statements regarding our future results of operations and financial position, business strategy, product candidates, planned preclinical and nonclinical studies and clinical trials, results of preclinical and nonclinical studies, clinical trials, research and development costs, regulatory approvals, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties, and other important factors that are in some cases beyond our control and 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.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "would," "expect," "plan," "anticipate," "could," "intend," "target," "project," "believe," "estimate," "predict," "potential," or "continue," or the negative of these terms or other similar expressions. Forward-looking statements contained in this Form 10-K include, but are not limited to, statements about:

- the initiation, timing, progress, and results of our preclinical and nonclinical studies and clinical trials, and our research and development programs, including the manufacture of clinical trial material and drug product for launch;
- the sufficiency of our existing cash to fund our future operating expenses and capital expenditure requirements;
- the accuracy of our estimates regarding expenses, capital requirements and needs for additional financing;
- our use of the net proceeds from financing activities;
- the ability of our Phase 2/3 clinical trial in treatment-refractory *Mycobacterium avium* complex ("MAC") lung disease or future trials to be sufficient for regulatory approval in the United States and Japan and potentially other territories;
- our ability to reopen enrollment and complete our ongoing study in treatment-refractory MAC lung disease;
- our ability to commence studies of epetraborole in new patient populations, which regulatory authorities may not allow or authorize or may delay allowing or authorizing;
- the translation of our preclinical results and data and early clinical trial results, in particular relating to safety, efficacy and durability, into future clinical trial results;
- our ability to retain the continued service of our key professionals and to identify, hire, and retain additional qualified professionals;
- our ability to advance our initial product candidate and any other product candidates we may develop into, and successfully complete, clinical trials;
- the timing of and our ability to obtain and maintain regulatory approvals for our initial product candidate and any other product candidates we may develop;
- the commercialization of our initial product candidate and any other product candidates we may develop, if approved;
- the ability of epetraborole, if approved, to successfully compete with other therapies, including therapies currently in development;
- the size of the market opportunity for epetraborole or any other product candidates we may develop in each of the diseases we target;
- the pricing, coverage, and reimbursement of epetraborole, if approved;
- the implementation of our business model, strategic plans for our business, and our initial product candidate and any other product candidates we may develop;
- the scope of protection we are able to establish and maintain for intellectual property rights covering epetraborole;

- the potential post-approval marketing exclusivities that may be granted to epetraborole based upon certain regulatory designations, and other non-patent exclusivities in the United States and Japan;
- our ability to identify additional product candidates and advance them into clinical development;
- our financial performance;
- developments relating to our competitors and our industry;
- our expectations regarding the impact of inflation, macroeconomic conditions and geopolitical conflicts on our business and operations, including on our manufacturing suppliers, collaborators, contract research organizations ("CROs") and employees; and
- our expectations regarding the period during which we will qualify as an emerging growth company under the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act").

We have based these forward-looking statements largely on our current expectations and projections about our business, the industry in which we operate and financial trends that we believe may affect our business, financial condition, results of operations, and prospects and these forward-looking statements are not guarantees of future performance or development. These forward-looking statements speak only as of the date of this Annual Report and are subject to a number of risks, uncertainties, and assumptions described in the section titled "Risk Factors" in Part I, Item 1A and elsewhere in this Annual Report on Form 10-K. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein until after we distribute this Annual Report, whether as a result of any new information, future events, or otherwise.

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

RISK FACTORS SUMMARY

Below is a summary of material factors that make an investment in our securities speculative or risky. Importantly, this summary does not address all of the risks and uncertainties that we face. Additional discussion of the risks and uncertainties summarized in this risk factor summary, as well as other risks and uncertainties that we face, can be found under "Risk Factors" in Part I, Item 1A of this Annual Report. This summary is qualified in its entirety by that more complete discussion of such risks and uncertainties. You should carefully consider the risks and uncertainties described under "Risk Factors" in Part I, Item 1A of this Annual Report as part of your evaluation of an investment in 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. We expect to incur losses over the next several years and may never achieve or maintain profitability.
- We require substantial additional funding to meet our financial needs and to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce, or altogether cease our current and future product development programs or future commercialization efforts.
- We depend to a large degree on the success of epetraborole. If we do not obtain regulatory approval for and successfully commercialize epetraborole or any of our other product candidates, or if we experience further significant delays in doing so, we may never become profitable.
- If clinical trials of epetraborole or any other product candidate that we may advance to clinical trials fail to demonstrate safety, tolerability and/or efficacy to the satisfaction of the U.S. Food and Drug Administration ("FDA"), Japan's Pharmaceuticals and Medical Devices Agency ("PMDA"), or other comparable regulatory authorities, or do not otherwise produce favorable results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of epetraborole or any other product candidate.
- If we are unable to reopen enrollment in the Phase 3 part of our ongoing clinical trial in treatment-refractory MAC lung disease, or if we are unable to or experience delays in obtaining regulatory-authority allowance to study epetraborole in other patient populations, our receipt of necessary regulatory approvals could be delayed or prevented.
- The data we have collected and continue to collect in our Phase 1 programs, and from our ongoing Phase 2/3 trial, may not support continued clinical investigation or may lead to adjustments in trial design, rendering the trial not feasible to conduct or otherwise not acceptable to the FDA or to us.
- If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.
- We rely on single-sourced third parties to conduct the preclinical and nonclinical studies, clinical trials, and manufacture of our clinical trial material for epetraborole and our other product candidates, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such studies, trials and manufacturing services or failing to comply with applicable regulatory requirements.
- Even if epetraborole or any of our other product candidates receives regulatory approval, they may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success. If we are unable to establish sales, marketing, and distribution capabilities for epetraborole or our other product candidates, or enter into sales, marketing, and distribution agreements with third parties, we may not be successful in commercializing our product candidates, if and when they are approved.
- We face substantial competition, which may result in others discovering, developing, or commercializing products before or more successfully than we do.
- We operate with a small team and our future success depends on our ability to retain key executives and to attract, retain, and motivate qualified personnel.
- We have identified material weaknesses in our internal control over financial reporting. If we are unable to remediate these material weaknesses, or if we identify additional material weaknesses in the future or otherwise fail to maintain effective internal control over financial reporting, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business.

- Our rights to develop and commercialize our technology, epetraborole, and our other product candidates are subject, in large part, to the terms and conditions of licenses granted to us by others, including Anacor Pharmaceuticals, Inc. (a wholly owned subsidiary of Pfizer) ("Anacor"). If we fail to comply with our obligations in the agreements under which we in-license or acquire development or commercialization rights to products, technology, or data from third parties, we could lose such rights that are important to our business.
- If we are unable to obtain and maintain patent and other intellectual property protection for our technology, or for epetraborole or our other product candidates, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and product candidates may be impaired.
- If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize epetraborole or our other product candidates, and our ability to generate revenue will be materially impaired.
- Future legislation, and/or regulations and policies adopted by the FDA, the PMDA or comparable regulatory authorities, may increase the time and cost required for us to conduct and complete clinical trials of epetraborole or other product candidates.
- The trading price of our common stock may be volatile.

PART I

Item 1. Business.

Overview

AN2 Therapeutics, Inc. (also referred to in this document as "AN2," "we," the "Company" or the "Registrant") is a clinical-stage biopharmaceutical company developing treatments for rare, chronic, and serious infectious diseases with high unmet needs. Our initial candidate is epetraborole, which we are studying as a potential once-daily, oral treatment with a novel mechanism of action for patients with non-tuberculous mycobacterial ("NTM") lung disease, a rare, chronic and progressive infectious disease caused by bacteria known as mycobacteria, which leads to irreversible lung damage and can be fatal.

In February 2024, we voluntarily paused Phase 3 enrollment in the seamless Phase 2/3 clinical trial ("EBO-301") evaluating epetraborole in treatment-refractory MAC lung disease, pending further study-data review and discussion with the FDA, due to potentially lower-than-expected efficacy results following a blinded aggregate analysis. The decision to pause enrollment was not due to safety concerns. We met with the study's independent Data Safety Monitoring Board ("DSMB") in March 2024 and plan to meet with the FDA in the coming months. In the meantime, patients enrolled in the study before the enrollment pause will continue to be dosed with blinded study drug and undergo all study assessments. The Phase 2 portion of the trial has completed enrollment, with topline data expected in August 2024.

Epetraborole is designed to produce broad-spectrum antimycobacterial activity through inhibition of an essential and universal step in bacterial protein synthesis. Its novel mechanism of action is enabled by boron chemistry, our core technology approach. We in-licensed the exclusive worldwide development and commercialization rights for epetraborole from Anacor, acquired by Pfizer Inc. ("Pfizer") in 2019.

The FDA granted us Fast Track designation to investigate epetraborole for treatment-refractory MAC lung disease, Qualified Infectious Disease Product ("QIDP") designation for treatment-refractory MAC lung disease, and orphan drug designation for the treatment of infections caused by NTM. We have also received orphan medicinal product designation from the European Commission for the treatment of NTM lung disease using epetraborole. Based on clinical and preclinical data generated with epetraborole, its novel mechanism of action, and the convenience associated with once-daily, oral dosing, we believe that epetraborole, if approved, has the potential to become an important component of a multi-drug treatment regimen for patients suffering from NTM lung disease.

We are also conducting Investigational New Drug Application ("IND") enabling studies with AN2-502998 (formerly known as AN15368), an investigational, boron-based small molecule in development for the treatment of chronic Chagas disease. In October 2023, we announced an exclusive license agreement with the University of Georgia Research Foundation to advance its development. AN2-502998 was originally discovered by researchers at Anacor, in close collaboration with the University of Georgia. AN2-502998 is the only compound of which we are aware to have demonstrated curative activity in preclinical studies across multiple species, including in non-human primates with long-term, naturally acquired chronic infections of diverse *T. cruzi* genetic types.

In addition to these programs, we intend to pursue epetraborole and other compounds for diseases associated with global health initiatives, including melioidosis, tuberculosis and malaria, primarily using non-dilutive funding from sources such as public and private agencies and foundations. In September 2023 we announced that we received a research grant from the Bill and Melinda Gates Foundation to discover novel, boron containing small molecules for the treatment of tuberculosis and malaria. In 2022 we received a cost-reimbursement contract award from the National Institute of Allergy and Infectious Diseases ("NIAID"), part of the National Institutes of Health ("NIH"), under which we are able to receive up to $17.8 million in cost reimbursements to advance the development of epetraborole for acute systemic melioidosis and other biothreat pathogens.

The status of each of our other programs is listed below:

- *Frontline MAC lung disease:* We plan to review Phase 2 clinical data in treatment-refractory MAC lung disease from EBO-301, when available, to inform further investigation of epetraborole as part of a frontline combination regimen in MAC lung disease.
- *M. abscessus lung disease*: We intend to pursue development of epetraborole as a first-line therapy in M. abscessus lung disease, which represents a smaller subset of NTM (~20% of NTM patients) but also has a high unmet need. We are currently conducting nonclinical studies as part of dose selection to support clinical development of epetraborole in this disease. Current treatments for *M. abscessus* lung disease have poor efficacy (~50%), are often delivered by intravenous infusion and have significant tolerability and safety issues. We believe that oral epetraborole, in combination with other drugs, has the potential to treat *M. abscessus* lung disease based on the in vitro and in vivo potency observed against multiple isolates.

- *Melioidosis*: In September 2022 we received a cost-reimbursement contract award from the NIAID under which we are able to receive up to $17.8 million in non-dilutive funding to support preclinical, Phase 1 studies, and other activities to enable advancement of epetraborole into advanced clinical trials for acute systemic melioidosis. Following contract initiation, we have conducted nonclinical studies to support clinical development of intravenous (IV) epetraborole for acute melioidosis. We have also initiated CMC studies to manufacture a suitable IV formulation of epetraborole for planned clinical trials. In 2023, we initiated a prospective observational study in Thailand and Laos to evaluate the clinical characteristics, current practice and outcomes in adult patients with suspected or confirmed acute melioidosis.
- *Broad spectrum MAC and M. abscessus lung disease:* We are conducting research activities to develop novel targets for broad spectrum MAC and *M. abscessus* lung disease.
- *Tuberculosis and Malaria:* In September 2023 we announced that we received a research grant from the Bill and Melinda Gates Foundation to discover novel, boron containing small molecules for the treatment of tuberculosis and malaria.

We plan to continue to invest in expanding our pipeline of product candidates. We have several research programs targeting the development of novel antimicrobial compounds based on our boron chemistry platform. We believe there is a significant need for novel NTM drugs that improve upon the currently available antibiotics that have variable efficacy, safety and tolerability profiles. We anticipate that such compounds could have the potential to be developed in combination with epetraborole and other NTM therapies for the treatment of NTM lung disease. We are also applying our boron research capabilities to discover and develop novel therapeutics for other rare or chronic infectious diseases, including tuberculosis and malaria. In addition to our internal research efforts, our strategy also includes seeking in-licensing or other acquisitions of other compounds that are complementary to our mission.

Epetraborole Key Attributes

We believe the development of epetraborole in NTM lung disease represents an attractive opportunity for the following reasons:

- **Large market opportunity.** Treatment-refractory and frontline MAC lung disease requires long-term, daily antimycobacterial therapy. There is a high unmet need in NTM lung disease and an opportunity for a safe, tolerable, effective, and oral antibacterial drug that could significantly improve patient outcomes.
- **Novel mechanism of action with a broad spectrum of antimycobacterial activity.** Epetraborole has a novel mechanism of action – inhibition of bacterial leucyl-tRNA synthetase, a bacterial target for which there are no approved therapies. Epetraborole has demonstrated broad antimycobacterial activity in preclinical studies against MAC, including but not limited to *M. avium*, *M. intracellulare*, and *M. chimaera*, which is the most common group of NTM that causes human disease (~80% cases) and is the initial focus of epetraborole's clinical development. Furthermore, epetraborole has also shown activity against strains that are resistant to other antibiotics currently used to treat NTM lung disease. For example, epetraborole has demonstrated potent in vitro activity as compared to M. abscessus, a rapid-growing NTM species that has a high unmet need for new effective antibiotics.
- **Substantial data support ongoing clinical studies.** Epetraborole has been investigated by AN2 in four completed Phase 1 studies and eight additional studies by Anacor and Anacor's previous partner, GSK. The Anacor and GSK studies, in intravenous and oral formulations of epetraborole, included six Phase 1 and two truncated Phase 2 clinical trials in over 200 subjects at a wide range of clinical doses. In 2023, we completed a Phase 1 thorough QT study (EBO-104).
- **Compatibility with guideline-based combination treatments.** The current standard of care therapy for NTM lung disease includes administration of three or more antimycobacterial agents, the combination of which improves efficacy, shortens the duration of therapy, and significantly reduces the chance that resistance to individual drugs would develop. Given epetraborole's novel mechanism of action and low observed potential for drug-drug interactions with existing antibiotics, we believe epetraborole, if approved, has the potential to become an important component of a multi-drug treatment regimen for patients living with treatment-refractory MAC lung disease. Additionally, in nonclinical pharmacokinetic models of NTM MAC infection, epetraborole added on top of a triple-drug guideline-based regimen demonstrated significantly improved bacteria reductions vs. guideline therapy alone.

- **Potential for up to twelve years of non-patent regulatory exclusivity in the United States, if approved.** In addition to current and potential future patent protection in the major geographies, epetraborole, if approved for patients with treatment-refractory MAC lung disease, has the potential to receive up to 12 years of post-approval, non-patent regulatory exclusivity in the U.S. based on its existing QIDP and orphan drug designations.

Epetraborole Mechanism of Action

Epetraborole is an investigational, boron-containing, orally bioavailable, small molecule inhibitor of bacterial leucyl-tRNA synthetase, or LeuRS, an enzyme that catalyzes the attachment of leucine to transfer RNA, or tRNA, molecules, an essential step in protein synthesis. As shown in Figure A below, epetraborole forms a complex with a $tRNA^{Leu}$ molecule, trapping the terminal ribonucleotide of $tRNA^{Leu}$ in the editing site of the enzyme, to prevent the synthetic site from attaching leucine to $tRNA^{Leu}$ thus shutting down tRNA leucylation and leading to a block in protein synthesis.

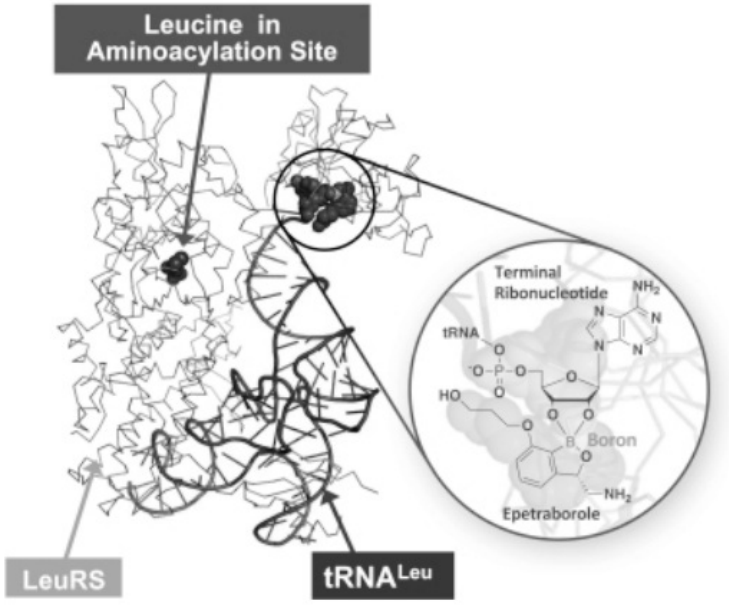

Figure A. Epetraborole is designed to inhibit the protein synthesis enzyme leucyl-tRNA synthetase, or LeuRS, by binding to the terminal adenosine ribose of tRNALeu in the editing site.

As shown in Table 1 below, epetraborole has demonstrated antimicrobial activity against a broad panel of 161 isolates of MAC, with minimum inhibitory concentrations, or MICs, of 0.25 mg/ml to 16 mg/ml. Epetraborole also maintained activity against MAC isolates that are resistant to clarithromycin, a current therapy for NTM treatment regimens.

	MIC (mg/L)		
	Epetraborole	**Clarithromycin**	**Amikacin**
MIC Range	0.25 - 16	0.125 - >64	2 - >64
MIC_{50}	2	1	16
MIC_{90}	4	4	32

Table 1. Antimicrobial activity of epetraborole, clarithromycin and amikacin against 161 isolates of MAC including *M. intracellulare* isolates, *M. avium* isolate, *M. avium* complex isolates, *M. avium* subsp. *hominissuis* isolates, and *M. chimaera* isolates.

Unmet Need in NTM and Market Opportunity for Epetraborole

NTM lung disease is a rare, chronic, and progressive infectious disease caused by bacteria known as mycobacteria that leads to irreversible lung damage and can be fatal. Unlike most bacteria, which replicate quickly and spread outside of cells, mycobacteria replicate slowly and mostly infect alveolar (lung) macrophages and survive within them. Due to the slow growth and survival within macrophages of mycobacteria, the current standard of care for NTM lung infections requires prolonged treatments, often for 18 months or longer, with a combination of three or more antibiotics. Initially, we are focused on developing epetraborole to treat the most common type of NTM, MAC, which accounts for approximately 80% of NTM lung disease in the United States.

There are an estimated 200,000 patients with NTM lung disease in the United States. We believe that many remain underdiagnosed due to lack of clinical suspicion, nonspecific respiratory symptoms, and underlying lung diseases that are frequent in patients with this infection. The prevalence of NTM lung disease is increasing in the United States by an estimated 8% per year. Among the approximately 55,000 patients diagnosed with NTM lung disease in the United States, approximately 44,000 patients have MAC lung disease, and approximately 35% of these patients have treatment-refractory MAC lung disease.

In addition, Japan has some of the highest rates of NTM lung disease in the world. It is estimated that there are 220,000 patients with NTM lung disease and 21,000 patients with treatment-refractory MAC lung disease in Japan.

There is only one FDA-approved therapy for treatment-refractory MAC lung disease: Arikayce, an inhaled liposomal formulation of amikacin. Arikayce is also approved in Japan and certain other countries around the world. Insmed Incorporated reported net sales of Arikayce of approximately $305.2 million in 2023 ($224.2 million in the United States, $65.7 million in Japan, and $15.3 million in Europe and the rest of the world), a 24% increase over 2022. We believe there is significant unmet need for new treatments, particularly in an oral dosage form with differentiated tolerability and mechanism of action. In a clinical trial, the addition of Arikayce to standard of care (SOC) combination antibiotic therapy resulted in the resolution of MAC infection in 29% of patients as compared to 9% for SOC alone (based on an intent to treat population). Arikayce has boxed warnings for risk of increased respiratory adverse reactions, and warnings and precautions including ototoxicity, a known class effect with aminoglycosides, and other safety findings. In its clinical trial, between 20.3% and 33.5% of patients treated with Arikayce discontinued treatment. Other drugs used in combination with Arikayce as a part of a standard-of-care regimen are not approved to treat MAC lung disease and carry numerous safety and tolerability liabilities of their own.

Epetraborole Development Program

EBO-301 Clinical Trial

In 2023, we initiated enrollment in a Phase 2/3 seamless-design trial to support potential marketing applications in the U.S., Japan, and other countries for epetraborole in treatment-refractory MAC lung disease. We completed enrollment of the Phase 2 portion of the trial in September 2023 and immediately began enrollment of the Phase 3 portion. In February 2024, we voluntarily paused Phase 3 enrollment after observing potentially lower-than-anticipated efficacy results in an analysis of blinded aggregate data from the Phase 2 portion, in part because we had experienced rapid enrollment of the Phase 3 portion, where we had enrolled 97 of 234 planned patients. The aggregate baseline characteristics reveal patients with complex comorbidities, prolonged NTM lung disease, and high levels of cavitary disease, as well as patients who are refractory to Arikayce, the only FDA-approved drug for refractory NTM caused by MAC, as part of their background regimen. After having met with the study's DSMB in March 2024, we plan to continue the review of data and meet with the FDA in the coming months. Patients enrolled before the pause will continue to be dosed with blinded study drug and undergo all study assessments.

Completed Clinical Studies

- In previous development work with epetraborole conducted by Anacor and GSK, its pharmacokinetics were well characterized using substantially higher doses than we are currently evaluating in our ongoing and planned clinical trials. Results from a previous Phase 1 clinical trial showed the exposures of epetraborole in alveolar (lung) macrophages, the human cells that are infected with mycobacteria in NTM lung disease, were approximately five-fold higher than in plasma. These results suggest potentially therapeutic exposures of epetraborole could be achieved in these macrophages with orally administered doses that are substantially lower than the maximum tolerated doses and exposures identified in previous trials.
- In 2021, we completed EBO-101, a dose-ranging study in healthy volunteers, which assessed the pharmacokinetics and safety of oral epetraborole doses relevant for treatment-refractory MAC lung disease and administered for 28 days, including a food-effect cohort.
- In 2022, we completed EBO-102, which assessed the pharmacokinetics of epetraborole in subjects with varying degrees of renal function.
- In 2022, we completed EBO-103, which assessed the pharmacokinetics of epetraborole in Japanese subjects to support initiation of clinical trials in Japan.
- In 2023, we completed EBO-104, a Phase 1 thorough QT study.

Completed Non-Clinical Studies

We have completed toxicology and safety pharmacology studies, including chronic toxicology studies by oral administration in both rats (for a period of six months) and non-human primates (for a period of nine months) where epetraborole was tolerated at much higher dose levels compared to the once-daily dose of 500 mg that we are evaluating in treatment-refractory MAC lung disease in our Phase 2/3 pivotal clinical trial. Additionally, we recently completed the last of the three standard reproductive toxicity studies (segment 3) that we believe are necessary to support regulatory application. No findings of material concern were identified.

We have completed non-clinical studies to characterize the antimicrobial activity of epetraborole in vitro and in animal models. In one study, we tested the antimicrobial activity of epetraborole against 51 isolates of MAC compared to clarithromycin and amikacin resulting in an MIC90 of 8 µg/mL. Furthermore, we completed testing of epetraborole against 110 MAC clinical isolates from Japan and an MIC90 of 4 µg/mL was reported. These studies demonstrated that, preclinically, epetraborole showed broad anti-mycobacterial activity as compared to MAC isolates both regionally as well as against resistant strains of amikacin and clarithromycin. In another study, we compared epetraborole to clarithromycin in a chronic model of MAC lung disease in mice. This study indicated that epetraborole demonstrated improved antibacterial activity at all doses as compared to a 250 mg/day clarithromycin human dose equivalent. A third study in a mouse model indicated that epetraborole demonstrated a superior decrease in colony forming units as monotherapy and in combination with standard of care versus standard of care alone.

Prior Clinical Experience with Epetraborole

Prior to our clinical development program in NTM lung disease, epetraborole had been administered intravenously or orally as a monotherapy agent to over 200 subjects at a wide range of clinical doses across six Phase 1 and two truncated Phase 2 clinical trials conducted by Anacor and GSK with a focus on gram-negative infections that were unrelated to NTM lung disease, some of which were terminated prior to completion due to clinical resistance observed in a small number of patients in one of the two Phase 2 clinical trials. Epetraborole was not tested by Anacor or GSK in patients with NTM lung disease or in combination with other antimicrobial agents.

Epetraborole Regulatory Exclusivity

As an orphan and QIDP-designated product, if approved in the United States for use in patients with treatment-refractory MAC lung disease, it is possible we could obtain up to 12 years of regulatory exclusivity, independent of any applicable patent protection. If approved in Japan, we believe we could obtain at least eight years of exclusivity, independent of any applicable patent protection that we may acquire.

AN2-502998 Chagas Disease

Chagas disease is caused by the parasite *Trypanosoma cruzi*, which spreads via triatomine bugs (vector), a subspecies of blood-feeding insects more commonly known as “kissing bugs” because they tend to bite people on the face and lips. *T. cruzi* is also transmitted congenitally from infected mothers to their babies, through consumption of contaminated food or beverages, and via blood transfusions and organ transplants. While the disease can progress slowly, chronic infection almost inevitably results in irreparable damage to heart and digestive system tissues. If untreated, infection is lifelong and can be life threatening. Chagas disease kills more people in Latin America than any other infectious disease–including malaria, tuberculosis, and HIV—and is one of the major causes of infection-induced myocarditis or cardiomyopathy worldwide. An estimated 30% of Chagas patients develop chronic and often severe heart disease that leads to premature death.

According to the World Health Organization, approximately 6-7 million people worldwide are estimated to be infected with the parasite *T. cruzi*, mostly in Latin America. An increasing number of cases of Chagas are also being documented in the United States of America and Europe. In the United States, the CDC estimates that there more than 300,000 people infected with *T. cruzi*, most of whom were infected in Chagas-endemic regions in Latin America.

Chagas disease presents in an acute phase (~2 months after infection) and a chronic phase, where the *T. cruzi* parasites are hidden mainly in the heart and digestive muscles. For over 50 years, two nitroheterocyclic compounds, benznidazole and nifurtimox, have been available for treatment of the infection and are FDA approved for use in children, but are rarely used due to their inconsistent efficacy and high frequency of side effects. There are currently no approved therapies to cure the disease once it reaches the chronic phase; however, benznidazole and nifurtimox may be offered to people younger than age 50 because they may help slow the progression of the disease and its most serious complications.

In October 2023, we announced that we signed an exclusive license agreement with the University of Georgia Research Foundation to advance development of AN2-502998 (formerly known as AN15368), a boron-based small molecule therapeutic candidate under development for the treatment of Chagas disease. AN2-502998 was originally discovered by researchers at Anacor, in close collaboration with the University of Georgia, and with grant funding from Wellcome. IND-enabling studies are well underway using non-dilutive funding from The Wellcome Trust ("Wellcome"). AN2-502998, previously published under AN15368, is the only compound of which we are aware to have demonstrated curative activity in preclinical studies across multiple species, including in non-human primates with long-term, naturally acquired chronic infections of diverse *T. cruzi* genetic types.

Melioidosis

Melioidosis is an urgent unmet global health infectious disease caused by the bacterium *Burkholderia pseudomallei* (*B. pseudomallei*). This bacterium is also documented as a high priority biothreat pathogen. *B. pseudomallei* is endemic to tropical regions of the world with the majority of reported melioidosis cases occurring in South Asia. Melioidosis is contracted from direct contact with *B. pseudomallei* contaminated soil and water and is not transmitted person-to-person. Similar to NTM, *B. pseudomallei* can be an intra-cellular pathogen in macrophages, an important element in melioidosis. The disease can manifest as localized infections causing pain, swelling and ulceration; as pulmonary infections causing cough, chest pain, high fever, and headache; and as blood stream infections causing fever, headache, respiratory distress, and abdominal discomfort. Current treatment generally starts with an intense phase of intravenous antibiotic treatment for a minimum of two weeks. Even with antibiotic treatment, the mortality rate is between 20% and 40%. Without treatment, it is estimated that six to nine out of ten people die. There are an estimated 165,000 cases of melioidosis diagnosed globally each year, mostly outside the United States, although small outbreaks due to bacterial exposure have occurred in the United States and the pathogen was recently discovered in soil and water sampling from the Gulf Coast region of Mississippi. Nonclinical studies conducted by us, Anacor, the U.S. Army Medical Research Institute of Infectious Diseases and Colorado State University indicate that epetraborole has potent activity against *B. pseudomallei.*

In September 2022, we received a cost-reimbursement contract award to receive up to $17.8 million from the NIAID to advance the development of epetraborole for acute systemic melioidosis and additional bacterial biothreat pathogens. The base period contract award is $4.3 million with additional options that, if exercised, would enable us to receive up to $17.8 million in total to support preclinical, Phase 1 studies, and other activities to enable advancement of epetraborole into advanced clinical trials for acute systemic melioidosis. In July 2023, the NIAID exercised one of seven available options under the NIAID contract (No: 75N93022C00059), resulting in an increase in committed contract funding of $0.7 million, for a total of $5.0 million. The project has been funded in whole with nondilutive federal funds from the NIAID, NIH, and the Department of Health and Human Services.

Our work with the NIAID on our melioidosis program has resulted in our partnering with the University of Oxford's Mahidol Oxford Tropical Medicine Research Unit to conduct a prospective observational study in Thailand and Laos with a projected 200 melioidosis patients (NCTC 06089668). We have also partnered with Colorado State University on preclinical research for our melioidosis program. We believe these partners provide substantial technical and capital resources to advance the melioidosis program and provide scientific, technical, and material benefits to our NTM lung disease program.

Manufacturing

We do not own or operate manufacturing facilities for the production of any of our product candidates, nor do we have plans to develop our own manufacturing operations in the foreseeable future. We currently rely on a limited number of third-party contract manufacturers for all of our required raw materials, drug substance, and finished drug product for our preclinical and nonclinical studies and clinical trials. We currently employ internal resources to manage our third-party manufacturing.

Licensing Agreements

License Agreement with Anacor Pharmaceuticals, Inc.

In November 2019, we entered into a license agreement (the "Anacor Agreement") with Anacor, pursuant to which we obtained a worldwide exclusive, sublicensable license under certain patent rights of Anacor and a non-exclusive license under certain know-how of Anacor to use, develop, manufacture, commercialize, or otherwise exploit certain compounds and products, including epetraborole, for the treatment, diagnosis, or prevention of all human diseases, and a

worldwide non-exclusive license under certain chiral synthesis intellectual property rights from GSK for the sole purpose of manufacturing such compounds and products.

We granted Anacor a non-exclusive, sublicensable license to develop, manufacture or use (but not commercialize) licensed products under all intellectual property rights that are both (i) related to the licensed products and (ii) conceived or reduced to practice by us, our affiliates, or our sublicensees. We also granted Anacor a right of first refusal in the event a priority review voucher is issued for a licensed product, and we desire to sell such priority review voucher.

We are obligated to use commercially reasonable efforts to develop, seek regulatory approval for, and commercialize (where such regulatory approval is received) epetraborole.

In connection with the execution of the Anacor Agreement, we paid Anacor a non-refundable upfront payment of $2.0 million and granted Anacor shares of Series A redeemable convertible preferred stock. Additionally, we agreed to make further payments to Anacor upon achievement of various development milestones for an aggregate maximum payment of $2.0 million, various commercial and sales threshold milestones for an aggregate maximum payment of $125.0 million, and up to 50% of royalties received under certain sublicensing arrangements. Royalties are subject to certain customary reductions, including lack of patent coverage and generic product entry. We also agreed to pay Anacor non-refundable, non-creditable sales royalties on a tiered marginal royalty rate based on the country's status as a developing or developed country as defined in the license agreement. Sales royalties are a percentage of net sales, as specified in the Anacor Agreement, and range from mid-single digit percentages for developing countries and single to mid-teen percentages for developed countries or the China, Hong Kong, Taiwan, and Macau territories. The sales royalties are required to be paid on a product-by-product and country-by-country basis, until the latest to occur of (i) 15 years following from the date of first commercial sale of a product in such country, (ii) the expiration of all regulatory or data exclusivity for such product in such country, or (iii) the date of the expiration of the last to expire valid claim of a licensed patent covering such product in such country. Currently, the date of the expiration of the last to expire valid claim of a licensed patent covering epetraborole in the licensed territory is June 2028. In addition, Anacor is entitled to certain milestone payments upon a change of control of our company.

On December 3, 2021, we entered into an amendment to the Anacor Agreement, pursuant to which we obtained a worldwide non-exclusive, sublicensable license under certain patent rights of Anacor for the treatment, diagnosis, or prevention of bacterial diseases caused by certain bacterial species, to support the continued manufacture of epetraborole by us.

The Anacor Agreement will expire upon expiration of the last to expire royalty term. Either party may terminate the Anacor Agreement for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party.

License Agreement with Brii Biosciences Limited

In November 2019, we entered into a license agreement (the "Brii Biosciences License Agreement") pursuant to which we granted Brii Biosciences an exclusive, perpetual, sublicensable license to research, develop, manufacture, and commercialize certain compounds and products, including epetraborole, in China, Hong Kong, Taiwan, and Macau for the diagnosis, treatment, and prevention of human diseases. Under the terms of the agreement, we licensed the intellectual property rights we licensed under the Anacor Agreement, as they apply in these jurisdictions, to Brii Bioscience. Further, neither we nor Brii Biosciences can develop a competing product that is directed to the same target as a licensed compound during the term of the Brii Biosciences License Agreement.

The collaboration is overseen by a joint steering committee. In the event of a dispute relating to the determination of proof of concept criteria, or licensed products in China, Hong Kong, Taiwan, and Macau for which Brii Biosciences has delivered a proof of concept acceptance notice, Brii Biosciences has the final decision-making authority, subject to certain veto rights of ours. Upon commencing development, Brii Biosciences is obligated to use commercially reasonable efforts to develop, seek regulatory approval for, and commercialize at least one licensed product in China, Hong Kong, Taiwan, and Macau.

We did not receive an upfront payment, but we are eligible to receive up to $15.0 million in the aggregate for development and regulatory milestones for each licensed product and up to $150.0 million in the aggregate in commercial milestones upon achieving sales thresholds for each licensed product. We are also entitled to tiered mid-single digit percentage to high-first decile percentage sales-based royalties, subject to certain reductions, including lack of patent coverage and generic product entry. The sales royalties are required to be paid on a product-by-product and region-by-region basis, until the latest to occur of (i) 15 years following the date of first commercial sale of a product, (ii) the expiration of all regulatory or data exclusivity, or (iii) the date of the expiration of the last to expire valid claim of a licensed patent covering the composition of matter or approved use of such product in such region. The last to expire valid claim of a licensed patent covering the composition of matter or approved use of such product in the licensed territory is June 2028.

Global Health Agreement with Adjuvant Global Health Technology Fund

We entered into the Global Health Agreement with Adjuvant Global Health Technology Fund ("Adjuvant") in connection with Adjuvant's investment in November 2019 and March 2021 of an aggregate amount of $12.0 million in our Series A and Series B redeemable convertible preferred stock financings. In connection with such investment, we issued Adjuvant an aggregate of 2,430,714 shares of our redeemable convertible preferred stock in November 2019 and March 2021. Pursuant to the Global Health Agreement, we agreed to support the creation of innovative and affordable drugs to treat disease, through public health programs and private purchasers in low and low-middle income target countries.

Adjuvant's investment supports the development of epetraborole for use in target countries that are melioidosis-endemic, melioidosis at-risk, tuberculosis-endemic, and tuberculosis-at-risk. Under the Global Health Agreement, we are required to comply with certain program-related investment global access commitments. We must use reasonably diligent endeavors to develop epetraborole for melioidosis, tuberculosis, and any other mutually agreed-upon products using non-dilutive funding and we must make them accessible to people in need in target countries on commercially reasonable terms and at a reasonable volume. Upon the occurrence of certain events, including the failure by ourselves to comply with the Global Health Agreement, we must grant Adjuvant a nonexclusive, perpetual, irrevocable, non-terminable, fully-paid up, royalty free license to epetraborole for melioidosis, tuberculosis, and any other mutually agreed-upon products.

Intellectual Property

We strive to protect and enhance our proprietary technology, inventions, and improvements that we consider commercially important to the development of our business, including by seeking, maintaining, and defending U.S. and foreign patent rights. As of December 31, 2023, all of the issued patents in our entire patent portfolio are in-licensed and if our current licensors are not cooperative or disagree with us as to the prosecution, maintenance, or enforcement of any such licensed patent rights, such patent rights could be compromised. The patent positions of pharmaceutical companies are generally uncertain and can involve complex legal, scientific, and factual issues. We cannot predict whether any patent applications we pursue, or any patent applications that we have in-licensed, will issue as patents in any particular jurisdiction, or whether the claims of any issued patents will provide sufficient proprietary protection from competitors.

Our future commercial success depends, in part, on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions, and know-how related to our business, including our product candidates, to defend and enforce our intellectual property rights, in particular our patent rights, to preserve the confidentiality of our trade secrets, and to operate without infringing, misappropriating, or violating the valid and enforceable patents and other intellectual property rights of third parties. Our ability to preclude or restrict third parties from making, using, selling, offering to sell, or importing competing molecules to our products may depend on the extent to which we have rights under valid and enforceable patents and trade secrets that cover these activities. We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems.

In addition, the coverage claimed in a patent application may be significantly reduced before a patent is granted, and its scope can be reinterpreted and even challenged after issuance. As a result, we cannot guarantee that any of our products will be protected or remain protectable by enforceable patents. Moreover, any patents that we license or may own in the future may be challenged, circumvented, or invalidated by third parties. In addition, because of the extensive time required for clinical development and regulatory review of a product candidate we may develop, it is possible that, before our product candidate can be commercialized successfully, any related patents may expire or remain in force for only a short period following commercial launch, thereby limiting the protection such patent would afford the applicable product and any competitive advantage such patent may provide. For more information regarding the risks related to our intellectual property, please see the section titled "Risk Factors—Risks Related to Our Intellectual Property."

For any individual patent, the term depends on the applicable law in the country in which the patent is issued. In most countries where we have in-licensed patents and patent applications, including the United States, patents have a term of 20 years from the application filing date or earliest claimed nonprovisional priority date. In the United States, the patent term may be shortened if a patent is terminally disclaimed over another patent that expires earlier. The term of a U.S. patent may also be lengthened by a patent term adjustment that is permitted in order to address administrative delays by the U.S. Patent and Trademark Office (USPTO) in examining and granting a patent.

In the United States, the term of a patent that covers an FDA-approved drug or biologic may be eligible for patent term extension in order to restore the period of a patent term lost during the premarket FDA regulatory review process. Specifically, the Drug Price Competition and Patent Term Restoration Act of 1984 (the "Hatch-Waxman Act") permits a patent term extension of up to five years beyond the natural expiration of the patent (but the total patent term, including the extension period, must not exceed 14 years following FDA approval). The patent term extension period granted on a patent covering a product is typically one-half the time between the effective date of a clinical investigation involving human beings is begun and the submission date of an application, plus the time between the submission date of an application and the ultimate approval date. Only one patent applicable to an approved product is eligible for patent term extension, and only those claims covering the approved product, a method for using it, or a method for manufacturing it may be extended. The application for patent term extension must be submitted prior to the expiration of the patent. The USPTO reviews and approves the application for any Patent Term Extension in consultation with the FDA.

The patent portfolio for our epetraborole product candidate is based upon our in-licensed patent portfolio, which includes patents and patent applications directed generally to compositions of matter, pharmaceutical compositions, and methods of treatment. As of December 31, 2023, we exclusively licensed three U.S. patents, along with patents and pending patents in various foreign jurisdictions. We do not own any issued patents. We own three pending PCT patent applications, which are not eligible to become issued patents until, among other things, we file a non-provisional patent application with the USPTO or a foreign patent office. Patents and patent applications, if granted, are expected to expire beginning in 2028, without taking potential patent term extensions or patent term adjustment into account.

Prosecution is a lengthy process, during which the scope of the claims initially submitted for examination by the USPTO and other patent offices may be significantly revised before issuance, if granted at all. The in-licensed patents and patent applications for epetraborole are detailed below.

Trade Secrets

We also rely on trade secrets, know-how, confidential information and continuing technological innovation to develop, strengthen and maintain our proprietary position in our field and protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. However, trade secrets can be difficult to protect. While we take measures to protect and preserve our trade secrets, such measures can be breached, and we may not have adequate remedies for any such breach. We seek to protect our proprietary information, in part, using confidentiality agreements and invention assignment agreements with our collaborators, employees and consultants. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of technologies that are developed through a relationship with a third party. We cannot guarantee, however, that we have executed such agreements with all applicable counterparties. Furthermore, these agreements may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors and other third parties, or misused by any collaborator to whom we disclose such information. To the extent that our collaborators, employees and consultants use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions. For more information regarding the risks related to our intellectual property, please see the section titled "Risk Factors—Risks Related to Our Intellectual Property."

Competition

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Our potential competitors include large pharmaceutical and biotechnology companies, specialty pharmaceutical companies and generic drug companies. Many of our potential competitors have greater financial and technical human resources than we do, as well as greater experience in the discovery and development of product candidates, obtaining FDA and other regulatory approvals of products, and the commercialization of those products. Accordingly, our potential competitors may be more successful than us in obtaining FDA-approved drugs and achieving widespread market acceptance. We anticipate that we will face intense and increasing competition as new drugs enter the market and advanced technologies become available. Finally, the development of new treatment methods for the diseases we are targeting could render our product candidates non-competitive or obsolete.

We believe the competitive factors that will affect the development and commercial success of our initial product candidate, epetraborole, if approved, will be convenience of oral dosing, efficacy, safety, and tolerability profile, coverage of drug-resistant bacteria strains, lack of cross-resistance, price, and availability of reimbursement from governmental and other third-party payors.

If approved, epetraborole would compete with Insmed's Arikayce, which is the only currently approved therapy for patients with treatment refractory MAC lung disease. Other drugs used to treat these patients include generic drugs such as macrolides (clarithromycin and azithromycin), ethambutol, rifabutin, and fluoroquinolones such as levofloxacin, bedaquiline, linezolid, and clofazimine. There are also a number of product candidates in clinical development by third parties that are intended to treat NTM lung disease, including mid- to late-stage product candidates such as SPR720 from Spero Therapeutics, Inc., omadacycline from Paratek Pharmaceuticals, Inc., and inhaled clofazimine from Mannkind Corporation. We also expect that epetraborole, if approved, would compete with future and current generic versions of marketed antibiotics.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state, and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, marketing, and export and import of drug products. A new drug must be approved by the FDA through the NDA process before it may be legally marketed in the United States. We, along with any third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval of our product candidates. The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local, and foreign statutes and regulations require the expenditure of substantial time and financial resources.

U.S. Drug Development Process

In the United States, the FDA regulates drugs under the federal Food, Drug, and Cosmetic Act ("FDCA") and its implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state and local statutes and regulations require the expenditure of substantial time and financial resources. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of certain preclinical laboratory tests, animal studies and formulation studies in accordance with Good Laboratory Practice regulations and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board ("IRB"), or ethics committee at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with Good Clinical Practice regulations ("GCPs") to evaluate the safety and efficacy of the product candidate for its intended use;
- submission to the FDA of an NDA after completion of all pivotal trials;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug is produced to assess compliance with current Good Manufacturing Practice requirements ("cGMPs") to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity;

- satisfactory completion of potential inspection of selected clinical investigation sites to assess compliance with GCPs; and
- FDA review and approval of the NDA to permit commercial marketing of the product for particular indications for use in the United States.

Once a product candidate is identified for development, it enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information and analytical data, to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational drug product to humans. An IND will also include a protocol detailing, among other things, the objectives of the clinical trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated, if the trial includes an efficacy evaluation. Some preclinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. Clinical holds also may be imposed by the FDA at any time before or during clinical trials due to safety concerns about on-going or proposed clinical trials or non-compliance with specific FDA requirements, and the trials may not begin or continue until the FDA notifies the sponsor that the hold has been lifted.

All clinical trials must be conducted under the supervision of one or more qualified investigators in accordance with GCPs, which include, among other things, the requirement that all research subjects provide their informed consent in writing for their participation in any clinical trial. Clinical trials must be conducted under protocols detailing the objectives of the trial, dosing procedures, subject selection and exclusion criteria and the safety and effectiveness criteria to be evaluated. Each protocol must be submitted to the FDA as part of the IND, and a separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. While the IND is active, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report, among other information, must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs, findings from animal or in vitro testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator brochure.

Furthermore, an independent IRB at each institution participating in the clinical trial must review and approve each protocol before a clinical trial commences at that institution and must also approve the information regarding the trial and the consent form that must be provided to each trial subject or his or her legal representative, monitor the study until completed and otherwise comply with IRB regulations. The FDA or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients. In addition, some clinical trials are overseen by an independent group of qualified experts organized by the sponsor, known as a data safety monitoring board (DSMB) or committee. Depending on its charter, this group may determine whether a trial may move forward at designated check points based on access to certain data from the trial. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries, including clinicaltrials.gov.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- ***Phase 1:*** The product candidate is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion and, if possible, to gain an early indication of its effectiveness.
- ***Phase 2:*** The product candidate is administered to a limited patient population with a specified disease or condition to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product candidate for specific targeted diseases and to determine dosage tolerance and appropriate dosage.
- ***Phase 3:*** The product candidate is administered to an expanded patient population to further evaluate dosage, to provide substantial evidence of efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk-benefit ratio of the product candidate and provide an adequate basis for product labeling.

Post-approval trials, sometimes referred to as Phase 4 studies, may be conducted after initial regulatory approval. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug and finalize a process for manufacturing the product in commercial quantities in accordance with cGMPs. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final drug. In addition, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Process

The results of product development, preclinical and other non-clinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances.

In addition, the Pediatric Research Equity Act ("PREA"), requires a sponsor to conduct pediatric clinical trials for most drugs, for a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration. Under PREA, original NDAs and certain supplements must contain a pediatric assessment unless the sponsor has received a deferral or waiver. The required assessment must evaluate the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and support dosing and administration for each pediatric subpopulation for which the product is deemed safe and effective. The sponsor or FDA may request a deferral of pediatric clinical trials for some or all of the pediatric subpopulations. A deferral may be granted for several reasons, including a finding that the drug is ready for approval for use in adults before pediatric clinical trials are complete or that additional safety or effectiveness data needs to be collected before the pediatric clinical trials begin. The FDA must send a non-compliance letter to any sponsor that fails to submit the required assessment, keep a deferral current or fails to submit a request for approval of a pediatric formulation.

Once an NDA has been submitted, the FDA conducts a preliminary review of the application within the first 60 days after submission, before accepting it for filing, to determine whether it is sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the NDA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once filed, the FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality and purity. Under the Prescription Drug User Fee Act ("PDUFA"), guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes twelve months from the date the NDA is submitted to FDA because the FDA has approximately two months to make a "filing" decision after it the application is submitted.

The FDA may refer an application for a novel drug to an advisory committee. 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. Before approving an NDA, the FDA will typically inspect the facility or facilities where the product is manufactured. Additionally, before approving an NDA, the FDA may inspect one or more clinical trial sites to assure compliance with GCPs.

After the FDA evaluates an NDA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response Letter ("CRL"). An approval letter authorizes commercial marketing of the drug with prescribing information for specific indications. A CRL indicates that the review cycle of the application is complete, and the application will not be approved in its present form. A CRL usually describes the specific deficiencies in the NDA identified by the FDA and may require additional clinical data, including additional clinical trials, or other significant and time-consuming requirements related to clinical trials, nonclinical studies or manufacturing. If a CRL is issued, the sponsor must resubmit the NDA or, addressing all of the deficiencies identified in the letter, or withdraw the application. Even if such data and information are submitted, the FDA may decide that the NDA does not satisfy the criteria for approval.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. In addition, the FDA may require a sponsor to conduct Phase 4 testing, which refers to clinical trials designed to further assess a drug's safety and/or effectiveness following NDA approval, and may require additional testing and surveillance programs to monitor the safety of approved products which have been commercialized. The FDA may also place other conditions on approval, including the requirement for a risk evaluation and mitigation strategy ("REMS"), to assure the safe use of the drug. If the FDA concludes a REMS is needed, the sponsor of the NDA must submit a proposed REMS, 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 will not approve the NDA without an approved REMS, if required. Any of these limitations on approval or marketing could restrict the commercial promotion, distribution, prescription or dispensing of products.

Expedited Development and Review Programs

The FDA has a number of programs intended to expedite the development or review of a marketing application for an investigational drug. For example, the fast track designation program is intended to expedite or facilitate the process for developing and reviewing product candidates that meet certain criteria. Specifically, investigational drugs are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. The sponsor of a fast track product candidate has opportunities for more frequent interactions with the applicable FDA review team during product development and, once an NDA is submitted, the application may be eligible for priority review. With regard to a fast track product candidate, the FDA may consider for review sections of the NDA 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.

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

Any product candidate submitted to the FDA for approval, including a product candidate with a fast track designation or breakthrough designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review. An NDA is eligible for priority review if the product candidate is designed to treat a serious condition, and if approved, would provide a significant improvement in safety or efficacy compared to available therapies. The FDA will attempt to direct additional resources to the evaluation of an NDA designated for priority review in an effort to facilitate the review. The FDA endeavors to review applications with priority review designations within six months of the filing date as compared to ten months for review of new molecular entity NDAs under its current PDUFA review goals.

In addition, depending on the design of the applicable clinical trials, a product candidate may be eligible for accelerated approval. Specifically, drugs intended to treat serious or life-threatening diseases or conditions may be eligible for accelerated approval upon a determination that the product candidate 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 generally requires that a sponsor of a drug receiving accelerated approval perform adequate and well-controlled confirmatory clinical trials, and may require that such confirmatory trials be underway prior to granting accelerated approval. Drugs receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required confirmatory trials in a timely manner or if such trials fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition of accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

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

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States or, if it affects more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and making a drug product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA. After the FDA grants orphan designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan designation does not convey any advantage in or shorten the duration of the regulatory review and approval process.

If a product that has orphan designation subsequently receives the first FDA approval for the disease or condition 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 to market the same drug for the same disease or condition for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity or inability to manufacture the product in sufficient quantities. The designation of such drug also entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. However, competitors, may receive approval of different products for the disease or condition for which the orphan product has exclusivity or obtain approval for the same product but for a different disease or condition for which the orphan product has exclusivity. Orphan exclusivity also could block the approval of a competing product for seven years if a competitor obtains approval of the “same drug,” as defined by the FDA, or if the active moiety of the product candidate is determined to be contained within the competitor’s product for the same disease or condition. In addition, if an orphan designated product receives regulatory approval for a disease or condition broader than what is designated, it may not be entitled to orphan exclusivity.

Post-approval Requirements

Any products manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications, certain manufacturing changes and additional labeling claims, are subject to further FDA review and approval.

Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMPs and other laws and regulations. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of requirements for 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 untitled letters;
- clinical holds on ongoing or planned clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

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

Marketing Exclusivity

Regulatory exclusivity provisions under the FDCA can delay the submission or the approval of certain marketing applications. The FDCA provides a five-year period of non-patent data exclusivity within the United States to the first applicant to obtain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not accept for review an abbreviated new drug application ("ANDA"), or an NDA submitted under Section 505(b)(2) ("505(b)(2) NDA") submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder.

The FDCA alternatively provides three years of non-patent exclusivity for an NDA, or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from approving ANDAs or 505(b)(2) NDAs for drugs containing the active agent for the original indication or condition of use. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct, or obtain a right of reference to, all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Pediatric exclusivity is another type of marketing exclusivity available in the United States. Pediatric exclusivity provides for an additional six months of marketing exclusivity attached to another period of existing exclusivity or an available patent term if a sponsor conducts clinical trials in children in response to a "written request" from the FDA. The issuance of a written request does not require the sponsor to undertake the described clinical trials, and the FDA's grant of pediatric exclusivity does not require the FDA to approve labeling containing information on pediatric use based on the studies conducted.

Additionally, under the Generating Antibiotics Incentives Now ("GAIN") Act, the FDA may designate a product as a "qualified infectious disease product," or QIDP. In order to receive this designation, a drug must qualify as an antibacterial or antifungal drug for human use intended to treat serious or life-threatening infections, including those caused by either (1) an antibacterial or antifungal resistant pathogen, including novel or emerging infectious pathogens, or (2) a so-called "qualifying pathogen" found on a list of potentially dangerous, drug-resistant organisms established and maintained by the FDA under the law. The FDA interprets QIDP designation to apply to a specific drug product, including a specific dosage form of the product. A sponsor must request such designation before submitting a marketing application, and the FDA will respond to a request for QIDP designation within 60 days of the date the FDA receives the request. The GAIN Act permits the FDA to revoke a QIDP designation only if the request for such designation contained an untrue statement of material fact.

The benefits of QIDP designation include potential eligibility for priority review and Fast Track designation, and an extension by an additional five years of any non-patent regulatory exclusivity period awarded, such as a five-year exclusivity period awarded for a new molecular entity. This extension is in addition to any pediatric exclusivity extension awarded, and the extension will be awarded only to a drug first approved on or after the date of enactment of the GAIN Act. The GAIN Act prohibits the grant of an exclusivity extension where the application is a supplement to an application for which an extension is in effect or has expired, is a subsequent application for a specified change to an approved product, or is an application for a product that does not meet the definition of QIDP based on the uses for which it is ultimately approved.

Tropical Disease Priority Review Voucher Program

In 2007, Congress authorized the FDA to award priority review vouchers ("PRVs"), to sponsors of certain tropical disease product applications. The FDA's Tropical Disease Priority Review Voucher Program is designed to encourage development of new drug and biological products for the prevention and treatment of certain tropical diseases affecting millions of people throughout the world. Under this program, a sponsor who receives an approval for a drug or biologic for the prevention or treatment a tropical disease that meets certain criteria may qualify for a PRV that can be redeemed to receive priority review of a subsequent NDA or Biologics License Application ("BLA"), for a different product. The sponsor of a tropical disease drug product receiving a priority review voucher may transfer (including by sale) the voucher to another sponsor of an NDA or BLA. The FDCA does not limit the number of times a priority review voucher may be transferred before the voucher is used.

For a product to qualify for a PRV, (i) the sponsor must request approval of the product for the prevention or treatment of a "tropical disease" listed in Section 524 of the FDCA, (ii) the product must otherwise qualify for priority review, and (iii) the product must contain no active ingredient (including any salt or ester of an active ingredient) that has been approved by the FDA in any other NDA or BLA. The Food and Drug Administration Reauthorization Act of 2017 made further changes to the eligibility criteria for receipt of a tropical disease PRV under this program. Specifically, applications submitted after September 30, 2017 must also contain reports of one or more new clinical investigations (other than bioavailability studies) that were essential to the approval of the application and conducted or sponsored by the sponsor. In addition, the applicant must attest that such report(s) were not submitted as part of an application for regulatory approval or licensure by a regulatory authority in India, Brazil, Thailand and certain other countries prior to September 27, 2007.

Other Healthcare Laws

In the United States, we are subject to a number of federal and state healthcare regulatory laws that restrict business practices in the healthcare industry. These laws include, but are not limited to, federal and state anti-kickback, false claims, and other healthcare fraud and abuse laws, as follows:

The U.S. federal Anti-Kickback Statute prohibits, among other things, any person or entity from knowingly and willfully offering, paying, soliciting, receiving, or providing any remuneration, directly or indirectly, overtly or covertly, to induce or in return for purchasing, leasing, ordering, or arranging for, or recommending the purchase, lease, or order of any good, facility, item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federal healthcare programs. 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 federal false claims, including the civil False Claims Act, prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, a false, fictitious or fraudulent claim for payment to, or approval by, the federal government, knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government, or knowingly making a false statement to avoid, decrease, or conceal an obligation to pay money to the U.S. federal government. A claim includes “any request or demand” for money or property presented to the U.S. government. Actions under the civil False Claims Act may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Moreover, a claim including items or services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act.

In addition, the civil monetary penalties statute, subject to certain exceptions, prohibits, among other things, the offer or transfer of remuneration, including waivers of copayments and deductible amounts (or any part thereof), to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary’s selection of a particular provider, practitioner or supplier of services reimbursable by Medicare or a state healthcare program.

The Health Insurance Portability and Accountability Act (“HIPAA”) created additional federal criminal statutes that prohibit, among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent 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.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (“HITECH”), and their respective implementing regulations, which impose obligations on “covered entities,” including certain healthcare providers, health plans, and healthcare clearinghouses, as well as their respective “business associates” and their respective subcontractors that create, receive, maintain, or transmit individually identifiable health information for or on behalf of a covered entity, with respect to safeguarding the privacy, security, and transmission of individually identifiable health information.

The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics, and medical supplies for which payment is available under Medicare, Medicaid, or the Children’s Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services (“CMMS”), information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists, and chiropractors), certain other healthcare professionals including physician assistants and nurse practitioners, and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMMS ownership and investment interests held by physicians and their immediate family members.

Similar state and local laws and regulations may also restrict business practices in the pharmaceutical industry, such as state anti-kickback and false claims laws, which may apply to business practices, including but not limited to, research, distribution, sales, and marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, or by patients themselves; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws and regulations that require drug manufacturers to file reports relating to pricing information and marketing expenditures or which require tracking gifts and other remuneration and items of value provided to physicians, other healthcare providers and entities; and state and local laws that require the registration of pharmaceutical sales representatives.

Violations of any of these laws and other applicable healthcare fraud and abuse laws may be punishable by criminal and civil sanctions, including fines and civil monetary penalties, the possibility of exclusion from federal healthcare programs (including Medicare and Medicaid), disgorgement and corporate integrity agreements, which impose, among other things, rigorous operational and monitoring requirements on companies. Similar sanctions and penalties, as well as imprisonment, also can be imposed upon executive officers and employees of such companies.

Coverage and Reimbursement

Sales of any pharmaceutical 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. In the United States, no uniform policy exists for coverage and reimbursement for pharmaceutical products among third-party payors. Therefore, decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. The process for determining whether a third-party payor will provide coverage for a product typically is separate from the process for setting the price of such product or for establishing the reimbursement rate that the payor will pay for the product once coverage is approved.

Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the FDA-approved products for a particular indication, or place products at certain formulary levels that result in lower reimbursement levels and higher cost-sharing obligation imposed on patients. One third-party payor's decision to cover a particular medical product or service does not ensure that other payors will also provide coverage for the medical product or service and the level of coverage and reimbursement can differ significantly from payor to payor. As a result, the coverage determination process will often require us to provide scientific and clinical support for the use of our products to each payor separately and can be a time-consuming process, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Additionally, a third-party payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved.

Moreover, as a condition of participating in, and having products covered under, certain federal healthcare programs, such as Medicare and Medicaid, we are subject to federal laws and regulations that require pharmaceutical manufacturers to calculate and report certain price reporting metrics to the government, such as Medicaid Average Manufacturer Price ("AMP"), and Best Price, Medicare Average Sales Price, the 340B Ceiling Price, and Non-Federal AMP reported to the Department of Veteran Affairs, and with respect to Medicaid, pay statutory rebates on utilization of manufacturers' products by Medicaid beneficiaries. Compliance with such laws and regulations require significant resources and any findings of non-compliance may have a material adverse effect on our revenues.

Healthcare Reform

In the United States and certain foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system. In the United States, by way of example, in March 2010, the Affordable Care Act ("ACA") was signed into law, 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 ACA, among other things, increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs; required collection of rebates for drugs paid by Medicaid managed care organizations; required manufacturers to participate in a coverage gap discount program, under which they must agree to offer point-of-sale discounts (increased to 70 percent, effective as of January 1, 2019) 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; imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell certain "branded prescription drugs" to specified federal government programs; implemented 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 expanded the types of entities eligible for the 340B drug discount program; expanded eligibility criteria for Medicaid programs; created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and established a Center for Medicare and Medicaid Innovation at CMMS 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, administrative, executive, and Congressional legislative challenges to certain aspects of the ACA. For example, on June 17, 2021 the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Thus, the ACA will remain in effect in its current form.

Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers, which was temporarily suspended from May 1, 2020 through March 31, 2022, and reduced payments to several types of Medicare providers. In addition, the American Taxpayer Relief Act of 2021, effective January 1, 2024, eliminated the statutory cap on rebate amounts owed by drug manufacturers under the Medicaid Drug Rebate Program("MDRP"), which was previously capped at 100% of the AMP for a covered outpatient drug. Further, based on a recent executive order, the Biden administration expressed its intent to pursue certain policy initiatives to reduce drug prices.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted legislation designed, among other things, to bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for pharmaceutical products. Most significantly, in August 2022, the Inflation Reduction Act of 2022 (IRA) was signed into law. Among other things, the IRA requires manufacturers of certain drugs to engage in price negotiations with Medicare (beginning in 2026), with prices that can be negotiated subject to a cap; imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation (first due in 2023); and replaces the Part D coverage gap discount program with a new discounting program (beginning in 2025). The IRA permits the Secretary of the Department of Health and Human Services (HHS) to implement many of these provisions through guidance, as opposed to regulation, for the initial years. On August 29, 2023, HHS announced the list of the first ten drugs that will be subject to price negotiations. HHS has issued and will continue to issue guidance implementing the IRA, although the Medicare drug price negotiation program is currently subject to legal challenges. While the impact of the IRA on our business and the pharmaceutical industry cannot yet be fully determined, it is likely to be significant.

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, mechanisms to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine which drugs and suppliers will be included in their healthcare programs. Furthermore, there has been increased interest by third-party payors and governmental authorities in reference pricing systems and publication of discounts and list prices.

We expect additional state and federal healthcare reform measures to be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our products or additional pricing pressure.

Data Privacy and Security Laws

As a pharmaceutical company, we are subject to state, federal and foreign laws, including consumer protection laws and regulations, governing the collection, dissemination, use, access to, confidentiality, and security of personal information, including health-related information. For example, in the United States, numerous federal and state laws and regulations, including data breach notification laws, health information privacy and security laws (e.g., the Health Insurance Portability and Accountability Act ("HIPAA")), and federal and state consumer protection laws and regulations (e.g., Section 5 of the Federal Trade Commission Act) that govern the collection, dissemination, use, protection and other processing of health-related and other personal information currently or could in the future apply to our operations or the operations of our partners. In addition, certain state and non-U.S. laws, such as the California Consumer Privacy Act ("CCPA"), and the General Data Protection Regulation ("GDPR"), govern the privacy and security of personal information, including health-related information in certain circumstances, some of which are more stringent than HIPAA and many of which differ from each other in significant ways, thus complicating compliance efforts. Failure to comply with data privacy and security 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, can conflict with each other to make compliance efforts more challenging, and can result in investigations, proceedings, or actions that lead to significant penalties and restrictions on data processing.

Japanese Drug Regulation

Being a member of the ICH, Japan has pharmaceutical regulations fundamentally similar to those of the United States and the EU. Clinical trials of medicinal products in Japan must be conducted in accordance with Japanese regulations based on ICH guidelines governing GCP. If the sponsor of the clinical trial is not established within Japan, it must appoint an entity within the country to act as its caretaker who should be authorized to act on the sponsor's behalf. The sponsor must take out a clinical trial insurance policy, and, according to the industry agreement, should put in place a common compensation policy for the injuries from the trial. Prior to the commencement of human clinical studies, the sponsor must complete an evaluation of the safety of the investigative product and submit a clinical trial notification and clinical trial protocol to the authorities in advance, upon agreement of the IRB of the participating institutions. When the authorities do not comment on the notification, the sponsor may proceed with the clinical trial. Any substantial changes to the trial protocol or other information submitted must be cleared by the IRB and notified to the authorities. Medicines used in clinical trials must be manufactured in accordance with GMP.

To market a medicinal product in Japan, we must obtain regulatory approval. To obtain regulatory approval of an investigational medicinal product, we must submit a new drug application. If the product is designed for treating certain "difficult diseases" or those whose patient size is limited, we may be able to obtain designation as an orphan drug product if it demonstrates unique therapeutic value. Separately, the latest amendment to the law introduced separate pathways for (i) truly innovative products with a unique mode of action and (ii) those which will satisfy unmet medical needs.

The evaluation of new drug applications is based on an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety, and efficacy. Once the review organization completes its review, the matter is considered by the advisory committee of experts, and the government grants approval upon positive recommendation from the committee.

The volume and quality of the clinical data are key determinants of the approval decision. Clinical trial data generated overseas is accepted as part of the data package consistent with the ICH recommendation. Typically, a limited dose response clinical trial for Japanese subjects is required to ensure that data are extrapolatable for the Japanese population.

Separate from the approval requirement, it is also mandatory to possess a distribution license of an appropriate class for the manufacturer to commercially distribute the product in Japan. Non-Japanese companies who possess only the product approval may designate an appropriate license holder in Japan to commercially distribute the product, rather than distributing it on its own. The license is valid for five years.

Employees and Human Capital Resources

As of February 29, 2024, we had 41 full-time employees, consisting of clinical operations, clinical development, research, manufacturing, regulatory, quality, finance, and operational personnel. None of our employees are subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

We recognize that our continued ability to attract, retain and motivate exceptional employees is vital to ensuring our long-term competitive advantage. Our employees are critical to our long-term success and are essential to helping us meet our goals. Among other things, we support and incentivize our employees in the following ways:

- ***Talent development, compensation and retention:*** We strive to provide our employees with a rewarding work environment, including the opportunity for growth, success and professional development. We provide a competitive compensation and benefits package, including bonus and equity incentive plans and a 401(k) plan—all designed to attract and retain a skilled and diverse workforce.
- ***Health and safety:*** We support the health and safety of our employees by providing comprehensive insurance benefits, an employee assistance program, company-paid holidays, a personal time-off program and other additional benefits which are intended to assist employees to manage their well-being.
- ***Inclusion and diversity:*** We are committed to efforts to foster an inclusive work environment that supports our workforce.

Corporate Information

We incorporated in Delaware on February 24, 2017 and launched operations in November 2019. We completed the initial public offering (the "IPO") of our common stock in March 2022, and our common stock is listed on the Nasdaq Global Select Market under the symbol "ANTX." Our principal executive offices are located at 1800 El Camino Real, Suite D, Menlo Park, California, 94027, and our telephone number is (650) 331-9090.

Securities Exchange Act Reports

The Company maintains a website at the following address: https:// www.an2therapeutics.com/. The information on the Company's website is not incorporated by reference in this Annual Report on Form 10-K.

We make available on or through our website reports and amendments to those reports that we file with or furnish to the SEC in accordance with the Securities Exchange Act of 1934, as amended. These include our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K and amendments to these reports. We make this information available on our website free of charge as soon as reasonably practicable after we electronically file the information available with, or furnish it to, the SEC. The SEC also maintains a website at the following address, through which this information is available: http://www.sec.gov.

Item 1A. Risk Factors.

Investing in our common stock involves a high degree of risk. Before you invest in our common stock, you should carefully consider the risks described below together with all of the other information contained in this Annual Report, including our financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations." The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. Unless otherwise indicated, references in these risk factors to our business being harmed will include harm to our business, reputation, financial condition, results of operations, and prospects. In such an event, the market price of our common stock could decline, and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risk Factors Summary

Investing in shares of our common stock involves a high degree of risk because our business is subject to numerous risks and uncertainties, as fully described below. The principal factors and uncertainties that make investing in shares of our common stock risky include, among others:

- 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. We expect to incur losses over the next several years and may never achieve or maintain profitability.
- We require substantial additional funding to meet our financial needs and to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce, or altogether cease our current and future product development programs or future commercialization efforts.
- We depend to a large degree on the success of epetraborole. If we do not obtain regulatory approval for and successfully commercialize epetraborole or any of our other product candidates, or if we experience significant delays in doing so, we may never become profitable.
- If clinical trials of epetraborole or any other product candidate that we may advance to clinical trials fail to demonstrate safety, tolerability and/or efficacy to the satisfaction of the U.S. Food and Drug Administration ("FDA"), Japan's Pharmaceuticals and Medical Devices Agency ("PMDA") or other comparable regulatory authorities, or do not otherwise produce favorable results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of epetraborole or any other product candidate.
- The data we have collected and continue to collect in our Phase 1 programs, from our Phase 2/3 clinical trial, and from future trials in NTM, may not support continued clinical investigation due to insufficient clinical or microbiological responses or occurrence of adverse safety events or may lead to adjustments in trial design, rendering it not feasible to conduct or not acceptable to the FDA or to us.
- If we experience further delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.
- We rely on single-sourced third parties to conduct the preclinical and nonclinical studies, clinical trials and manufacture of our clinical trial material for epetraborole and our other product candidates, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such studies, trials and manufacturing services or failing to comply with applicable regulatory requirements.
- Even if epetraborole or any of our other product candidates receives regulatory approval, they may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success. If we are unable to establish sales, marketing and distribution capabilities for epetraborole or our other product candidates, or enter into sales, marketing and distribution agreements with third parties, we may not be successful in commercializing our product candidates, if and when they are approved.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.
- We operate with a small team and our future success depends on our ability to retain key executives and to attract, retain, and motivate qualified personnel.

- We have identified material weaknesses in our internal control over financial reporting. If we are unable to remediate these material weaknesses, or if we identify additional material weaknesses in the future or otherwise fail to maintain effective internal control over financial reporting, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business.
- Our rights to develop and commercialize our technology, epetraborole and our other product candidates are subject, in large part, to the terms and conditions of licenses granted to us by others, including Anacor. If we fail to comply with our obligations in the agreements under which we in-license or acquire development or commercialization rights to products, technology or data from third parties, we could lose such rights that are important to our business.
- If we are unable to obtain and maintain patent and other intellectual property protection for our technology, or for epetraborole or our other product candidates, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and product candidates may be impaired.
- If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize epetraborole or our other product candidates, and our ability to generate revenue will be materially impaired.
- Future legislation, and/or regulations and policies adopted by the FDA, the PMDA or comparable regulatory authorities, may increase the time and cost required for us to conduct and complete clinical trials of epetraborole or other product candidates.
- The trading price of our common stock may be volatile.

Risks Related to Our Financial Position and Capital Needs

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. We expect to incur losses over the next several years and may never achieve or maintain profitability.

Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We are a clinical-stage biopharmaceutical company with a limited operating history upon which you can evaluate our business and prospects. We currently have no products approved for commercial sale, have not generated any revenue from the sale of products and have incurred losses in each year since our inception in 2017. In addition, we have limited experience as a company 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. Our initial product candidate, epetraborole, is currently in clinical development. Our net loss was $64.7 million and $41.0 million for the year ended December 31, 2023 and 2022, respectively. As of December 31, 2023, we had an accumulated deficit of $154.5 million. We have funded our operations to date primarily with proceeds from our underwritten offering (the "Underwritten Offering), our “at-the-market” equity offering program (“ATM Offering”), our IPO and the sale of our redeemable convertible preferred stock. We have devoted substantially all of our financial resources and efforts to research and development, including preclinical and nonclinical studies, manufacturing, clinical trials and general and administrative costs associated with our operations. We expect to continue to incur significant expenses and operating losses over the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year.

We anticipate that our expenses will increase substantially as we:

- continue our ongoing and planned preclinical, nonclinical and clinical development of epetraborole and our other product candidates;
- initiate preclinical and nonclinical studies and clinical trials for product candidates that we may pursue in the future;
- seek to discover and develop future product candidates;
- seek regulatory approvals for epetraborole and any of our other product candidates that successfully complete clinical trials;

- ultimately establish sales, marketing and distribution infrastructure and scale up external manufacturing capabilities as we move into later-stage clinical trials for epetraborole and look to commercialize any product candidate for which we may obtain regulatory approval and intend to commercialize on our own;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, scientific, chemistry, manufacturing and controls personnel;
- add operational, financial, management and compliance information systems and personnel, including personnel to support our product development and any future commercialization efforts; and
- incur legal, accounting, information systems and other expenses associated with operating as a public company.

To become and remain profitable, we must succeed in developing and eventually commercializing drugs that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical and nonclinical studies and clinical trials of epetraborole and any other product candidates, obtaining regulatory approval, manufacturing, marketing and selling any products for which we may obtain regulatory approval, as well as discovering and developing additional product candidates. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability.

Because of the numerous risks and uncertainties associated with drug development, we are unable to accurately predict the timing or amount of expenses or when, or if, we will be able to achieve profitability. If we are required by regulatory authorities to perform studies in addition to those currently expected, or if there are further delays in the initiation and completion of our clinical trials or the development of epetraborole and any of our other product candidates, our expenses could increase.

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

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

We commenced active operations in November 2019, and our operations to date have been largely focused on raising capital, developing epetraborole, broadening our expertise in the development of epetraborole, undertaking preclinical and nonclinical studies, manufacturing clinical trial material, preparing for and initiating clinical trials, and general and administrative operations. As a company, we have not yet demonstrated an ability to successfully complete pivotal clinical trials, obtain regulatory approvals, manufacture a commercial product or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history.

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

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

We require substantial additional funding to meet our financial needs and to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce or altogether cease our current and future product development programs or future commercialization efforts.

We believe that our existing cash, cash equivalents and investments will enable us to fund our operating expenses and capital expenditure requirements for at least the next 12 months. However, we will need to obtain substantial additional funding in connection with our continuing operations and planned activities. Our future capital requirements will depend on many factors, including:

- the timing, progress and results of our ongoing and future clinical trials of epetraborole and our other product candidates;
- the costs, timing and outcome of regulatory review of epetraborole and any of our other product candidates that may complete clinical development;
- the scope, progress, results and costs of identifying, obtaining and conducting preclinical development, laboratory testing and clinical trials of future product candidates that we may pursue;
- the cost and timetable of manufacturing processes for development, clinical trials and potential commercial use;
- the number and development requirements of future product candidates that we may pursue;
- the amount of funding that we receive under our non-dilutive funding opportunities, including government awards that we may apply for;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for epetraborole and any other product candidates that receive regulatory approval, if any;
- the pricing and revenue, if any, received from commercial sales of epetraborole or any other product candidates that receive regulatory approval;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights, and defending any intellectual property-related claims;
- the costs of operating as a public company; and
- the extent to which we acquire or in-license other product candidates and technologies.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. In addition, epetraborole and any of our other product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of drugs that we do not expect to be commercially available for several years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or altogether cease our research and development programs or any future commercialization efforts.

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

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

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

We have a contractual commitment to develop epetraborole for global health initiatives, which may affect our ability to develop and commercialize epetraborole in certain countries and may impact our intellectual property rights. Our strategy for our global health initiatives depends on receiving non-dilutive funding, and we as a company have limited experience with this strategy.

Under our Global Health Agreement with Adjuvant, we have a contractual commitment to use reasonably diligent endeavors to develop epetraborole and any other mutually agreed-upon products for melioidosis, tuberculosis and other indications for at-risk developing countries at accessible pricing and at reasonable volume, including selling epetraborole and any other mutually agreed-upon products in certain target countries at or slightly above the cost of sales, so long as we do not sell products at a loss. Under the Global Health Agreement, we made certain commitments to develop epetraborole and any other mutually agreed-upon products and to pursue regulatory strategies and product registrations. If we do not maintain compliance with these and other program-related global access commitments under the Global Health Agreement, Adjuvant may be entitled to repayment for any portion of its investment that is not used for the purposes outlined in the Global Health Agreement. Our obligations under the Global Health Agreement may affect our ability to commercialize epetraborole in certain countries.

Our strategy for developing epetraborole for global health initiatives depends on receiving non-dilutive funding from sources such as public and private agencies and foundations. In September 2022, we received a cost-reimbursement contract award under which we are able to receive up to $17.8 million from the NIAID to support preclinical, Phase 1 studies and other activities to enable advancement of epetraborole into late-stage development for acute systemic melioidosis and other biothreat pathogens. In addition, in September 2023, we entered into two cost-reimbursement contract awards with the University of Georgia Research Foundation (“UGARF”) and the Bill and Melinda Gates Foundation (“BMGF”) for the development of boron-containing small molecules for Chagas disease, and tuberculosis and malaria, respectively. We, as a company, have limited experience with non-dilutive funding, and we may not be able to obtain additional non-dilutive funding to support our needs to fund our global health initiatives. For example, we cannot be certain that there will be additional awards, contracts, grants or funding sources or solicitations available to support our development efforts, that our other grant applications and funding proposals will be successful, or that we will be able to continue satisfying the award criteria of the NIAID contract award or any grants or funding awarded to us. If we fail to receive additional non-dilutive funding, progress in our global health initiatives may be impaired or delayed.

Risks Related to the Development of Our Current and Future Product Candidates

We depend to a large degree on the success of epetraborole, which is in clinical development, and for which we recently paused enrollment in the Phase 3 part of the Phase 2/3 study of treatment-refractory MAC lung disease. If we do not obtain regulatory approval for and successfully commercialize epetraborole or any of our other product candidates, or if we experience significant delays in doing so, we may never become profitable.

We currently have no products approved for sale and have invested a significant portion of our efforts and financial resources on the development of our initial product candidate, epetraborole, as a treatment for NTM lung disease caused by MAC bacteria. We expect that a substantial portion of our efforts and expenses over the next few years will be devoted to the development of epetraborole. As a result, our business currently depends heavily on the successful development, regulatory approval, and, if approved, commercialization of epetraborole or any of our other product candidates. We cannot be certain that any product candidate will receive regulatory approval or will be successfully commercialized even if it receives regulatory approval. The research, development, manufacturing, safety, efficacy, labeling, approval, sale, marketing and distribution of epetraborole or any of our other product candidates are, and will remain, subject to comprehensive regulation by the FDA, the PMDA and other comparable foreign regulatory authorities. Before obtaining regulatory approvals for the commercial sale of epetraborole and any other product candidates, we must demonstrate through preclinical and nonclinical studies and clinical trials that the product candidate is safe and effective for use in each target indication. Drug development is a long, expensive and uncertain process, and delay or failure can occur at any stage during our nonclinical studies, clinical trials or drug product manufacturing process. These delays or failures could be caused by a variety of factors, including but not limited to, toxicity, safety, tolerability, efficacy, problems with clinical trial enrollment, drug product availability, stability, and impurity issues related to drug product manufacturing. For example, in February 2024, we voluntarily paused enrollment of the Phase 3 portion of our ongoing Phase 2/3 clinical trial evaluating epetraborole in patients with treatment-refractory MAC lung disease after a blinded aggregate analysis of data from the Phase 2 portion of the trial suggested lower-than-anticipated efficacy results. There is no guarantee that we will be able to successfully resume enrollment and complete the study in the manner or on the timing that we expect. Even if we are able to complete our Phase 2/3 study, there is no guarantee that the study data will be sufficient to support an application seeking regulatory approval of epetraborole in treatment-refractory MAC lung disease.

Failure to obtain regulatory approval for epetraborole and our other product candidates in the United States or other territories will prevent us from commercializing and marketing such product candidates. The success of epetraborole and our other product candidates will depend on several additional factors, including:

- successful and timely completion of preclinical and nonclinical studies and requisite clinical trials;
- performing preclinical studies and clinical trials in compliance with the FDA, the PMDA or any comparable regulatory authority requirements;
- receipt of regulatory approvals from applicable regulatory authorities;
- the ability to manufacture sufficient quantity of product for development, clinical trials or potential commercialization;
- obtaining regulatory approvals with labeling for sufficiently broad patient populations and indications, without unduly restrictive distribution limitations or safety warnings, such as black box warnings or a Risk Evaluation and Mitigation Strategies (“REMS”) program;
- obtaining and maintaining patent, trademark and trade secret protection, and regulatory exclusivity for epetraborole and any other product candidates;
- making and retaining sufficient and reliable arrangements with third parties for manufacturing capabilities;
- launching commercial sales of products, if and when approved;
- acceptance of our therapies, if and when approved, by physicians, patients and third-party payors;
- competing effectively with other therapies;
- obtaining and maintaining healthcare coverage and adequate reimbursement from third-party payors;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trademarks, trade secrets and know-how;
- avoiding and defending against third-party infringement, misappropriation or other violation of intellectual property claims;

- maintaining a continued acceptable safety and tolerability profile of our drugs following approval; and
- allowance to proceed with clinical trials under future investigational new drug applications ("INDs"), or under comparable applications submitted outside the United States.

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

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

A key element of our strategy is to develop our AN2 drug discovery platform, build a pipeline of product candidates and progress these product candidates through clinical development for the treatment of serious infections (including different forms of NTM lung disease). We may not be able to develop product candidates that are safe and effective for any proposed use. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify may not be suitable for clinical development, as a result of significant safety, tolerability and other negative characteristics or limitations that may prevent successful regulatory approval or limit market acceptance or reimbursements from third-party payors. If we do not successfully develop and commercialize epetraborole and/or any other product candidates, we will not be able to obtain product revenue in future periods, which could significantly harm our financial position and adversely affect the trading price of our common stock.

Success in preclinical or nonclinical studies or initial clinical trials may not be indicative of results in future clinical trials. To support our clinical development strategy for epetraborole, we are relying, in part, on clinical data from prior clinical trials conducted by Anacor and GlaxoSmithKline plc which were not conducted in patients with NTM. Differences with these prior clinical trials evaluating epetraborole will limit our use of prior clinical data for epetraborole and our ability to support our clinical trial plan for epetraborole with the FDA, PMDA and other comparable foreign regulatory authorities.

Success in preclinical or nonclinical studies or initial clinical trials does not ensure that later clinical trials will generate the same results or otherwise provide adequate data to demonstrate the safety, tolerability, and efficacy of a product candidate. For example, certain prior clinical trials of epetraborole were not conducted in patients with NTM lung disease nor were they conducted over durations greater than 14 days, shorter than the typical treatment of patients with NTM lung disease. Epetraborole and our other product candidates may fail to show the desired safety, tolerability, and efficacy in clinical development despite promising results in preclinical studies or having successfully advanced through initial clinical trials in healthy volunteers. For instance, with respect to epetraborole, we cannot guarantee that the dose used in our ongoing clinical trial will be safe, tolerable, or effective. We cannot guarantee that the dose selected will be successful in our ongoing clinical trial in patients with treatment-refractory MAC lung disease. The ongoing clinical trial is the first evaluation of epetraborole in patients with MAC lung disease and specifically in treatment-refractory patients. In February 2024, we voluntarily paused enrollment of the Phase 3 portion of our ongoing Phase 2/3 clinical trial after a blinded aggregate analysis of data from the Phase 2 portion suggested lower-than-anticipated efficacy results. There is no guarantee that we will be able to successfully resume enrollment and complete the study in the manner or on the timing that we expect. Even if we are able to complete our Phase 2/3 study, there is no guarantee that the study will produce results sufficient to demonstrate the safety or efficacy of epetraborole to the satisfaction of the FDA, PMDA or other regulatory authorities.

In addition, safety, tolerability and pharmacokinetic observations of epetraborole, used as monotherapy, in previous clinical trials conducted by Anacor and GSK, including penetration into alveolar (lung) macrophages and the long-term effects on red blood cell-related hematological parameters, such as hemoglobin and reticulocytes, may not be predictive of safety or efficacy results in our ongoing clinical trial. There are significant differences in the epetraborole Phase 1 clinical trial conducted by Anacor and the five Phase 1 clinical trials and two Phase 2 clinical trials conducted by GSK compared to the clinical trial design of our ongoing clinical trial. Other differences with these prior clinical trials, including differences in patient population, targeted indication, drug product formulation, duration of dosing and trial design, will limit our use of prior clinical data for epetraborole and our ability to support our clinical trial plan for epetraborole with the FDA, PMDA and other comparable foreign regulatory authorities.

There can be no assurance that the clinical trials we conduct will be sufficient for product approval.

Prior to marketing any product candidate in the United States, including epetraborole, we must demonstrate that such product candidate is safe and provide substantial evidence of effectiveness for its intended uses. The FDA has generally interpreted the "substantial evidence" requirements as requiring sponsors to conduct two adequate and well-controlled Phase 3 clinical trials. However, in some circumstances, the FDA may conclude that substantial evidence of efficacy has been demonstrated through the conduct of one adequate and well-controlled clinical trial, plus confirmatory evidence (whether obtained prior to or after such trial). We plan to rely on a single pivotal clinical trial to support approval of epetraborole in treatment-refractory MAC lung disease, but there can be no assurance that the FDA will not require additional clinical trials for approval of epetraborole beyond the trials that we currently plan to conduct, even if we successfully complete the trial and believe the results are sufficiently positive.

The data we have collected and continue to collect in our Phase 1 programs, and from our ongoing Phase 2/3 clinical trial, may not support continued clinical investigation due to insufficient clinical or microbiological responses or occurrence of adverse safety events or may lead to adjustments in trial design, rendering it not feasible to conduct or not acceptable to the FDA or to us, including adjustments to clinical trial endpoints and sample size. For example, we recently voluntarily paused enrollment in the Phase 3 portion of our ongoing Phase 2/3 clinical trial evaluating epetraborole in patients with treatment-refractory MAC lung disease after a blinded aggregate analysis data from the Phase 2 portion of the trial suggested potentially lower-than-anticipated efficacy results. There is no guarantee that we will be able to successfully resume enrollment and complete the study in the manner or on the timing that we expect. Even if we are able to complete our Phase 2/3 study, there is no guarantee that the study data will be sufficient to support an application seeking regulatory approval of epetraborole in treatment-refractory MAC lung disease.

The FDA can recommend study design element changes at any time, including, for example, change of endpoints, eligibility criteria, or statistical analyses. For example, Arikayce was approved based on the primary endpoint of microbiological culture conversion, whereas we may be required to demonstrate efficacy based on clinical response endpoints. Specifically, based on the feedback we have received from the FDA, our ongoing Phase 2/3 trial includes a novel patient-reported outcome measure ("PRO"), as a primary endpoint to assess certain changes in patient symptoms. However, to our knowledge, no treatment for NTM lung disease has been approved by the FDA on the basis of improvements demonstrated through a PRO endpoint. In addition, we remain in ongoing discussions with the FDA regarding the design of our novel PRO, and any changes to the PRO that we may make create the risk that patients enrolled prior to implementing such changes will have completed treatment or will otherwise not be able to be assessed using the modified PRO. In such an event, we may be required to gather additional clinical data before we are able to seek approval of epetraborole, if ever. Even if we believe we have reached alignment with the FDA regarding the design of our Phase 2/3 trial, including our novel PRO endpoint, there is no guarantee that the data from such trial will be sufficient to support approval.

As a company, we have limited experience designing NTM clinical trials and have no prior experience conducting clinical trials in the United States or other geographies and may be unable to design and execute a clinical trial to support regulatory approval. In addition, the design and results of our clinical trials may not be sufficient to support approval, since factors such as an inappropriate dosage or flaws in the design of a clinical trial may not become apparent until the clinical trial is in progress or data are available.

There is a high failure rate for drug and biologic products proceeding through clinical trials. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in later-stage clinical trials even after achieving promising results in preclinical testing and earlier-stage clinical trials. For example, a Phase 2 clinical trial conducted by GSK to evaluate epetraborole in patients with complicated urinary tract infections was terminated early due to microbiological findings of resistance to epetraborole, which caused GSK to discontinue its epetraborole development program. In addition, data obtained from preclinical and clinical activities are subject to varying interpretations, which may delay, limit, or prevent regulatory approval. Furthermore, the dosing duration for administering epetraborole in humans has been limited to a maximum of 28 days in previous clinical trials. The study drug dosing duration in our Phase 2/3 clinical trial is up to 16 months total. The longer dosing duration in our clinical trial, as well as the use of epetraborole in patients with NTM lung disease, may increase the risk of hematological abnormalities or the potential for the emergence of new, unknown treatment-emergent adverse events. In addition, we may experience regulatory delays or rejections as a result of many factors, including changes in regulatory policy during the period of our product candidate development. Any such delays could negatively impact our business, financial condition, results of operations and growth prospects.

If clinical trials of epetraborole or any other product candidate that we may advance to clinical trials fail to demonstrate safety, tolerability, and/or efficacy to the satisfaction of the FDA, the PMDA or other comparable regulatory authorities, or do not otherwise produce favorable results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of epetraborole or any other product candidate.

We may not commercialize, market, promote, or sell any product candidate without obtaining regulatory approval from the FDA, the PMDA or other comparable regulatory authorities, and we may never receive such approvals. It is impossible to predict when or if epetraborole or any other product candidates will prove effective or safe in humans and will receive regulatory approval. Before obtaining regulatory approval from regulatory authorities for the sale of epetraborole or any other product candidates, we must complete preclinical and nonclinical development and conduct extensive clinical trials to demonstrate the safety and efficacy of such product candidates in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete, and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of testing. Moreover, preclinical, nonclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical and nonclinical studies and clinical trials have nonetheless failed to obtain regulatory approval of their products. In addition, before we can initiate clinical trials for any product candidates, we must submit the results of preclinical studies to the FDA or comparable foreign regulatory authorities along with other information, including information about product candidate chemistry, manufacturing and controls and our proposed clinical trial protocol, as part of an IND or similar regulatory submission. The FDA or comparable foreign regulatory authorities may require us to conduct additional preclinical studies for any product candidate before it allows us to initiate clinical trials under any IND or similar regulatory submission, which may lead to delays and increase the costs of our preclinical development programs.

We may experience numerous unforeseen events prior to, during, or as a result of, clinical trials that could delay or prevent our ability to receive regulatory approval or commercialize epetraborole or any of our other product candidates, including, but not limited to:

- we may be unable to generate sufficient preclinical, toxicology or other in vivo or in vitro data to support the initiation or continuation of clinical trials;
- the FDA, the PMDA or other comparable regulatory authorities may disagree as to the design or implementation of our clinical trials, which may result in changes to our planned clinical trial design and potential target clinical outcomes;
- regulators, institutional review boards (“IRBs”), or ethics committees may not allow or authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we may not reach agreement on acceptable terms with prospective contract research organizations (“CROs”), and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- we may experience delays in identifying, recruiting and training suitable clinical investigators;
- regulators may issue a clinical hold, or regulators or institutional review boards may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- we may make changes or amendments to a trial protocol;
- we may select endpoints that require prolonged periods of clinical observation or require extended analysis of the resulting data;
- clinical trial sites may deviate from the trial protocol or drop out of a trial;
- clinical trials for epetraborole or any of our other product candidates may produce negative or inconclusive results;
- we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- enrollment in clinical trials may be slower than we anticipate, participants may drop out of these clinical trials at a higher rate than we anticipate, we may fail to recruit suitable patients to participate in a trial, or the number of patients required for clinical trials of epetraborole and any of our other product candidates may be larger than we anticipate;

- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- regulators may issue a clinical hold, or regulators or institutional review boards may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- we may lack adequate funding to complete a clinical trial, or the cost of clinical trials of epetraborole or any of our other product candidates may be greater than we anticipate;
- the FDA, the PMDA or other comparable regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with whom we enter into agreements for clinical and commercial supplies;
- the supply or quality of epetraborole or any of our other product candidates or other materials necessary to conduct clinical trials of such product candidates may be insufficient or inadequate;
- serious adverse events may occur in trials of the same class of agents conducted by other companies that could be considered similar to our product candidates;
- epetraborole or our other product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or IRBs to suspend or terminate the clinical trials; and
- the approval policies or regulations of the FDA, the PMDA or other comparable regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

If we are required to conduct additional clinical trials or other testing of epetraborole or any of our other product candidates beyond the studies that we currently contemplate, such as our ongoing pivotal Phase 2/3 trial of epetraborole, if we are unable to successfully complete clinical trials or other testing of epetraborole or any of our other product candidates, or if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns observed in these trials or tests, we may:

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

We do not know whether any of our preclinical and nonclinical studies or clinical trials will begin as planned, will need to be restructured, or will be completed on schedule or at all. Significant preclinical and nonclinical study or clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize epetraborole or our other product candidates or allow our competitors to bring products to market before we do and impair our ability to successfully commercialize epetraborole or our other product candidates. In addition, many of the factors that cause, or lead to, delays of clinical trials may ultimately lead to the denial of regulatory approval of epetraborole or any of our other product candidates.

We cannot predict whether or when bacteria may develop resistance to epetraborole or any of our other product candidates, which could affect the revenue potential of our product candidates.

We are developing epetraborole to treat bacterial infections. The bacteria responsible for these infections evolve quickly and may develop antibiotic resistance caused by spontaneous mutations in the genes encoding the cellular target of the antibiotic. In some cases, resistance mechanisms can be transferred within and between bacterial species. Prescription or use of epetraborole or our other product candidates, if approved, may depend on the type and rate of resistance of the targeted bacteria. Although we do analyze the potential of emergence of resistance to epetraborole and any other product candidates and only select those that we believe have low resistance potential, we cannot predict whether or when bacterial resistance to epetraborole or other product candidates may develop. Such bacterial resistances, if and when identified, could adversely affect the conduct or results of our clinical trials, and could adversely affect the market potential of the product candidate, if approved. For example, clinical resistance to epetraborole as a monotherapy was observed in certain bacteria by GSK in its Phase 2 trial for the treatment of complicated urinary tract infection, and we cannot guarantee that clinical resistance will not be observed in any of our future clinical trials with epetraborole in other types of bacterial infections. The growth of drug-resistant infections in community settings or in countries with poor public health infrastructures, or the potential use of any product candidates outside of controlled hospital settings, could contribute to the rise of resistance.

Epetraborole or any of our other product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial potential, or result in significant negative consequences following any potential regulatory approval.

Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Undesirable side effects caused by our product candidates, whether used alone on in combination with other therapies, could cause us or regulatory authorities to interrupt, delay or halt clinical trials or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities, or, if such product candidates are approved, result in a more restrictive label and other post-approval requirements. Any treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete the trial, or could result in potential product liability claims. Any of these occurrences may harm our business, financial condition, results of operations and growth prospects significantly.

In particular, epetraborole is not yet approved by the FDA, the PMDA or any other regulatory agency and has not yet been tested extensively in patients. In previous development programs evaluating epetraborole, which largely used higher doses administered intravenously and orally, subjects and patients receiving epetraborole experienced drug-related side effects. For example, the most common drug-related adverse events observed in oral administration of epetraborole in humans were gastrointestinal in nature. Further, in a 26-week study conducted with epetraborole in rats and in a 39-week study conducted with epetraborole in non-human primates, safety observations of reduced hematocrit, hemoglobin, and other associated red blood cell-related parameters (red cell distribution width, mean corpuscular volume, mean corpuscular hemoglobin concentration, mean corpuscular hemoglobin) levels were observed, which remained below normal during the recovery period of the study while other blood cell parameters returned to normal levels. In a Fertility and Embryo-Fetal Development study of epetraborole in rats, there were no external fetal malformations or variations, no soft-tissue (visceral or fixed-head) fetal malformations or variations, and no skeletal fetal malformations attributed to administration of epetraborole at any dose level evaluated in the study. However, there were multiple maternal and fetal adverse events, including reduced mean maternal body weight during gestation, reduced mean fetal weight, increased mean total resorptions per litter and higher mean post-implantation loss at the highest dose level tested, which was 1,000 mg/kg, compared to a control group. Decreased fetal body weights and increased incomplete fetal ossification was observed at all epetraborole dose levels. The significance of these observations with respect to humans is still unknown. Based on the observed maternal and fetal adverse events in rats, epetraborole could be harmful to human fetuses when taken during pregnancy.

Amongst the patients enrolled in the first six cohorts of our Phase 1b dose-ranging study of epetraborole in healthy volunteers, the most common treatment emergent adverse events (“TEAEs”), were gastrointestinal events, such as nausea, abdominal discomfort and diarrhea, and headache and vascular site access pain. Most TEAEs observed in the Phase 1b dose-ranging study were mild or moderate in severity and no severe or serious TEAEs were observed in the study. Two subjects in the study experienced TEAEs that caused premature discontinuation from epetraborole: one epetraborole subject at the 250 mg q24h dose level had mild aminotransferase increases during a concomitant upper respiratory tract infection and one epetraborole subject at the 1,000 mg q48h dose level had mild nausea. These TEAEs were both considered possibly or probably related to epetraborole. Consistent with observations in chronic toxicology studies in non-human primates and rats, dose-dependent effects on red blood cell-related hematological parameters, such as hemoglobin and reticulocytes, were observed in the Phase 1b dose-ranging study. The observed effects on hematological parameters were mild and most RBC values remained within normal limits with a slight downward trend, and the hematological parameters recovered following completion of dosing of epetraborole. No subjects discontinued therapy as a result of the hematological effects that were observed.

Additional adverse events may emerge (along with additional data further defining previously identified risks) in any ongoing or subsequent clinical trials and there may be unforeseen serious adverse events or side effects that differ from those seen in studies completed to date. For example, the dosing duration for administering epetraborole in humans has been limited to a maximum of 28 days in previous clinical trials, and in our Phase 2/3 clinical trial involves dosing up to 16 months. Future trials may involve the same or longer dosing duration. The longer dosing duration in the Phase 2/3 clinical trial, as well as the use of epetraborole in patients with NTM lung disease, may increase the risk of hematological abnormalities, as well as the potential for the emergence of new, unknown treatment-emergent adverse events.

In addition, with respect to our Phase 2/3 trial of epetraborole, we have included an independent data and safety monitoring board ("DSMB") to review safety as we increase dosing duration up to 16 months and transition from clinical investigations in healthy volunteers to patients. It is possible that as we test epetraborole and our other product candidates in larger, longer and more extensive clinical programs, or as use of such product candidates becomes more widespread, if they receive regulatory approval, subjects will report illnesses, injuries, discomforts and other adverse events that were not observed in earlier trials, as well as conditions that did not occur or went undetected in previous trials. Many times, side effects are only detectable after investigational drugs are tested in large-scale, Phase 3 clinical trials or, in some cases, after they are made available to patients on a commercial scale after approval. If additional clinical experience indicates that epetraborole or any other product candidate has unexpected side effects or causes serious or life-threatening side effects, the development of the product candidate may fail or be delayed, or, if the product candidate has received regulatory approval, such approval may be revoked, which would harm our business.

Furthermore, epetraborole is being developed for use in the treatment of treatment-refractory MAC lung disease as an add-on therapy to an optimized background regimen, which would include current standard of care drugs as outlined in the NTM treatment guidelines. Even if our product candidates demonstrate clinical efficacy, any unacceptable adverse side effects or toxicities, when administered in the presence of other pharmaceutical products, which can arise at any stage of development, may outweigh potential benefits. We may observe adverse or significant adverse events or drug-drug interactions in future preclinical studies or clinical trial candidates, which could result in the delay or termination of development, prevent regulatory approval or limit market acceptance if ultimately approved.

Moreover, if we elect, or are required, to delay, suspend or terminate any clinical trial of epetraborole or any other product candidates, the commercial prospects of such product candidate may be harmed and our ability to generate revenue through its sale may be delayed or eliminated. Any of these occurrences may significantly harm our business.

Additionally, if epetraborole or any of our other product candidates receive regulatory approval, regulatory authorities may require the addition of labeling statements, such as a “black box” warning or a contraindication, or the adoption of a REMS program to ensure that the benefits outweigh its risks, which may include, among other things, a medication guide outlining the risks of the drug for distribution to patients and a communication plan to health care practitioners. Furthermore, if we or others later identify undesirable side effects caused by any product candidates, several potentially significant negative consequences could result, including:

- regulatory authorities may suspend or withdraw approvals of such product candidate, or we may decide to suspend marketing or remove a product from the marketplace;
- regulatory authorities may require additional warnings on the label or impose distribution or use restrictions;
- we may be required to change the way a product candidate is administered or conduct additional clinical trials, including one or more post-marketing research studies;

- we could be sued and held liable for harm caused to patients;
- we may be required to implement REMS, including the creation of a medication guide outlining the risks of such side effects for distribution to patients;
- we could be subject to fines, injunctions or the imposition of criminal or civil penalties;
- we may need to conduct a recall or comparable post-marketing action; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected product candidate, if approved, or could substantially increase commercialization costs and expenses, which could delay or prevent us from generating revenue from the sale of our product candidates and harm our business and results of operations.

If we are not successful in discovering, developing and commercializing additional product candidates, our ability to expand our business and achieve our strategic objectives would be impaired.

Although a substantial amount of our effort will focus on the continued clinical testing and potential regulatory approval of epetraborole, an element of our strategy is to discover, develop and commercialize a portfolio of product candidates to treat rare chronic lung infections including NTM lung disease and chronic Chagas disease. We are seeking to do so by utilizing our targeted-design AN2 drug discovery platform, which uses bacterial genomics and state-of-the-art molecular and dynamic models to design active new compounds that target known mechanisms. We focus our clinical development on pathogens and patients with high, unmet medical needs to leverage the development and regulatory paths available for first-in-class or best-in-class anti-infectives. Research efforts to identify and develop product candidates require substantial technical, financial, and human resources, whether or not any product candidates are ultimately identified. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development for many reasons, including the following:

- the research methodology used may not be successful in identifying potential product candidates;
- competitors may develop alternatives that render our product candidates obsolete or less attractive;
- product candidates we develop may nevertheless be covered by third parties' patents or other exclusive rights;
- a product candidate may on further study be shown to have harmful side effects or other characteristics that indicate it is unlikely to be effective or otherwise does not meet applicable regulatory criteria;
- a product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all;
- a product candidate may not be accepted as safe, tolerable and effective by patients, the medical community or third-party payors, if applicable; and
- the FDA, the PMDA or other regulatory authorities may not approve or agree with the intended use of a new product candidate.

If we fail to develop and successfully commercialize epetraborole or our other product candidates, our business and future prospects may be harmed and our business will be more vulnerable to any problems that we encounter in developing and commercializing epetraborole.

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

Patient enrollment is a significant factor in the timing of clinical trials, and the timing of our clinical trials will depend, in part, on the speed at which we can recruit patients to participate in our trials, as well as completion of required follow-up periods. We may not be able to initiate, continue or complete clinical trials of epetraborole or any other product candidates that we develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials, as required by the FDA, the PMDA or other comparable regulatory authorities. We have limited experience enrolling patients in our clinical trials and cannot predict how successful we will be in enrolling patients in future clinical trials.

Patient enrollment is also affected by other factors including:

- the size and nature of the targeted patient population;
- the severity of the disease under investigation;
- the proximity and availability of clinical trial sites for prospective patients;
- the eligibility criteria for participation in the clinical trial;
- the design of the clinical trial;
- the perceived risks and benefits of the product candidate under study;
- our ability to recruit clinical trial investigators with appropriate experience;
- efforts to facility timely enrollment in clinical trials;
- the availability and efficacy of drugs approved to treat the diseases under study;
- the patient referral practices of physicians;
- our ability to obtain and maintain patient consents;
- the ability to monitor patients adequately during and after treatment; and
- the risk that patients enrolled in clinical trials will drop out of the trials before completion.

In particular, we may face delays and difficulties in enrollment in our current trials of epetraborole because NTM lung disease caused by MAC is considered a rare disease (i.e., the size of the targeted patient population is small) and patients are generally managed in the outpatient setting by specialized clinics and caregivers. Patients with this disease may also be reluctant to participate in a clinical trial with an investigational drug. Additionally, most patients with NTM lung disease have pre-existing co-morbidities, including underlying structural lung disease. Because of this, we expect difficulties in determining clinical responses in some patients in our clinical trials of epetraborole, which could result in a failure to meet prespecified clinical trial endpoints, or otherwise increase the challenges associated with trial enrollment. For example, even if epetraborole has a beneficial effect on culture conversion, patient-reported symptom-based outcomes may not correlate with microbiological responses. Moreover, in February 2024, we decided to voluntarily pause enrollment in the Phase 3 portion of our ongoing Phase 2/3 clinical trial, and there is no guarantee that if and when we resume patient enrollment, that we will not encounter further delays or difficulties in enrolling the trial, including due to our announcement of having observed lower-than-anticipated efficacy rates in a blinded aggregate analysis of available data. In addition, pending further data review and discussions with FDA, we may decide to modify the protocol for our ongoing Phase 2/3 clinical trial, and any such modifications may require us to expand patient enrollment, which could result in additional expenses and further trial delays.

Additionally, other pharmaceutical companies and research institutions targeting these same diseases are recruiting clinical trial patients from these patient populations, which may make it more difficult to fully enroll any clinical trials. We also rely on, and will continue to rely on, CROs and clinical trial sites to ensure proper and timely conduct of our clinical trials and preclinical studies. Though we have entered into agreements governing their services, we will have limited influence over their actual performance. Our inability to enroll a sufficient number of patients for clinical trials would result in significant delays and could require us to abandon one or more clinical trials altogether. We have experienced enrollment delays in the past. Enrollment delays in these clinical trials may result in further increased development costs for our product candidates, which would reduce the capital we have available to support our current and future product candidates and may result in our need to raise additional capital earlier than planned and could cause the value of our common stock to decline and limit our ability to obtain additional financing.

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

Because we have limited financial and management resources, we focus on research programs and product candidates that we identify for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing, or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Interim "topline" 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 interim, topline or preliminary data from our clinical trials and preclinical studies, 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 interim, topline or preliminary results that we report may differ from future results of the same studies or trials, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Topline and preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the topline or preliminary data we previously published. As a result, topline and preliminary data should be viewed with caution until the final data are available.

Interim data from clinical trials that we may complete are further subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between interim, topline or preliminary data and final data could significantly harm our business prospects. Further, disclosure of such 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 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, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product candidate or our business. If the interim, topline 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, financial condition, operating results, growth prospects.

We may conduct clinical trials for our product candidates outside of the United States, and the FDA may not accept data from such trials, in which case our development plans may be delayed, which could materially harm our business.

We conduct and may in the future conduct one or more of our clinical trials or a portion of our clinical trials for our product candidates outside the United States. The acceptance of study data from clinical trials conducted outside the United States or another jurisdiction by the FDA or comparable foreign regulatory authority may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the sole basis for regulatory approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the U.S. population and U.S. medical practice; (ii) the trials were performed by clinical investigators of recognized competence and pursuant to GCP regulations; and (iii) the data may be considered valid without the need for an on-site inspection by the FDA, or if the FDA considers such inspection to be necessary, the FDA is able to validate the data through an on-site inspection or other appropriate means. In addition, even where the foreign study data are not intended to serve as the sole basis for approval, the FDA will not accept the data as support for an application for regulatory approval unless the study is well-designed and well-conducted in accordance with GCP requirements and the FDA is able to validate the data from the study through an onsite inspection if deemed necessary. Many foreign regulatory authorities have similar requirements for clinical data gathered outside of their respective jurisdictions. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any comparable foreign regulatory authority will accept data from trials conducted outside of the U.S. or the relevant jurisdiction. If the FDA or any comparable foreign regulatory authority does not accept such data, it may result in the need for additional trials, which could be costly and time-consuming, and which may result in current or future product candidates that we may develop not receiving approval for commercialization in the applicable jurisdiction.

Risks Related to Our Dependence on Third Parties

We rely on third parties to conduct the preclinical and nonclinical studies and clinical trials, If these third parties do not successfully carry out their contractual duties, comply with applicable regulatory requirements or meet expected deadlines, our development programs and our ability to seek or obtain regulatory approval for or commercialize our product candidates may be delayed.

We are dependent on third parties to conduct our clinical trials and preclinical studies. Specifically, we have engaged CROs and consultants to conduct our ongoing and planned preclinical and nonclinical studies and clinical trials, in each case in accordance with trial protocols and regulatory requirements. We also expect to engage CROs for any of our other product candidates that may progress to clinical development. We expect to rely on CROs, as well as other third parties, such as clinical data management organizations, medical institutions, and clinical investigators, to conduct those preclinical and nonclinical studies, clinical trials, and manufacture of our clinical trial material. Currently, we rely on single source third-party research institutions, laboratories, clinical research and manufacturing organizations for research and development. Agreements with such third parties might terminate for a variety of reasons, including a failure to perform by the third parties. If we need to enter into alternative arrangements, or fail to enter into alternative arrangements in a timely manner, our product development activities would be delayed.

Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, we and our CROs are required to comply with regulations and comply with good laboratory practice requirements for the conduct of certain preclinical studies and GCP requirements for clinical trials, which are regulations and guidelines enforced by the FDA, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Similar regulatory requirements apply outside the United States, including the International Council for Harmonisation of Technical Requirements for the Registration of Pharmaceuticals for Human Use. . Regulatory authorities enforce GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. Failure to comply with these requirements by us or by third parties can result in FDA refusal to approve applications based on the clinical data, enforcement actions, adverse publicity and civil and criminal sanctions.

There is no guarantee that any of our CROs, investigators or other third parties will devote adequate time and resources to such trials or studies or perform as contractually required. If any of these third parties fails to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, or otherwise perform in a substandard manner, our clinical trials may be extended, delayed or terminated. Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines, or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, regulatory approvals for epetraborole and our other product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize such product candidates.

In addition, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and may receive cash compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected the interpretation of the trial, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection by the FDA of any NDA we submit. Any such delay or rejection could prevent us from commercializing epetraborole or any other product candidates.

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

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

We do not own or operate manufacturing facilities for the production of clinical or commercial supplies of the product candidates that we are developing or evaluating, nor are we contemplating plans to do so. We have limited personnel with experience in drug manufacturing and lack the resources and the capabilities to manufacture any of our product candidates on a clinical or commercial scale. We currently rely on third parties, such as Esteve Química, S.A. and Catalent Pharma Solutions, for drug substance and drug product manufacturing, respectively, of our current product candidate, and our strategy is to continue to outsource all manufacturing of our product candidates and approved products, if any, to third parties.

In order to conduct clinical trials of our product candidates and prepare for commercialization, we will need to identify suitable manufacturers with the capabilities to manufacture our compounds in large quantities in a manner consistent with existing regulations. Our future plans include identifying, qualifying, and contracting with a second manufacturing site to manufacture epetraborole, assuming we have adequate financial resources to pursue contingency manufacturing plans. Our current and future third-party manufacturers may be unable to successfully increase the manufacturing capacity for any of our product candidates in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities at any other time. If our manufacturers are unable to successfully scale up the manufacture of our current or future product candidates in sufficient quality and quantity, the development, testing and clinical trials of that product candidate may be delayed or infeasible, and regulatory approval or commercial launch of that product candidate may be delayed or not obtained, which could significantly harm our business.

We do not currently have any agreements with third-party manufacturers for the long-term commercial supply of epetraborole or any of our other product candidates. In the future, we may be unable to enter into agreements with third-party manufacturers for commercial supplies of such product candidates or may be unable to do so on acceptable terms.

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

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party;
- the failure of such parties to manufacture product candidates according to our specifications or on schedule;

- the possible misappropriation of our proprietary information, including our trade secrets and know-how; and
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

The facilities used by our third-party manufacturers must be approved for the manufacture of our product candidates by the FDA, or any comparable foreign regulatory authority, pursuant to inspections that will be conducted after we submit an NDA to the FDA, or submit a comparable marketing application to a foreign regulatory authority. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for manufacture of our product candidates. If these third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or any comparable foreign regulatory authority, they will not be able to secure and/or maintain regulatory approval for the use of their manufacturing facilities.

In addition, we have no control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates.

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

If the third parties that we engage to supply any materials or manufacture product for our preclinical and nonclinical studies and clinical trials should cease to continue to do so for any reason, we likely would experience delays in advancing these studies and trials while we identify and qualify replacement suppliers, and we may be unable to obtain replacement supplies on terms that are favorable to us. In addition, if we are not able to obtain adequate supplies of epetraborole or any other product candidates or the substances used to manufacture them, it will be more difficult for us to develop such product candidates and compete effectively.

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

Risks Related to the Commercialization of Epetraborole and Our Other Product Candidates

Even if epetraborole or any of our other product candidates receives regulatory approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors, and others in the medical community necessary for commercial success.

Even if we obtain approvals from the FDA, the PMDA or other comparable regulatory agencies and are able to initiate commercialization of epetraborole or any other product candidates we develop, the product candidate may not achieve market acceptance among physicians, patients and third-party payors and, ultimately, may not be commercially successful. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the safety, tolerability, efficacy and ease of use of a once-a-day oral dose and other potential advantages compared to alternative treatments;
- the potential and perceived advantages and disadvantages of the product candidates, including cost and clinical benefit relative to alternative treatments;
- the convenience and ease of once-a-day oral administration compared to alternative treatments (e.g., inhaled drug through nebulizer);
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- acceptance by physicians, patients, payor-formularies and treatment facilities and parties responsible for coverage and reimbursement of the product;

- the availability of coverage and adequate reimbursement by third-party payors, including government authorities;
- our ability to manufacture the product candidates in sufficient quantities and yields;
- the strength and effectiveness of marketing and distribution support;
- the prevalence and severity of any side effects;
- limitations or warnings, including distribution or use restrictions, contained in the product's approved labeling or an approved REMS;
- whether the product is designated under physician treatment guidelines as a first-line therapy or as a second- or third-line therapy for particular infections;
- whether the product is safe, tolerable and efficacious when used in combination therapy with the current multi-drug standard of care regimen;
- the approval of other new products for the same indications;
- the timing of market introduction of the approved product as well as competitive products; and
- the emergence of bacterial resistance to the product.

If the market size of any product candidate that obtains regulatory approval is significantly smaller than we anticipate, it may not achieve market acceptance or commercial success. This could significantly and negatively impact our business, financial condition, results of operations and growth prospects.

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

The development and commercialization of new drug products is highly competitive. We face competition from major multi-national pharmaceutical companies, biotechnology companies, specialty pharmaceutical companies and generic drug companies with respect to epetraborole and other product candidates that we may develop and commercialize in the future. There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of product candidates for the treatment of NTM lung infections. Potential competitors also include academic institutions, government agencies and other public and private research organizations. If our competitors obtain regulatory approval from the FDA, the PMDA or other comparable regulatory authorities for their product candidates more rapidly than we do, it could result in our competitors establishing a strong market position before we are able to enter the market. Our competitors may also succeed in developing, acquiring or licensing technologies and drug products that are more effective, more effectively marketed and sold, or less costly than epetraborole or any other product candidates that we may develop, which could render our product candidate non-competitive and obsolete.

Our initial product candidate, epetraborole, is being developed for the treatment of patients with treatment-refractory MAC lung disease. Insmed's Arikayce is the only currently approved therapy for the treatment of MAC lung disease as part of a combination antibacterial drug regimen in patients who do not achieve negative sputum cultures after a minimum of six consecutive months of a multidrug background regimen therapy. Other drugs used to treat these patients include generic drugs such as macrolides (clarithromycin and azithromycin), ethambutol, rifabutin and fluoroquinolones such as levofloxacin, bedaquiline, linezolid and clofazimine. There are also a number of product candidates in clinical development by third parties that are intended to treat NTM lung disease. Some mid- to late-stage product candidates include SPR720 from Spero Therapeutics, Inc., inhaled clofazimine from MannKind Corporation, and omadacycline from Paratek Pharmaceuticals, Inc. In addition, there may also be unexpected or unknown competitors that we are not presently aware of.

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

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any product candidates that we may develop. Our competitors also may obtain approval from the FDA, the PMDA or other comparable regulatory agencies for their product candidates more rapidly than we may obtain approval for ours, which could result in product approval delays if a competitor obtains market exclusivity from the FDA, the PMDA or any comparable regulatory agencies or our competitors establish a strong market position before we are able to enter the market. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic drugs. Additional drugs may become available on a generic basis over the coming years. If epetraborole or any other product candidates achieve regulatory approval, we expect that they will be priced at a significant premium over competitive generic drugs.

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

We do not have a sales or marketing infrastructure and have limited experience in the sale, marketing, or distribution of pharmaceutical products. To achieve commercial success for any product candidate for which we may obtain regulatory approval, we will need to establish a sales and marketing organization or enter into collaboration, distribution and other marketing arrangements with one or more third parties to commercialize such product candidate. In the United States and other key markets, we intend to build a commercial organization to target areas with the greatest incidence of NTM lung infections and recruit experienced sales, marketing and distribution professionals. The development of sales, marketing and distribution capabilities will require substantial resources, will be time-consuming and could delay any product launch. We may decide to work with regional specialty pharmacies, distributors, and/or multi-national pharmaceutical companies to leverage their commercialization capabilities to commercialize any product candidate for which we may obtain regulatory approval outside of the United States.

If the commercial launch of a product candidate for which we recruit a sales force and establish marketing and distribution capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization costs. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel. In addition, we may not be able to hire a sales force in the United States that is sufficient in size or has adequate expertise to target the areas that we intend to target. If we are unable to establish a sales force and marketing and distribution capabilities, our operating results may be adversely affected.

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

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

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

Coverage and adequate reimbursement may not be available for epetraborole or any other product candidates, which could make it difficult for us to sell profitably, if approved.

Market acceptance and sales of any product candidates that we commercialize, if approved, will depend in part on the extent to which reimbursement for these drugs and related treatments will be available from third-party payors, including government health administration authorities, managed care organizations and other private health insurers. Third-party payors decide which therapies they will pay for and establish reimbursement levels. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies. However, decisions regarding the extent of coverage and amount of reimbursement to be provided for any product candidates that we develop will be made on a payor-by-payor basis. One payor's determination to provide coverage for a drug does not assure that other payors will also provide coverage and adequate reimbursement for the drug. Additionally, a third-party payor's decision to provide coverage for a therapy does not imply that an adequate reimbursement rate will be approved. Each payor determines whether or not it will provide coverage for a therapy, what amount it will pay the manufacturer for the therapy, and on what tier of its list of covered drugs, or formulary, it will be placed. The position on a payor's formulary generally determines the co-payment that a patient will need to make to obtain the therapy and can strongly influence the adoption of such therapy by patients and physicians. Patients who are prescribed treatments for their conditions and providers prescribing such services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Patients are unlikely to use our drugs, and providers are unlikely to prescribe our drugs, unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our drugs and their administration.

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. We cannot be sure that coverage and reimbursement will be available for any drug that we commercialize and, if reimbursement is available, what the level of reimbursement will be. Inadequate coverage and reimbursement may impact the demand for, or the price of, any drug for which we obtain regulatory approval. If coverage and adequate reimbursement are not available, or are available only to limited levels, we may not be able to successfully commercialize epetraborole and any other product candidates that we develop.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop.

We face an inherent risk of product liability exposure related to the testing of epetraborole and any other product candidates in human clinical trials and will face an even greater risk if we commercially sell any drugs that we may develop. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- reduced resources of our management to pursue our business strategy;
- decreased demand for any product candidates or products that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- significant costs to defend the resulting litigation;
- substantial monetary awards paid to clinical trial participants or patients;
- loss of revenue;
- the inability to commercialize any drugs that we may develop; and
- a decline in our share price.

Our product liability insurance coverage may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we expand our clinical trials or if we commence commercialization of any product candidates. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise, if at all. Our product liability insurance policy contains various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may 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 capital to pay such amounts. Even if our agreements with current or future collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

There are a variety of risks associated with marketing epetraborole or any other product candidates internationally, which could affect our business.

We may seek regulatory approval for epetraborole or other product candidates outside of the United States and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements and reimbursement landscapes in foreign countries;
- the potential for so-called parallel importing, which is what happens when a local seller, faced with high or higher local prices, opts to import goods from a foreign market with low or lower prices rather than buying them locally;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenues, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the U.S. Foreign Corrupt Practices Act of 1977, as amended (the “FCPA”), or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with our international operations may compromise our ability to achieve or maintain profitability.

Risks Related to Our Business, Industry and Managing Our Growth

We operate with a small team and our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on the management, research and development, clinical, financial and business development expertise of Eric Easom, our co-founder, president, and chief executive officer, Paul Eckburg, M.D., our chief medical officer, Sanjay Chanda, Ph.D., our chief development officer, Lucy Day, our chief financial officer, Josh Eizen, J.D., our chief legal officer, Kevin Krause, our chief strategy officer, and Michael R.K. (Dickon) Alley, Ph.D., our co-founder and head of biology, as well as the other members of our research, development and business teams. Each may terminate employment with us at any time. We do not maintain “key person” insurance for any of our executives or employees.

Our limited personnel and resources may result in greater workloads for our employees compared to those at companies with which we compete for personnel, which may lead to higher levels of employee dissatisfaction and turnover. Recruiting and retaining qualified research, development and business personnel and, if we progress the development of epetraborole or any other product candidates, commercialization, manufacturing, and sales and marketing personnel, will be critical to our success. The loss of the services of our executive officers or other key employees could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize our product candidates. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of research and development personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high-quality personnel, our ability to pursue our growth strategy will be limited.

Macroeconomic uncertainties have in the past and may continue to adversely impact our business, financial condition, results of operations and growth prospects.

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including, among other things, severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, supply chain shortages, increases in inflation rates, higher interest rates and uncertainty about economic stability. Higher interest rates, coupled with reduced government spending and volatility in financial markets may increase economic uncertainty and affect consumer spending. Similarly, volatility and disruptions in global markets and supply chains and global conflicts may adversely affect our business or the third parties on whom we rely. If the equity and credit markets deteriorate, including as a result of political unrest or war, it may make any necessary debt or equity financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive. Increased inflation rates can adversely affect us by increasing our costs, including labor and employee benefit costs. To the extent that macroeconomic uncertainties continue to harm our business, financial condition, results of operations and growth prospects, many of the other risks described in this “Risk Factors” section will be exacerbated.

We have identified material weaknesses in our internal control over financial reporting. If we are unable to remediate these material weaknesses, or if we identify additional material weaknesses in the future or otherwise fail to maintain effective internal control over financial reporting, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business.

Prior to the completion of the IPO, we had been a private company with limited accounting personnel to adequately execute our accounting processes and other supervisory resources with which to address our internal control over financial reporting. In connection with the preparation of our financial statements, we identified material weaknesses in our internal control over financial reporting. 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 the annual or interim financial statements will not be prevented or detected on a timely basis. The material weaknesses are as follows:

- We did not design and maintain an effective control environment commensurate with our financial reporting requirements. Specifically, we lacked a sufficient complement of resources with (i) an appropriate level of accounting knowledge, experience and training to appropriately analyze, record and disclose accounting matters timely and accurately, and (ii) an appropriate level of knowledge and experience to establish effective processes and controls. Additionally, the lack of a sufficient number of professionals resulted in an inability to consistently establish appropriate authorities and responsibilities in pursuit of our financial reporting objectives, as demonstrated by, among other things, insufficient segregation of duties in our finance and accounting functions. This material weakness contributed to the following additional material weaknesses.
- We did not design and maintain effective controls related to the period-end financial reporting process, including designing and maintaining formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures. Additionally, we did not design and maintain controls over the preparation and review of account reconciliations and journal entries, including maintaining appropriate segregation of duties.

- We did not design and maintain effective controls related to the accounting for certain non-routine or complex transactions, including the proper application of U.S. GAAP to such transactions.
- We did not design and maintain effective controls over information technology ("IT") general controls for information systems that are relevant to the preparation of our financial statements. Specifically, we did not design and maintain (i) program change management controls to ensure that information technology program and data changes affecting financial IT applications and underlying accounting records are identified, tested, authorized and implemented appropriately, (ii) user access controls to ensure appropriate segregation of duties and that adequately restrict user and privileged access to financial applications, programs, and data to appropriate Company personnel, (iii) computer operations controls to ensure that critical batch jobs are monitored and data backups are authorized and monitored, and (iv) testing and approval controls for program development to ensure that new software development is aligned with business and IT requirements.

These IT deficiencies did not result in adjustments to the financial statements. However, the IT deficiencies, when aggregated, could impact maintaining effective segregation of duties, as well as the effectiveness of IT-dependent controls (such as automated controls that address the risk of material misstatement to one or more assertions, along with the IT controls and underlying data that support the effectiveness of system-generated data and reports) that could result in misstatements potentially impacting all financial statement accounts and disclosures that would not be prevented or detected. Accordingly, management has determined the IT deficiencies in the aggregate constitute a material weakness.

To address our material weaknesses, we implemented measures designed to improve our internal control over financial reporting and remediate the control deficiencies that led to the material weaknesses. These measures include (i) the ongoing hiring of additional accounting personnel; (ii) the design and implementation of our financial control environment, including the establishment of formal accounting policies and procedures, financial reporting controls and controls to account for and disclose complex transactions; and (iii) implementation of an upgraded accounting system with IT controls to insure appropriate and restricted access to our accounting applications, programs and data. As of December 31, 2023, we validated the effectiveness of controls to account for and disclose complex transactions, and the material weakness associated with the accounting for certain non-routine or complex transactions, including the proper application of U.S. GAAP, was remediated as of December 31, 2023.

We are working to remediate the material weaknesses as efficiently and effectively as possible and expect full remediation to go beyond December 31, 2024. We cannot assure you that there will not be future material weaknesses in our internal control over financial reporting in the future. Any failure to maintain effective internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations, or cash flows. If we fail to remediate our identified material weaknesses, or identify additional material weaknesses, in our internal control over financial reporting investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq Stock Market LLC, the Securities and Exchange Commission, or SEC, or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

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

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

If we engage in future acquisitions or strategic collaborations, this may increase our capital requirements, dilute our stockholders, cause us to incur debt or assume contingent liabilities, and subject us to other risks.

From time to time, we may evaluate various acquisitions and strategic collaborations, including licensing or acquiring complementary drug products, intellectual property rights, technologies or businesses, as deemed appropriate to carry out our business plan. Any potential acquisition or strategic collaboration may entail numerous risks, including:

- increased operating expenses and cash requirements;
- the assumption of additional indebtedness or contingent liabilities;
- assimilation of operations, intellectual property and drug products of an acquired company, including difficulties associated with integrating new personnel;
- the diversion of our management's attention from our existing drug development programs and initiatives in pursuing such a strategic partnership, merger, or acquisition;
- retention of key employees, the loss of key personnel and uncertainties in our ability to maintain key business relationships;
- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party and their existing drugs or drug candidates and regulatory approvals; and
- our inability to generate revenue from acquired technology and/or drugs sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent and other intellectual property protection for our technology, or for epetraborole or our other product candidates, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and product candidates may be impaired.

We do not own any issued patents and we in-license patents and patent applications for epetraborole, our lead drug compound, and our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to epetraborole and any of our other product candidates. We seek to protect our proprietary position by in-licensing intellectual property relating to our product candidates including patent applications in the United States and abroad related to our technology and product candidates that are important to our business. If we or our licensors do not adequately protect the intellectual property we in-license or own, competitors may be able to use our technologies and erode or negate any competitive advantage that we may have, which could harm our business and ability to achieve profitability. To protect our proprietary positions, we and our licensors file patent applications in the United States and abroad related to our novel technologies and product candidates that are important to our business. The patent application and prosecution process is expensive and time-consuming. We and our current licensors and licensees, or any future licensors and licensees, may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. We or our current licensors and licensees, or any future licensors or licensees may also fail to identify patentable aspects of our research and development before it is too late to obtain patent protection, or fail to continue to prosecute patents relating to our product candidates. Therefore, these and any of our in-licensed patents and patent applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. It is possible that defects of form in the preparation or filing of our licensors' patents or our patent applications may exist, or may arise in the future, such as with respect to proper priority claims, inventorship, claim scope or patent term adjustments. If our current licensors and licensees, or any future licensors or licensees, are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised and we might not be able to prevent third parties from making, using, and selling competing products. We cannot predict whether the patent applications we and our licensors or licensees are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection from competitors. If there are material defects in the form or preparation of our or our licensors' patents or patent applications, such patents or applications may be invalid and unenforceable. Moreover, our competitors may independently develop equivalent knowledge, methods, and know-how, and we may not be able to prevent such competitors from commercializing such equivalent knowledge, methods, and know-how. Any of these outcomes could impair our ability to prevent competition from third parties and could have a material adverse effect on our business, financial condition, results of operations and growth prospects. The patent position of biotechnology and pharmaceutical companies generally is highly uncertain and has been the subject of much litigation in recent years. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. No consistent policy regarding the breadth of claims allowed in biotechnology and pharmaceutical patents has emerged to date in the United States or in many foreign jurisdictions. In addition, the determination of patent rights with respect to pharmaceutical compounds and technologies commonly involves complex legal and factual questions, which has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Furthermore, recent changes in patent laws in the United States, including the America Invents Act of 2011, and future changes in patent laws in or outside the United States may affect the scope, strength and enforceability of our patent rights or the nature of proceedings that may be brought by us related to our patent rights.

We may not be aware of all third-party intellectual property rights potentially relating to epetraborole or our other product candidates. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to make the inventions claimed in patents or pending patent applications that we in-license or own, or that we or our licensors were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity and commercial value of our patent rights cannot be predicted with any certainty. Moreover, we or our licensors may be subject to a third-party pre-issuance submission of prior art to the U.S. Patent and Trademark Office ("USPTO"), or become involved in opposition, derivation, reexamination, inter partes review, or interference proceedings, in the United States or elsewhere, challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or product candidates, and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize product candidates without infringing third-party patent rights.

Our licensors' pending and future patent applications and our own pending and future patent applications may not result in patents being issued that protect our technology or product candidates, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Even if our or our licensors' patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection against competing products or processes sufficient to achieve our business objectives, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our in-licensed patents or any patents we may own in the future by developing similar or alternative technologies or products in a non-infringing manner. Our competitors may seek to market generic versions of any approved products by submitting abbreviated NDAs to the FDA in which they claim that patents licensed by us or may be owned by us in the future are invalid, unenforceable, and/or not infringed. Alternatively, our competitors may seek approval to market their own products similar to or otherwise competitive with our product candidates. In these circumstances, we may need to defend and/or assert our in-licensed or owned patents, including by filing lawsuits alleging patent infringement. In any of these types of proceedings, a court, or other agency with jurisdiction may find our in-licensed patents or any owned patents, should such patents issue in the future, invalid and/or unenforceable.

The issuance of a patent is not conclusive as to its inventorship, scope, validity, or enforceability, and our in-licensed patents or patents we may own in the future may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and product candidates, or limit the duration of the patent protection of our technology and product candidates. In addition, given the amount of time required for the development, testing, and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Any impairment of our intellectual property rights, or our failure to protect our intellectual property rights adequately, could give third parties access to our technology and product candidates and could materially and adversely impact our business, financial condition, results of operations and growth prospects.

Our rights to develop and commercialize our technology, epetraborole, and our other product candidates are subject, in large part, to the terms and conditions of licenses granted to us by others, such as Anacor. If we fail to comply with our obligations in the agreements under which we in-license or acquire development or commercialization rights to products, technology, or data from third parties, we could lose such rights that are important to our business.

We are heavily reliant upon licenses to certain patent rights and other intellectual property that are important or necessary to the development of epetraborole or our other product candidates. For example, we depend on a license agreement from Anacor, a biopharmaceutical company that originally developed epetraborole and is currently a wholly-owned subsidiary of Pfizer. Additionally, we have licensed our rights under the Anacor agreement in China, Hong Kong, Taiwan and Macau to Brii Biosciences.

Anacor has relied upon, and any future licensors may have relied upon, third-party companies, consultants or collaborators, or on funds from third parties such that our licensors are not the sole and exclusive owners of the patents we in-licensed. We have sublicensed certain patents from Anacor that are owned, maintained and prosecuted by GSK. If third-party companies such as GSK fail to prosecute, maintain, enforce and defend such patents, or lose rights to those patents, the rights we have licensed may be reduced or eliminated, and our right to develop and commercialize epetraborole or our other product candidates that are the subject of such licensed rights could be adversely affected. Further, we rely upon Anacor's compliance with its license agreement with GSK to maintain our sublicense to such patents owned by GSK, and any termination of Anacor's license agreement with GSK could result in us losing our license to epetraborole. Further development and commercialization of epetraborole, and development of any other product candidates may require us to enter into additional license or collaboration agreements. For example, our licensors or other third parties may develop intellectual property covering epetraborole which we have not licensed. Our future licenses may not provide us with exclusive rights to use the licensed patent rights and other intellectual property, or may not provide us with exclusive rights to use such patent rights and intellectual property in all relevant fields of use and in all territories in which we wish to develop or commercialize epetraborole or our other product candidates in the future.

Our license agreement with Anacor, and other intellectual property-related agreements we may enter into in the future may impose diligence and other obligations, including payment of milestones and royalties. For example, our license agreement from Anacor requires us to satisfy diligence requirements, including using commercially reasonable efforts to develop and commercialize products. If we fail to comply with our obligations to Anacor or any future licensors, those counterparties may have the right to terminate the license agreements, in which event we might not be able to develop, manufacture, or market any product candidate licensed under the agreements, which could materially adversely affect the value of the product candidate being developed under any such agreement and further involve termination of our rights to important intellectual property or technology.

In spite of our efforts, Anacor imposes or any future licensors might conclude that we are in material breach of obligations under our license agreements and may therefore have the right to terminate the license agreements, thereby removing our ability to develop and commercialize product candidates and technology covered by such license agreements. If such in-licenses are terminated, or if the underlying patents fail to provide the intended exclusivity, our competitors would have the freedom to seek regulatory approval of, and to market, products identical to our product candidates and the licensors to such in-licenses could prevent us from commercializing product candidates that rely upon the patents or other intellectual property rights which were the subject matter of such terminated agreements. In addition, we may seek to obtain additional licenses from our licensors and, in connection with obtaining such licenses, we may agree to amend our existing licenses in a manner that may be more favorable to the licensors, including by agreeing to terms that could enable third parties (potentially including our competitors) to receive licenses to a portion of the intellectual property that is subject to our existing licenses. Any of these events could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Under our license agreement with Anacor, and any future license agreements, disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;

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

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

We may not be successful in obtaining necessary rights to any product candidates we may develop through acquisitions and in-licenses.

We currently have rights to intellectual property, through licenses from third parties, to identify and develop product candidates. We may find it necessary or prudent to obtain licenses from such third-party intellectual property holders in order to avoid infringing these third-party patents. For example, many pharmaceutical companies, biotechnology companies and academic institutions compete with us and may be filing patent applications potentially relevant to our business. The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to license rights to us. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. If we are unable to successfully obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant program or product candidate, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We may become involved in lawsuits to protect or enforce our owned or in-licensed patents or other intellectual property, which could be expensive, time-consuming and unsuccessful.

Competitors or other third parties may infringe, misappropriate or otherwise violate our in-licensed issued patents or other intellectual property we may own. To counter such infringement, misappropriation or other unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming and divert the time and attention of our management and scientific personnel. Any claims we assert against third parties could provoke these parties to assert counterclaims against us alleging that we infringe, misappropriate or otherwise violate their patents, trademarks, copyrights or other intellectual property. In addition, our in-licensed patents may become involved in inventorship or priority disputes. Third parties may raise challenges to the validity of certain of our in-licensed patent claims and may in the future raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. For example, we may be subject to a third-party pre-issuance submission of prior art to the USPTO, or become involved in derivation, revocation, reexamination, post-grant review ("PGR"), inter partes review ("IPR"), interference proceedings and equivalent proceedings in foreign jurisdictions, such as opposition proceedings challenging any patents that we may own or in-license. Such submissions may also be made prior to a patent's issuance, precluding the granting of a patent based on one of our owned or licensed pending patent applications. A third party may also claim that our potential future owned patents or licensed patent rights are invalid or unenforceable in a litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, invalidate, or render unenforceable, our potential future owned patents or licensed patent rights, allow third parties to commercialize epetraborole or our other product candidates and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights In a patent infringement proceeding, there is a risk that a court will decide that a patent we in-license is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents are upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our in-licensed patents do not cover the invention. An adverse outcome in a litigation or proceeding involving our in-licensed patents could limit our ability to assert our in-licensed patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Similarly, in the future, we expect to rely on trademarks to distinguish epetraborole and any of our other product candidates that are approved for marketing, and if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

In any infringement litigation, any award of monetary damages we receive may not be commercially valuable. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during litigation. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Moreover, there can be no assurance that we will have sufficient financial or other resources to adequately file and pursue such infringement claims, which typically last for years before they are concluded. Some of our competitors and other third parties may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing, misappropriating, or successfully challenging our intellectual property rights. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a negative impact on our ability to compete in the marketplace, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Third parties may initiate legal proceedings alleging that we are infringing misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and could significantly harm our business.

Our commercial success depends, in part, on our ability to develop, manufacture, market and sell epetraborole or other product candidates and use our proprietary chemistry technology without infringing, misappropriating or otherwise violating the intellectual property of third parties. Numerous third-party U.S. and non-U.S. issued patents exist in the area of antibacterial treatment, including compounds, formulations, treatment methods, and synthetic processes that may be applied towards the synthesis of antibiotics. If any such patents of third parties cover our product candidates or technologies, we may not be free to manufacture or market our product candidates as planned.

There is a substantial amount of intellectual property litigation in the biotechnology and pharmaceutical industries, and we may become party to, or threatened with, litigation, or other adversarial proceedings regarding intellectual property rights with respect to our technology or product candidates, including interference proceedings before the USPTO. Third parties may assert claims against us based on existing or future intellectual property rights. The outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance.

If we are found to have infringed, misappropriated, or otherwise violated any third party's intellectual property rights, we could be forced, including by court order, to cease developing, manufacturing, or commercializing epetraborole or other product candidates. Alternatively, we may be required to obtain a license from such third party in order to use technology and continue developing, manufacturing or marketing product candidates that infringe or violate such third party's intellectual property. However, we may not be able to obtain any such required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We may also be required to pay substantial ongoing royalty or license payments or fees or comply with other unfavorable terms. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent or other intellectual property right. A finding of infringement could prevent us from commercializing epetraborole or other product candidates or force us to cease some of our business operations. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative effect on our business. Even if we were to prevail in such a dispute, any litigation regarding our intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. During the course of litigation, there could be public announcements or the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Negative publicity related to a decision by us to initiate such enforcement actions against a customer or former customer, regardless of its accuracy, may adversely impact our other customer relationships or prospective customer relationships, harm our brand and business and could cause the market price of our common stock to decline. Any of the foregoing arising from uncertainty in legal proceedings could materially and adversely impact our business, financial condition, results of operations and growth prospects.

We may be subject to claims by third parties asserting that we or our employees, consultants, and advisors have misappropriated their intellectual property or claiming ownership of what we regard as our own intellectual property.

Many of our employees, consultants and advisors were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of third parties in their work for us, we may be subject to claims that we or such employees, consultants and advisors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's former employer. We may also in the future be subject to claims that we have caused an employee to breach the terms of his or her non-competition or non-solicitation agreement. Litigation may be necessary to defend against these potential claims.

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

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. A court could prohibit us from using technologies or features that are essential to epetraborole or other product candidates if such technologies or features are found to incorporate or be derived from the trade secrets or other proprietary information of the former employers. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and could be a distraction to management. In addition, any litigation or threat thereof may adversely affect our ability to hire employees or contract with independent service providers. Moreover, a loss of key personnel or their work product could hamper or prevent our ability to commercialize our product candidates. Any of the foregoing could have a material adverse impact on our business, financial condition, results of operations and growth prospects.

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

We expect to rely on trademarks as one means to distinguish any of our product candidates that are approved for marketing from the products of our competitors. We have not yet selected trademarks for our product candidates and have not yet begun the process of applying to register trademarks for our product candidates. Once we select trademarks and apply to register them, our trademark applications may not be approved. Third parties who have prior rights to our trademarks or third parties who have prior rights to similar trademarks may oppose our trademark applications, or otherwise challenge our use of the trademarks. In the event that our trademarks are successfully challenged, we could be forced to rebrand our product candidates, which could result in loss of brand recognition and could require us to devote resources to advertising and marketing new brands. At times, competitors may adopt trade names or trademarks similar to ours, thereby diluting or impeding our ability to build brand identity and possibly leading to market confusion. Our competitors may infringe our trademarks and we may not have adequate resources to enforce our trademarks and may not be able to prevent such third parties from using and marketing any such trademarks.

In addition, any proprietary name we propose to use with epetraborole or any other product candidate in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed product names, including an evaluation of the potential for confusion with other product names. If the FDA objects to any of our proposed proprietary product names, we may be required to expend significant additional resources in an effort to identify a suitable proprietary product name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. If we are unable to establish name recognition based on our trademarks, we may not be able to compete effectively and our business, financial condition, results of operations and growth prospects may be adversely affected.

If we are unable to protect the confidentiality of our proprietary information, know-how and trade secrets, the value of epetraborole or other product candidates could be adversely affected and our business and competitive position would be harmed.

In addition to seeking patent protection for epetraborole or other product candidates, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. We seek to protect our trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. However, these agreements may be inadequate to protect our proprietary and intellectual property rights. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets. In addition, we may not be able to obtain adequate remedies for any such breaches. Although we use reasonable efforts to protect this proprietary information and technology, we also cannot guarantee that we have entered into such agreements with each party that may have or have had access to our confidential information, know-how, trade secrets or other proprietary information or each individual who has developed intellectual property on our behalf. Monitoring unauthorized uses and disclosures of our intellectual property is difficult, and we do not know whether the steps we have taken to protect our intellectual property will be effective. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive, distracting to management, and time-consuming, and the outcome is unpredictable and varied depending on the jurisdiction. In addition, some courts inside and outside the United States, in countries in which we operate or intend to operate, are less willing, or unwilling, to protect trade secrets, know-how and other proprietary information. Any claims or litigation could cause us to incur significant expenses. Some third parties may be able to sustain the costs of complex litigation more effectively than we can because they have substantially greater resources.

Our employees, consultants, and other parties may unintentionally or willfully disclose our information or technology to competitors and there can be no assurance that the legal protections and precaution taken by us will be adequate to prevent misappropriation of our technology or that competitors will not independently develop technologies equivalent or superior to ours. Trade secrets and know-how can be difficult to protect. Our competitors or other third parties may independently develop knowledge, methods and know-how equivalent to our trade secrets. Additionally, competitors could purchase our product candidates and replicate some or all of the competitive advantages we derive from our development efforts for technologies on which we do not have patent protection. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they communicate, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

If we or our licensors do not obtain patent term extension and data exclusivity for any product candidates we or our licensors may develop, our business may be materially harmed.

Given the amount of time required for the development, testing, and regulatory review of new product candidates, patents we license or may own in the future protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to our product candidates. Depending upon the timing, duration, and specifics of any FDA approval of any of our product candidates, one or more of our in-licensed U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984 (the “Hatch-Waxman Amendments”). The Hatch-Waxman Amendments permit a patent extension term of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations and growth prospects could be materially harmed.

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

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned or in-licensed patents and applications. In certain circumstances, we rely on our licensing partners to pay these fees due to U.S. and non-U.S. patent agencies. The USPTO and various non-U.S. government agencies require compliance with several procedural, documentary, fee payment and other similar provisions during the patent application process. We are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In some cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in a partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

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

Filing, prosecuting, and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States could be less extensive than those in the United States. In some cases, we or our licensors may not be able to obtain patent protection for certain licensed technology outside 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, even in jurisdictions where we or our licensors do pursue patent protection. Consequently, we may not be able to prevent third parties from practicing our in-licensed inventions in all countries outside the United States, even in jurisdictions where our licensors do pursue patent protection 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 or our licensors have not pursued and 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 epetraborole, our other product candidates and our preclinical programs. Our in-licensed 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, trade secrets and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our in-licensed patents, if pursued and obtained, or the 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 in-licensed patents at risk of being invalidated or interpreted narrowly and our in-licensed 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.

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

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

If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize epetraborole or our other product candidates, and our ability to generate revenue will be materially impaired.

Epetraborole and our other product candidates and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, record-keeping, labeling, storage, approval, advertising, promotion, sale, import, export and distribution, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable foreign regulatory authorities, with regulations differing from country to country. Failure to obtain regulatory approval for a product candidate will prevent us from commercializing the product candidate. We currently do not have any products approved for sale in any jurisdiction. For example, we are not permitted to market any product candidate in the United States until we receive regulatory approval of an NDA from the FDA. We as a company only have limited experience in filing and supporting the applications necessary to gain regulatory approvals and may rely on third-party contract research organizations to assist us in this process.

Approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development. For instance, changes to leadership and the reorganization and rededication of critical resources at the FDA and within similar governmental health authorities across the world, may impact the ability of new products and services from being developed or commercialized in a timely manner. Regulations and requirements vary among jurisdictions, including in Japan and Europe. For instance, we met with the PMDA and gained alignment on the use of a microbiological primary endpoint to support registration in Japan. We have not obtained regulatory approval for any product candidate, and it is possible that epetraborole and any product candidates we may seek to develop in the future will never obtain regulatory approval. We are not permitted to market any product candidate in the United States until we receive regulatory approval of an NDA from the FDA.

We have not sought or obtained regulatory approval for any product candidate, and it is possible that epetraborole and any product candidates we may seek to develop in the future will never obtain regulatory approval. In order to obtain approval to commercialize a product candidate in the United States or abroad, we or our collaborators must demonstrate to the satisfaction of the FDA or foreign regulatory agencies, that such product candidates are safe and effective for their intended uses. Results from nonclinical studies and clinical trials can be interpreted in different ways. Even if we believe that the nonclinical or clinical data for a product candidate is promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. The FDA may also require us to conduct additional nonclinical studies or clinical trials for product candidates either prior to or post-approval, and it may otherwise object to elements of our clinical development program.

The FDA or any foreign regulatory bodies can delay, limit or deny approval of epetraborole or other product candidates or require us to conduct additional nonclinical or clinical testing or abandon a program for many reasons, including:

- disagreement with the design or implementation of our clinical trials;
- negative or ambiguous results from our clinical trials or results that may not meet the level of statistical significance required by the FDA or comparable foreign regulatory agencies for approval (for example, otherwise positive epetraborole results may be called into question if patient reported outcomes introduce ambiguity due to factors such as co-morbidities and other underlying patient issues);
- serious and unexpected drug-related side effects experienced by participants in our clinical trials or by individuals using drugs similar to our product candidates;
- the population studied may not be sufficiently broad or representative to assure safety in the full populations for which we seek approval;
- our inability to demonstrate to the satisfaction of the FDA or the applicable foreign regulatory body that our product candidates are safe and effective for the proposed indication;
- disagreement with the interpretation of data from nonclinical studies or clinical trials;
- our inability to demonstrate the clinical and other benefits of our product candidates outweigh any safety or other perceived risks;
- requirements for additional nonclinical studies or clinical trials;

- disagreement regarding the formulation, labeling, and/or the specifications we propose for our product candidates;
- approval may be granted only for indications that are significantly more limited than those sought by us, and/or may include significant restrictions on distribution and use;
- deficiencies in the manufacturing processes or facilities of the third-party manufacturers with which we contract for clinical and commercial supplies;
- refusals by regulators to accept a submission due to, among other reasons, the content or formatting of the submission; or
- changes in a policies, requirements, or regulations rendering our clinical data insufficient for approval.

Of the large number of drugs in development, only a small percentage complete the FDA or foreign regulatory approval processes and are successfully commercialized. The lengthy review process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval, which would significantly harm our business, financial condition, results of operations and growth prospects.

Even if we eventually receive approval of an NDA or foreign marketing application for our product candidates, the FDA, or the applicable foreign regulatory agency may grant approval contingent on the performance of costly additional clinical trials, often referred to as Phase 4 clinical trials, and the FDA may require the implementation of a REMS, which may be required to ensure safe use of the drug after approval. The FDA or the applicable foreign regulatory agency also may approve a product candidate for a more limited indication or patient population than we originally requested, and the FDA or applicable foreign regulatory agency may not approve the labeling that we believe is necessary or desirable for the successful commercialization of a product candidate. Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of that product candidate and would materially adversely impact our business and prospects.

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, prevent new or modified products from being developed, review, approved or commercialized in a timely manner or at all, which could negatively impact our business.

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

Separately, in response to the COVID-19 pandemic, the FDA postponed most inspections at domestic and foreign manufacturing facilities at various points. Even though the FDA has since resumed standard inspection operations, any resurgence of the virus may lead to other inspectional or administrative delays. If a prolonged government shutdown occurs, or if global health concerns hinder or prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

We may not be able to obtain or maintain orphan drug designations for any product candidates, and we may be unable to take advantage of the benefits associated with orphan drug designation, including the potential for market exclusivity.

Regulatory authorities in some jurisdictions, including the United States, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act of 1983, the FDA may designate a product as an orphan product if it is intended to treat a rare disease or condition, which is generally defined as a diagnosed patient population of fewer than 200,000 individuals in the United States, or a patient population of greater than 200,000 individuals in the United States, but for which there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. Similar laws exist in Europe and Japan. The European Commission may grant a product orphan medicinal product designation if the product is intended for the treatment, prevention or diagnosis of a life-threatening or very serious condition, with a prevalence in the European Union of not more than five in 10,000 people, and where either no satisfactory method of diagnosis, prevention or treatment of the condition in question exists, or if such method exists that the medicinal product will be of significant benefit to those affected by that condition.

As part of our business strategy, we sought and have received orphan drug designation from the FDA and orphan medicinal product designation from the European Commission for epetraborole for the treatment of infections caused by NTM, and we may seek additional orphan designations for epetraborole or our other product candidates; however, we may not be able to maintain this status. There can be no assurance that the FDA or European Commission will grant any orphan drug designations. We may also seek orphan drug designation for other product candidates, and we may be unsuccessful in obtaining this designation.

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

More than one product may be approved by the FDA for the same orphan disease or condition, as long as the products are different drugs, as determined by the FDA. As a result, even though we have obtained orphan drug designation from the FDA for epetraborole for the treatment of infections caused by NTM, even if epetraborole is approved by the FDA and receives orphan drug exclusivity, absent other applicable exclusivities, the FDA can still approve other drugs for use in treating the same indication or disease covered by epetraborole, which could create a more competitive market for us. The failure to successfully obtain orphan drug exclusivity would adversely affect our business.

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

Designation of any of our product candidates as a Qualified Infectious Disease Product ("QIDP") may not actually lead to faster development or regulatory review or other benefits, and does not assure FDA approval of any product candidates which may receive such designation.

The Generating Antibiotic Incentives Now (the "GAIN Act") established certain programs intended to incentivize the development of antibacterial and antifungal drugs for human use to treat serious or life-threatening infections. Specifically, pursuant to the GAIN Act, the FDA may designate certain antimicrobial products as QIDPs, which provides sponsors with certain benefits during the development and review process. In December 2021, the FDA granted QIDP designation to epetraborole for treatment-refractory MAC lung disease. A QIDP is defined as an antibacterial or antifungal drug, including a biological product, for human use that acts on bacteria or fungi, or on substances produced by such bacteria or fungi, and is intended to treat serious or life-threatening infections, including those caused by either (1) an antibacterial or antifungal resistant pathogen, including novel or emerging infectious pathogens, or (2) a so-called "qualifying pathogen" found on a list of potentially dangerous, drug-resistant organisms established and maintained by the FDA under the GAIN Act. The FDA has interpreted QIDP designation to apply to a specific drug product, including a specific dosage form of the product, and the FDA does not apply the designation to the drug substance in general or beyond the specified indications identified in the designation. The benefits of QIDP designation include eligibility for Fast Track designation, priority review of a submitted marketing application, and an extension by an additional five years of any non-patent exclusivity period awarded, such as a five-year exclusivity period awarded for a new chemical entity. This extension is in also addition to any pediatric exclusivity extension that may be awarded. A sponsor must request such designation before submitting a marketing application, and the FDA will respond to a request for QIDP designation within 60 days of the date the FDA receives the request. Receipt of QIDP designation does not assure ultimate approval by the FDA or related GAIN Act exclusivity benefits.

Under the GAIN Act, the FDA may only revoke a QIDP designation if the request for such designation contained an untrue statement of material fact. While we believe that our request for our QIDP designation did not contain any untrue statement of material fact, if the FDA were to seek to revoke our QIDP designation for epetraborole, and if FDA were successful in doing so, we would not obtain the GAIN Act exclusivity benefits for epetraborole, which could have a material, adverse effect on our business prospects. Obtaining a QIDP designation does not change the standards for product approval but may expedite the development or approval process. Accordingly, such QIDP designations may not actually result in faster clinical development or regulatory review or approval.

We have received Fast Track designation from the FDA, but receipt of such designation may not actually lead to a faster development, regulatory review, or approval process, and does not assure ultimate FDA approval.

We received Fast Track designation from the FDA to investigate epetraborole for treatment-refractory MAC lung disease, and we may seek additional Fast Track designations for our product candidates or for epetraborole in other indications.

If a product candidate is intended for the treatment of a serious or life-threatening condition and the product demonstrates the potential to address unmet medical needs for this condition, the product sponsor may apply for Fast Track designation. Fast Track designation applies to the combination of the product candidate and the specific indication for which it is being studied. The sponsor of a Fast Track product candidate has opportunities for more frequent interactions with the applicable FDA review team during product development and, once an NDA is submitted, the application may be eligible for priority review. An NDA submitted for a Fast Track product candidate may also be eligible for rolling review, where the FDA may consider for review sections of the NDA 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 application.

The TFDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation, we cannot assure you that the FDA would decide to grant it. Even though we have received Fast Track designation to develop epetraborole in treatment-refractory MAC lung disease, and even if we receive Fast Track designation for other product candidates or indications, we may not experience a faster development process, review, or approval compared to conventional FDA procedures and does not assure ultimate approval by the FDA. The FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program. Many product candidates that have received Fast Track Designation have ultimately failed to obtain approval.

We may seek FDA approval using the limited-population antibacterial drug ("LPAD") pathway. We may not be able to obtain or maintain LPAD designations for epetraborole and/or any future candidates, and we may be unable to take advantage of the benefits associated with LPAD designation.

We may seek FDA approval for epetraborole using the LPAD pathway, through which the FDA may review and approve new antibacterial drugs to treat serious bacterial diseases in patients with an unmet medical need and for which effective antibacterial drugs are limited or lacking. Specifically, under Section 506(h)(1) of the Federal Food, Drug, and Cosmetic Act ("FDCA"), the FDA may approve an antibacterial or anti-fungal drug, alone or in combination with one or more other drugs under the LPAD pathway. For FDA to approve a drug under the LPAD pathway, the drug must be intended to treat a serious or life-threatening infection in a limited population of patients with unmet needs, the FDA's traditional standards for approval must be otherwise met and the FDA must receive a written request from the sponsor to approve the drug as a limited population drug. By pursuing this pathway, we may be able to conduct a more streamlined development program, including the potential to seek approval using smaller, shorter or fewer clinical trials than would otherwise be required to pursue approval within a broader patient population. If our ongoing Phase 2/3 clinical trial of epetraborole is successful, we may submit an NDA seeking approval under the LPAD pathway. However, there is a risk that the FDA may not agree that epetraborole qualifies for approval under the LPAD pathway, even if we believe the results from our Phase 2/3 clinical trial are sufficiently positive and warrant such approval, in which case we may be required to conduct additional clinical trials of epetraborole before we are able to seek approval, if ever. Any requirements for us to conduct additional clinical trials would increase our costs and have an adverse effect on our business. In addition, even if we are able to obtain approval for epetraborole under the LPAD pathway, the FDCA requires that drugs approved under the LPAD pathway include certain labeling statements that may limit the commercial potential of epetraborole, if approved.

We may attempt to seek accelerated approval in the United States for certain of our product candidates. If we are not able to use that pathway, we may be required to conduct additional clinical trials beyond those that are contemplated, which would increase the expense of obtaining, and delay the receipt of, necessary regulatory approvals, if we receive them at all. In addition, even if an accelerated approval pathway is available to us, it may not lead to expedited approval of our product candidates, or approval at all.

Under the FDCA and implementing regulations, the FDA may grant accelerated approval to a product candidate to treat a serious or life-threatening condition that provides meaningful therapeutic benefit over available therapies, upon a determination that the product has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit measurement of a therapeutic effect that is considered reasonably likely to predict the clinical benefit of a drug.

The accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's agreement to conduct, in a diligent manner, additional confirmatory studies to verity and describe the drug's clinical benefit. If such post-approval studies fail to confirm the drug's clinical benefit or are not completed in a timely manner, the FDA may withdraw its approval of the drug on an expedited basis. In addition, in December 2022, President Biden signed an omnibus appropriations bill to fund the U.S. government through fiscal year 2023. Included in the omnibus bill is the Food and Drug Omnibus Reform Act of 2022, which among other things, provided FDA new statutory authority to mitigate potential risks to patients from continued marketing of ineffective drugs previously granted accelerated approval. Under these provisions, the FDA may require a sponsor of a product seeking accelerated approval to have a confirmatory trial underway prior to such approval being granted.

Prior to seeking accelerated approval for any of our product candidates we intend to seek feedback from the FDA or will otherwise evaluate ability to seek and receive accelerated approval. There can be no assurance that after our evaluation of the feedback and other factors we will decide to pursue or submit an NDA for accelerated approval or any other form of expedited development, review or approval. Furthermore, if we decide to submit an application for accelerated approval for our product candidates, there can be no assurance that such application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. The FDA or other comparable foreign regulatory authorities could also require us to conduct further studies prior to considering our application or granting approval of any type. A failure to obtain accelerated approval or any other form of expedited development, review or approval for our product candidate would result in a longer time period to commercialization of such product candidate, if any, could increase the cost of development of such product candidate and could harm our competitive position in the marketplace.

Failure to obtain regulatory approval in foreign jurisdictions would prevent epetraborole or our other product candidates from being marketed in these territories. Any approval we are granted for our product candidates in the United States would not assure approval of our product candidates in foreign jurisdictions.

In order to market and sell epetraborole or our other product candidates in Japan, the European Union, United Kingdom, other areas of Asia, Australia, and any other jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain approval from the FDA. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining approval from the FDA. In addition, in many countries outside the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and data from clinical studies approved by the FDA may not be accepted by foreign regulatory agencies, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. However, failure to obtain approval in one jurisdiction may impact our ability to obtain approval elsewhere. We may not be able to file for marketing authorization and may not receive necessary approvals to commercialize our product candidates in any market.

Even if we obtain regulatory approvals for epetraborole or any other product candidates, the terms of approvals and ongoing regulation of such product candidates may limit how we manufacture and market the product candidates and compliance with such requirements may involve substantial resources, which could materially impair our ability to generate revenue.

Even if regulatory approval of epetraborole or any other product candidates is granted, an approved product and its manufacturer and marketer are subject to ongoing review and extensive regulation, including with respect to the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for the product. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as ongoing compliance with cGMPs and GCPs for any clinical trials, In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements including ensuring that quality control and manufacturing procedures conform to cGMP, which include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation and reporting requirements. We and our contract manufacturers could be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMP.

Accordingly, assuming we receive regulatory approval for one or more product candidates, we and our contract manufacturers will continue to expend time, money, and effort in all areas of regulatory compliance. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facilities where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. In addition, failure to comply with FDA and other comparable foreign regulatory requirements may subject our company to administrative or judicially imposed sanctions, including:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary or mandatory product recalls;
- restrictions on product distribution or use, or requirements to conduct post-marketing studies or clinical trials;

- fines, restitutions, disgorgement of profits or revenues, warning letters, untitled letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications submitted, or suspension or revocation of approvals;
- product seizures or detentions, or refusal to permit the import or export of our products; and
- injunctions or the imposition of civil or criminal penalties.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

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

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses.

The FDA and other regulatory authorities strictly regulates marketing, labeling, advertising and promotion of prescription drugs. These regulations include standards and restrictions for direct-to-consumer advertising, industry-sponsored scientific and educational activities, and promotional activities involving the internet and off-label promotion. For example, any regulatory approval that the FDA grants is limited to those specific diseases and indications for which a product is deemed to be safe and effective by FDA. While physicians in the United States may choose, and are generally permitted, to prescribe drugs for uses that are not described in the product's labeling and for uses that differ from those tested in clinical trials and approved by the regulatory authorities, our ability to promote any products will be narrowly limited to those indications that are specifically approved by the FDA.

If we are found to have promoted such off-label uses, we may become subject to significant liability. The U.S. federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The FDA has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion any product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business, financial condition, results of operations and growth prospects.

Our employees, independent contractors, principal investigators, CROs, consultants, commercial partners, and vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other misconduct or failure to comply with applicable regulatory requirements. Misconduct, errors, or omissions by employees and independent contractors, such as principal investigators, CROs, consultants, commercial partners, and vendors, could include failures to comply with regulations of the FDA, the PMDA and other comparable regulatory authorities, to provide accurate information to such regulators, to comply with manufacturing standards we have established, to comply with healthcare fraud and abuse laws, to report financial information or data accurately, to disclose unauthorized activities to us, or to comply with requirements of government contracts (e.g., the September 2022 NIAID contract). In particular, sales, marketing, and other business arrangements in the healthcare industry are subject to extensive laws intended to prevent fraud, kickbacks, self-dealing, and other abusive practices. These laws may restrict or prohibit a wide range of business activities, including, but not limited to, research, manufacturing, distribution, pricing, discounting, marketing, and promotion, sales commission, customer incentive programs, and other business arrangements. Employee and independent contractor misconduct could also involve the improper use of individually identifiable information, including, without limitation, information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. In addition, federal procurement laws impose substantial penalties for misconduct in connection with government contracts and require certain contractors to maintain a code of business ethics and conduct. It is not always possible to identify and deter employee and independent contractor misconduct, and any precautions we take to detect and prevent improper activities 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. If any such actions are instituted against us, those actions could have a significant impact on our business, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, disgorgement, possible exclusion from participation in Medicare, Medicaid, and other federal healthcare programs, contractual damages, reputational harm, diminished profits, and future earnings, additional reporting or oversight obligations if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with the law and curtailment, or restructuring of our operations, any of which could adversely affect our ability to operate.

If we successfully commercialize epetraborole or one of our other product candidates, failure to comply with our reporting and payment obligations under U.S. governmental pricing programs could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

If we participate in the Medicaid Drug Rebate Program and/or Medicare Part D, if and when we successfully commercialize a product candidate, we will be required to report certain pricing information for such product candidate to the Centers for Medicare & Medicaid Services, the federal agency that administers the Medicaid and Medicare programs. We may also be required to report pricing information to the U.S. Department of Veterans Affairs. If we become subject to these reporting requirements, we will be liable for errors associated with our submission of pricing data, for failure to report pricing data in a timely manner, and for overcharging government payers, which can result in civil monetary penalties under the Medicaid statute, the federal civil False Claims Act, and other laws and regulations.

Our current and future relationships with healthcare professionals, principal investigators, consultants, customers, and third-party payors in the United States and elsewhere may be subject, directly or indirectly, to applicable anti-kickback, fraud and abuse, false claims, physician payment transparency and other healthcare laws and regulations, which could expose us to penalties.

Healthcare providers, physicians, and third-party payors in the United States and elsewhere will play a primary role in the recommendation and prescription of any product candidates for which we obtain regulatory approval. Our current and future arrangements with healthcare professionals, principal investigators, consultants, customers, and third-party payors may expose us to broadly applicable fraud and abuse and other healthcare laws that may constrain the business or financial arrangements and relationships through which we research, sell, market, and distribute any product candidates for which we obtain regulatory approval. In addition, we may be subject to physician payment transparency laws and regulations by the federal government and by the states and foreign jurisdictions in which we conduct our business. The applicable federal, state, and foreign healthcare laws that may affect our ability to operate include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease or order, or the arranging for or recommending the purchase, lease or order of any good, facility, item or service, for which payment may be made, in whole or in part, under federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the federal Anti- Kickback Statute or specific intent to violate it in order to have committed a violation;
- federal civil and criminal false claims laws, including the federal False Claims Act, which impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment 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 or causing to be made a false statement to avoid, decrease, or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act;
- the federal civil monetary penalties statute, which imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent;
- HIPAA which created additional federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of whether the payor is public or private, knowingly and willfully embezzling or stealing from a health care benefit program, willfully obstructing a criminal investigation of a health care offense and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the federal Physician Payments Sunshine Act, which requires manufacturers of certain drugs, devices, biologicals, and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the Centers for Medicare & Medicaid Services ("CMMS") information related to payments and "transfers of value" provided to physicians (defined to include doctors, dentists, optometrists, podiatrists, and chiropractors), certain other healthcare providers (such as nurse practitioners and physicians assistants) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and

- analogous state and foreign laws, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; state and foreign laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or to adopt compliance programs as prescribed by state laws and regulations, or that otherwise restrict payments that may be made to healthcare providers; state and foreign laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state and local laws requiring the licensure of pharmaceutical sales representatives.

Efforts to ensure that our future business arrangements with third parties will comply with applicable healthcare laws and regulations may involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal, and administrative penalties, including, without limitation, damages, monetary fines, disgorgement, possible exclusion from participation in Medicare, Medicaid, and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, additional reporting or oversight obligations if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with the law and curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and pursue our strategy. If any of the physicians or other healthcare providers or entities with whom we expect to do business, including future collaborators, are found not to be in compliance with applicable laws, they may be subject to criminal, civil, or administrative sanctions, including exclusions from participation in government healthcare programs, which could also affect our business.

Changes in healthcare policies, laws, and regulations may impact our ability to obtain approval for, or commercialize epetraborole or our other product candidates, if approved.

In the United States and some foreign jurisdictions there have been, and continue to be, several legislative and regulatory changes and proposed reforms of the healthcare system in an effort to contain costs, improve quality, and expand access to care. In the United States, there have been and continue to be a number of healthcare-related legislative initiatives, as well as executive, judicial, and Congressional challenges to existing healthcare laws that have significantly affected, and could continue to significantly affect, the healthcare industry. For example, on June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress.

On August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (the "IRA") into law, which among other things, extends enhanced subsidies for individuals purchasing health insurance coverage in ACA marketplaces through plan year 2025. The IRA also eliminates the "donut hole" under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and creating a new manufacturer discount program. In addition, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under government payor programs and review the relationship between pricing and manufacturer patient programs. For example, the IRA, among other things (i) directs the U.S. Department of Health and Human Services ("HHS") to negotiate the price of certain high-expenditure, single-source drugs and biologics covered under Medicare and (ii) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. These provisions take effect progressively starting in fiscal year 2023. On August 29, 2023 HHS announced the list of the first ten drugs that will be subject to price negotiations, although the Medicare drug price negotiation program is currently subject to legal challenges. HHS has and will continue to issue and update guidance as these programs are implemented. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry. In addition, in response to the Biden administration's October 2022 executive order, on February 14, 2023, HHS released a report outlining three new models for testing by the Center for Medicare and Medicaid Innovation which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve quality of care. It is unclear whether the models will be utilized in any health reform measures in the future. We expect that additional U.S. federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that the U.S. federal government will pay for healthcare products and services, which could result in reduced demand for epetraborole or our other product candidates or additional pricing pressures.

At the state level, legislatures have become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access, and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Outside of the United States, particularly in the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of regulatory approval for a product. To obtain coverage and reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of epetraborole or our other product candidates to other available therapies. If reimbursement of our product candidates is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed.

We are subject to privacy and data security laws, rules, regulations, policies, industry standards, and contractual obligations, and our failure to comply with them could harm our business.

We maintain a large quantity of information, including confidential business information and information related to our employees and may maintain or have responsibility for the maintenance of personal information in connection with the conduct of our clinical trials. As such, we are subject to laws and regulations governing the privacy and security of such information. In the United States, there are numerous federal and state privacy and data security laws and regulations governing the collection, use, disclosure, and protection of personal information that apply or could apply to our operations or the operations of our partners, including federal and state health information privacy laws, federal and state security breach notification laws, and federal and state consumer protection laws. The legislative and regulatory landscape for privacy and data protection continues to evolve, and there has been an increasing focus on privacy and data protection issues, in particular in relation to health information, which may affect our business and is expected to increase our compliance costs and exposure to liability. In addition, we may obtain health information from third parties, including research institutions from which we obtain clinical trial data, that are subject to privacy and security requirements under HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and the regulations promulgated thereunder. Depending on the facts and circumstances, we could be subject to significant penalties if we obtain, use or disclose individually identifiable health information in a manner that is not authorized or permitted by HIPAA.

Compliance with these and any other applicable privacy and data security laws, regulations and other requirements we may be subject to in the future is a rigorous and time-intensive process, and we may be required to put in place additional mechanisms ensuring compliance with such data protection rules. If we fail to comply with any such laws, regulations or other requirements, we may face significant fines and penalties that could adversely affect our business, financial condition, results of operations or growth prospects. Any failure or perceived failure by us or our third-party processors to comply with these data protection and privacy laws, regulations and requirements could result in significant government enforcement actions, which could include civil, criminal, and administrative penalties, orders requiring that we change our practices, claims for damages, and other liabilities, regulatory investigations and enforcement action, private litigation, significant costs (including in investigating and defending such claims, in remediation measures or changes to our operations), and adverse publicity, any of which could negatively affect our business, financial condition, results of operations and growth prospects. Furthermore, the laws are not consistent, and compliance in the event of a widespread data breach is costly. In addition, states are constantly adopting new laws or amending existing laws, requiring attention to frequently changing regulatory requirements.

With laws, regulations, and other obligations relating to privacy and data protection imposing new and relatively burdensome obligations, and with the substantial uncertainty over the interpretation and application of these and other obligations, we may face challenges in addressing their requirements and making necessary changes to our policies and practices and may incur significant costs and expenses in an effort to do so. We are currently in the process of developing and updating our policies and procedures in accordance with requirements under applicable data privacy and protection laws and regulations. We rely on our CROs to ensure compliance with data-privacy regulations that may arise in our trials. Other than our website privacy policy, we do not currently have any formal data privacy policies and procedures in place and have not completed formal assessments of whether we are in compliance with all applicable data privacy laws and regulations. Additionally, if third parties with which we work, such as vendors or service providers, violate applicable laws, rules or regulations or our policies, such violations may also put our or our clinical trial and employee data, including personal data, at risk, and our business, financial condition, results of operations and growth prospects may be adversely affected.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector.

We may engage third parties to sell epetraborole or our other product candidates outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract, and fraud litigation, reputational harm, and other consequences.

We are also subject to export control, import, and trade sanctions laws and regulations which may restrict or prohibit altogether the provision, sale, or supply of our product candidates to certain governments, persons, entities, countries, and territories, including those that are the target of comprehensive sanctions or an embargo. Obtaining the necessary export license or other authorization for a particular transaction may be time-consuming and may result in the delay or loss of sales opportunities. Violations of U.S. export control, import, or sanctions laws and regulations can result in significant fines or penalties and possible incarceration for responsible employees and managers.

Risks Related to Ownership of Our Common Stock

Concentration of ownership of our common stock among our existing executive officers, directors, and principal stockholders may prevent new investors from influencing significant corporate decisions and matters submitted to stockholders for approval.

Our executive officers, directors, and current beneficial owners of 5% or more of our capital stock and their respective affiliates beneficially own, in the aggregate, a significant percentage of our outstanding common stock. As a result, these persons, acting together, would be able to significantly influence all matters requiring stockholder approval, including the election and removal of directors, any merger, consolidation, or sale of all or substantially all of our assets, or other significant corporate transactions. In addition, these persons, acting together, may have the ability to control the management and affairs of our company. Accordingly, this concentration of ownership may harm the market price of our common stock by:

- delaying, deferring, or preventing a change in control;
- entrenching our management and/or the board of directors ("Board");
- impeding a merger, consolidation, takeover, or other business combination involving us; or
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us.

In addition, some of these persons or entities may have interests different than yours. For example, because many of these stockholders purchased their shares at prices substantially below the price at which shares were sold in our IPO and have held their shares for a longer period, they may be more interested in selling our company to an acquirer than other investors, or they may want us to pursue strategies that deviate from the interests of other stockholders.

A sale of a substantial number of shares of our common stock may cause the price of our common stock to decline.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. If our stockholders sell, or the market perceives that our stockholders intend to sell, substantial amounts of our common stock in the public market, the market price of our common stock could decline significantly.

We cannot predict what effect, if any, sales of our shares in the public market or the availability of shares for sale will have on the market price of our common stock. However, future sales of substantial amounts of our common stock in the public market, including shares issued upon exercise of outstanding options, or the perception that such sales may occur, could adversely affect the market price of our common stock.

We also expect that significant additional capital may be needed in the future to continue our planned operations. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock.

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

Provisions in our amended and restated certificate of incorporation and our amended and restated bylaws may discourage, delay or prevent a merger, acquisition, or other change in control of our company that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions also could limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our Board is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our Board. Among other things, these provisions:

- establish a classified board of directors such that not all members of the Board are elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our Board;
- limit the manner in which stockholders can remove directors from the Board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our Board;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our Board to issue preferred stock without stockholder approval, which could be used to institute a stockholder rights plan, or so-called “poison pill,” that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our Board; and
- require the approval of the holders of at least 66 2/3% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law (the “DGCL”), which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired more than 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. These provisions could discourage potential acquisition proposals and could delay or prevent a change in control transaction. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States will be the exclusive forums for substantially all disputes between us and our stockholders, including claims under the Securities Act, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us or any of our directors, officers, employees, or agents arising under the DGCL, our amended and restated certificate of incorporation, or our amended and restated bylaws;
- any action or proceeding to interpret, apply, enforce, or determine the validity of our amended and restated certificate of incorporation, or our amended and restated bylaws; and
- any action asserting a claim against us or any of our directors, officers, employees, or agents that is governed by the internal-affairs doctrine.

Furthermore, our amended and restated certificate of incorporation also provides that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. However, these provisions would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. In addition, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. To the extent the exclusive forum provision restricts the courts in which claims arising under the Securities Act may be brought, there is uncertainty as to whether a court would enforce such a provision. We note that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

Any person purchasing or otherwise acquiring or holding any interest in shares of our capital stock is deemed to have received notice of and consented to the foregoing provisions. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds more favorable for disputes with us or with our directors, officers, other employees or agents, or our other stockholders, which may discourage such lawsuits against us and such other persons, or may result in additional expense to a stockholder seeking to bring a claim against us. Alternatively, if a court were to find this choice of forum provision inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition, results of operations and growth prospects.

We will have broad discretion in the use of our cash, and may invest or spend our cash in ways with which you do not agree and in ways that may not increase the value of your investment.

Our management will have broad discretion in the application of our cash, and could spend our cash in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a negative impact on our business, cause the price of our common stock to decline, and delay the development of epetraborole and planned pipeline and expansion programs as well as commercial preparedness.

We do not anticipate paying any cash dividends on our capital stock in the foreseeable future, and accordingly, stockholders must rely on capital appreciation, if any, for any return on their investment.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, any future credit facility or debt securities may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. If we do not pay cash dividends, you could receive a return on your investment in our common stock only if you are able to sell your shares in the future and the market price of our common stock has increased when you sell your shares. As a result, investors seeking cash dividends should not purchase our common stock.

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

As of December 31, 2023, we had federal and state net operating loss ("NOLs") carryforwards of approximately $58.2 million and $122.6 million, respectively. Under the Tax Cuts and Jobs Act of 2017, or the Tax Act, as modified by the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), our NOLs generated in tax years beginning after December 31, 2017 may be carried forward indefinitely, but the deductibility of such federal NOLs in tax years beginning after December 31, 2020, is limited to 80% of taxable income. There is variation in how states have responded and may continue to respond to the Tax Act or the CARES Act. In addition, under Sections 382 and 383 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), 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 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, our ability to use our pre-change NOLs and tax credits to offset post-change taxable income, if any, could be subject to limitations. Similar provisions of state tax law may also apply. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

General Risk Factors

The trading price of our common stock has been and may continue to be volatile.

The trading price of our common stock has been subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. The stock market in general and the market for biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their shares at or above the price paid for the shares. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this Annual Report on Form 10-K, these factors include:

- the commencement, enrollment or results of our planned and future clinical trials;
- the sufficiency of our existing cash to fund our future operating expenses and capital expenditure requirements;
- the results of our testing and clinical trials;
- unanticipated safety, tolerability or efficacy concerns;
- the loss of any of our key research, development or management personnel;
- regulatory or legal developments in the United States and other countries;
- the success of competitive products or technologies;
- adverse actions taken by regulatory agencies with respect to our clinical trials or manufacturers;
- changes or developments in laws or regulations applicable to epetraborole or any other product candidates;
- changes to our relationships with collaborators, manufacturers, or suppliers;
- announcements concerning our competitors or the pharmaceutical industry in general;
- actual or anticipated fluctuations in our operating results;
- changes in financial estimates or recommendations by securities analysts;
- potential acquisitions;
- the results of our efforts to discover, develop, acquire, or in-license additional product candidates;
- the trading volume of our common stock on The Nasdaq Global Select Market;
- sales of our common stock by us, our executive officers and directors or our stockholders or the anticipation that such sales may occur in the future;
- general economic, political, and market conditions and overall fluctuations in the financial markets in the United States, Japan or other countries where we conduct critical business;

- stock market price and volume fluctuations of comparable companies and, in particular, those that operate in the biopharmaceutical industry;
- banking crises or failures; and
- investors' general perception of us and our business.

These and other market and industry factors may cause the market price and demand for our common stock to fluctuate substantially, regardless of our actual operating performance, which may limit or prevent investors from selling their shares of our common stock at or above the price paid for the shares and may otherwise negatively affect the liquidity of our common stock. In addition, the stock market in general, and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies.

Some companies that have experienced volatility in the trading price of their shares have been the subject of securities class action litigation. Any lawsuit to which we are a party, with or without merit, may result in an unfavorable judgment. We also may decide to settle lawsuits on unfavorable terms. Any such negative outcome could result in payments of substantial damages or fines, damage to our reputation or adverse changes to our business practices. Defending against litigation is costly and time-consuming and could divert our management's attention and our resources. Furthermore, during the course of litigation, there could be negative public announcements of the results of hearings, motions or other interim proceedings or developments, which could have a negative effect on the market price of our common stock.

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

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

We are incurring significantly increased costs as a result of operating as a company whose common stock is publicly traded in the United States, and our management is devoting substantial time to new compliance initiatives.

As a public company in the United States, we are incurring significant legal, accounting, and other expenses. These expenses will likely be even more significant after we no longer qualify as an emerging growth company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of Nasdaq Stock Market LLC, and other applicable securities rules and regulations impose various requirements on public companies in the United States, including the establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our senior management and other personnel devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations has increased our legal and financial compliance costs and has made some activities more time-consuming and costly. We cannot predict or estimate the amount of additional costs we will incur or the timing of such costs.

However, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to Section 404, we will be required to furnish a report by our senior management on our internal control over financial reporting. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To prepare for eventual compliance with Section 404, we have engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, engage outside consultants, and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. Identifying material weaknesses could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Significant disruptions of our or our vendors' information technology systems or cybersecurity incidents could result in significant financial, legal, regulatory, business, and reputational harm to us.

We are increasingly dependent on information technology systems and infrastructure, including mobile technologies, to operate our business. In the ordinary course of our business, we collect, store, process, and transmit large amounts of confidential information, including intellectual property, proprietary business information, personal information (including health information), and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity, and restricted availability of such information. We have also outsourced elements of our operations, including elements of our information technology infrastructure and data processing, to third parties and, as a result, we manage a number of third-party vendors who have access to our computer networks or our information. In addition, many of those third parties in turn subcontract or outsource some of their responsibilities to other third parties. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks, and exposures, the accessibility and distributed nature of our information technology systems, and the information stored on those systems, make such systems (and the information stored therein) vulnerable to risks that threaten the confidentiality, integrity and availability of these systems and information, including unintentional or malicious, internal, and external attacks on our technology environment. Vulnerabilities can be exploited by diverse threat actors and attack vectors, including through inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Cybersecurity incidents are increasing in their frequency, levels of persistence, sophistication, and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including industrial espionage) and expertise, including organized criminal groups, "hacktivists," nation states, and others, and utilizing increasingly sophisticated techniques and tools – including AI – that circumvent security controls, evade detection and remove or obfuscate forensic evidence. In addition to access to, loss of or the extraction of information, such attacks could involve the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering/phishing, malicious code embedded in software, and other means to affect service reliability and threaten the confidentiality, integrity, and availability of information technology systems or information. In addition, the prevalent use of mobile devices increases the risk of cybersecurity incidents.

Significant disruptions of our or our third-party vendors' or business partners' information technology systems or other similar cybersecurity incidents could adversely affect our business operations and result in the loss, misappropriation, and unauthorized access, use or disclosure of, or the prevention of access to, information, which could result in financial, legal, regulatory, business, and reputational harm to us. In addition, any impact to the confidentiality, integrity or availability of information technology systems and the information stored therein, whether from attacks on our or third-party technology environment or from computer viruses, natural disasters, terrorism, war, telecommunication and electrical failures, or other threats, could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from ongoing, completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. We cannot ensure that our cybersecurity and data protection efforts and our investment in information technology, or the efforts or investments of CROs, consultants or other third parties with which we work, will prevent breakdowns or breaches in our or their systems or other cybersecurity incidents, including those that cause loss, destruction, unavailability, alteration, dissemination of, or damage, or unauthorized access to, or processing of, our data, including personal information, assets, and other data processed or maintained on our behalf, that could have a material adverse effect upon our reputation, business, financial condition, results of operations and growth prospects.

While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or cybersecurity incidents or that our security measures and processes will be fully implemented, complied with or effective. Nor can we be certain that our third-party vendors or business partners have sufficient measures or processes in place to protect their information technology systems and infrastructure. We, our third-party vendors and business partners are, from time to time, subject to attacks and cybersecurity incidents. While we have not to our knowledge experienced an incident that has had a material impact on our operations or financial results, there is no way of knowing with certainty whether we have experienced any material cybersecurity incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that their systems or information have been compromised. Any event that leads to unauthorized access, use, or disclosure of information, including personal information regarding our patients or employees, or other adverse impact to the availability, integrity or confidentiality of our information technology systems, infrastructure or information, could disrupt our business, harm our reputation, compel us to comply with applicable federal and state breach notification laws and foreign law and contractual equivalents, subject us to time-consuming, distracting, and expensive litigation (including class actions), regulatory investigation and oversight, mandatory corrective action, require us to verify the correctness of database contents, or otherwise subject us to liability under laws, regulations, and contractual obligations, including those that protect the privacy and security of personal information. It could also result in increased costs to us, including costs to investigate, mitigate and remediate vulnerabilities and incidents, and result in significant legal and financial exposure and reputational harm. In addition, any failure or perceived failure by us or our vendors or business partners to comply with our privacy, confidentiality, or data security-related legal or other obligations to third parties, or any further cybersecurity incidents, may result in governmental investigations, enforcement actions, regulatory fines, litigation, or public statements against us by advocacy groups or others, and could cause third parties, including clinical sites, regulators, or current and potential partners, to lose trust in us, or we could be subject to claims by third parties that we have breached our privacy- or confidentiality-related obligations. Moreover, cybersecurity incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. Finally, we cannot guarantee that any costs and liabilities incurred in relation to an incident will be covered by our existing insurance policies or that applicable insurance will be available to us in the future on economically reasonable terms or at all. Any of the foregoing could have a material adverse effect on our reputation, business, financial condition, results of operations and growth prospects.

We are an "emerging growth company" and as a result of the reduced disclosure and governance requirements applicable to emerging growth companies, our common stock may be less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act. For so long as we remain an emerging growth company, we are permitted by SEC rules and plan to rely on exemptions from certain disclosure requirements that are applicable to other SEC-registered public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404, not being required to comply with the auditor requirements to communicate critical audit matters in the auditor's report on the financial statements, reduced disclosure obligations regarding executive compensation, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. We have taken advantage of reduced reporting burdens in this Annual Report on Form 10-K. In particular, in this Annual Report on Form 10-K, we have provided only two comparative periods of audited financial statements and we have not included all of the executive compensation related information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock price may be more volatile.

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

Recent and potential future changes to U.S. and non-U.S. tax laws could materially adversely affect our company.

Existing, new, or future changes in tax laws, regulations, and treaties, or the interpretation thereof, in addition to tax policy initiatives and reforms under consideration in the United States or internationally and other initiatives could have an adverse effect on the taxation of international businesses. Furthermore, countries where we are subject to taxes, including the United States, are independently evaluating their tax policy and we may see significant changes in legislation and regulations concerning taxation. For example, the Tax Act, the CARES Act and the recently enacted IRA made many significant changes to the U.S. tax laws. The Tax Act made broad and complex changes to the Code, including, among other things, reducing the federal corporate tax rate. Additionally, beginning in 2022, the Tax Act required the capitalization of research and experimentation expenses with amortization periods over five and fifteen years pursuant to Code Section 174 ("Section 174"), which could impact our effective tax rate and cash flow. Future guidance from the U.S. Internal Revenue Service and other tax authorities with respect to any such tax legislation may affect us, and certain aspects of the previously enacted legislation could be repealed or modified in future legislation. In addition, it is uncertain if and to what extent various states will conform to the Tax Act, the CARES Act, the IRA, or any newly enacted federal tax legislation. Other legislative changes could also affect the taxation of holders of our common stock. We are unable to predict what tax reform may be proposed or enacted in the future or what effect such changes would have on our business, but such changes, to the extent they are brought into tax legislation, regulations, policies or practices, could affect our effective tax rates in the future in countries where we are subject to tax and have an adverse effect on our overall tax rate in the future, along with increasing the complexity, burden, and cost of tax compliance. We urge our stockholders to consult with their legal and tax advisors with respect to any such legislative changes and the potential tax consequences of investing in or holding our common stock.

Indemnity provisions in various agreements potentially expose us to substantial liability for intellectual property infringement, data protection, and other losses.

Our agreements with third parties may include indemnification provisions under which we agree to indemnify them for losses suffered or incurred as a result of claims of intellectual property infringement or other liabilities relating to or arising from our contractual obligations. Large indemnity payments could harm our business, financial condition, results of operations and growth prospects. Although we normally contractually limit our liability with respect to such obligations, we may still incur substantial liability. Any dispute with a third party with respect to such obligations could have adverse effects on our relationship with that third party and relationships with other existing or new partners, harming our business.

Item 1B. Unresolved Staff Comments.

None.

Item 1C. Cybersecurity.

Cybersecurity Risk Management and Strategy

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

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

Key elements of our cybersecurity risk management practices include but are not limited to:

- risk monitoring and assessments designed to help identify material cybersecurity risks from cybersecurity threats to our critical systems, information, products, services, and our broader enterprise IT environment;
- internal and external IT professionals responsible for managing our (1) cybersecurity risk analysis, (2) security controls, and (3) response to cybersecurity incidents;
- the use of external service providers, where appropriate, to assist with aspects of our security controls;
- cybersecurity awareness training of our employees and senior management; and

- a breach response and cybersecurity incident response plan that includes procedures for responding to cybersecurity incidents.

Although we face risks from cybersecurity threats, no known cybersecurity threats have materially affected or we believe are reasonably likely to materially affect us, including our business, financial condition, results of operations and growth prospects. See “Risk Factors – Significant disruptions of our or our vendors’ information technology systems or cybersecurity incidents could result in significant financial, legal, regulatory, business, and reputational harm to us.”

Cybersecurity Governance

Our Board considers cybersecurity risk as part of its risk oversight function and has delegated to the Audit Committee of our Board (the “Audit Committee”) oversight of cybersecurity risks, including oversight of management’s implementation of our cybersecurity risk management program. The Audit Committee receives reports at least annually from management on our cybersecurity risks and would be informed of any cybersecurity incidents that management considers to be significant or potentially significant.

Our internal cybersecurity professional reports to our CEO and is responsible for assessing and managing our material risks from cybersecurity threats. The CEO is supported by our Chief Legal Officer in exercising primary oversight for our overall cybersecurity risk management program. Our management team takes steps to stay informed about and monitors 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 current corporate headquarters are located in Menlo Park, California, where we lease approximately 1,731 square feet of office space pursuant to a lease agreement that commenced in May 2021 and expires in August 2024. We also lease approximately 2,500 additional square feet of adjacent office space pursuant to a lease agreement that commenced in September 2021 and expires in August 2024. Both leases contain an additional 12-month renewal option through August 2025.

We believe that these existing facilities will be adequate for our near-term needs. If required, we believe that suitable additional or alternative space would be available in the future on commercially reasonable terms.

Item 3. Legal Proceedings.

The information in Part IV, Note 8—Commitments and Contingencies—Contingencies is incorporated herein by reference.

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 "ANTX" since March 25, 2022. Prior to that date, there was no public trading market for our common stock.

Dividend Policy

We have never declared or paid any dividends on our common stock. We anticipate that we will retain all of our future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying cash dividends in the foreseeable future. Any future determination to declare or pay dividends will be made at the discretion of our Board, subject to applicable laws, and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions, capital requirements general business conditions and other factors that our Board may deem relevant. Our future ability to pay cash dividends on our capital stock may be limited by the terms of any future debt or preferred securities.

Stockholders

As of February 29, 2024, we had 34 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of record holders also does not include stockholders whose shares may be held in trust by other entities.

Securities Authorized for Issuance under Equity Compensation Plans

The information required by this item is incorporated by reference to the definitive proxy statement for our 2024 annual meeting of stockholders (the "Proxy Statement") to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

Recent Sales of Unregistered Equity Securities

None.

Use of Proceeds from Public Offering of Common Stock

On March 24, 2022, our registration statement on Form S-1 (File No. 333-263295) was declared effective by the SEC for the IPO of our common stock. Our shares began trading on the Nasdaq Global Select Market on March 25, 2022, and the transaction formally closed on March 29, 2022. In connection with our IPO, we issued and sold an aggregate of 5,290,000 shares of our common stock at a price of $15.00 per share, which included the exercise in full of the underwriters' option to purchase 690,000 additional shares of our common stock at the same price per share, which closed on April 12, 2022. The aggregate gross proceeds for shares sold in our IPO was $79.4 million. After deducting underwriting discounts and commissions and offering costs paid or payable by us of approximately $9.0 million, the net proceeds from the offering were approximately $70.4 million. Upon completion of the sale of the shares of our common stock referenced in this paragraph, our IPO terminated. No payments were made by us to directors, officers or persons owning ten percent or more of our common stock or to their associates, or to our affiliates, other than payments in the ordinary course of business to officers for salaries and to non-employee directors pursuant to our director compensation policy.

There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus dated March 24, 2022 pursuant to Rule 424(b)(4). We invested the funds received in interest-bearing investment-grade securities and government securities.

Issuer Purchases of Equity Securities

None.

Item 6. [Reserved].

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

The following discussion and analysis of our financial condition as of December 31, 2023 and results of operations for the years ended December 31, 2023 and 2022 should be read in conjunction with our financial statements and related notes thereto included elsewhere in this Annual Report on Form 10-K ("Form 10-K".) This section of this Form 10-K generally discusses 2023 and 2022 items and year-to-year comparisons between 2023 and 2022. Except as otherwise indicated herein or as the context otherwise requires, references in this Form 10-K to "AN2," the "Company," "we," "us" and "our" refer to AN2 Therapeutics, Inc.

This discussion and analysis and other parts of this Form 10-K contain forward-looking statements based upon current beliefs, plans and expectations related to future events and our future financial performance that involve risks, uncertainties and assumptions, such as statements regarding our intentions, plans, objectives and expectations for our business. Our actual results and the timing of selected events could differ materially from those described in or implied by these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K. See also the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical-stage biopharmaceutical company developing treatments for rare, chronic, and serious infectious diseases with high unmet needs. Our initial product candidate is epetraborole, a once-daily, oral treatment for patients with non-tuberculous mycobacterial ("NTM") lung disease. NTM lung disease is a rare, chronic and progressive infectious disease caused by bacteria known as mycobacteria that leads to irreversible lung damage and can be fatal. Epetraborole has broad spectrum antimycobacterial activity through inhibition of an essential and universal step in bacterial protein synthesis. Its novel mechanism of action is enabled by boron chemistry, our core technology approach. We received Fast Track designation by the U.S. Food and Drug Administration (the "FDA") to investigate epetraborole for treatment-refractory *Mycobacterium avium* complex ("MAC") lung disease. Epetraborole has also been designated as a Qualified Infectious Disease Product ("QIDP") for treatment-refractory MAC lung disease by the FDA and has received orphan drug designation from the FDA and orphan medicinal product designation from the European Commission for the treatment of NTM lung disease. Based on clinical and preclinical data generated with epetraborole, its novel mechanism of action, and the convenience associated with once-daily, oral dosing, we believe that epetraborole has the potential to become an important component of a multi-drug treatment regimen for patients suffering from NTM lung disease.

We are conducting a Phase 2/3 seamless design trial to study epetraborole for treatment-refractory MAC lung disease. In February 2024, we paused enrollment of the Phase 3 portion of trial pending review of further study data and discussion with the FDA after observing potentially lower than anticipated efficacy in blinded aggregate data from the Phase 2 portion of the trial. While the Phase 3 part of the trial is paused for new enrollment, we are continuing to dose existing patients enrolled in the Phase 2/3 trial under the existing protocol. We continue to progress in areas that will allow for timely commercialization of epetraborole, if approved. We have completed the manufacturing of active pharmaceutical ingredient ("API") for registration batches, and plan to initiate drug product registration batches in the first half of 2024. We have completed a Phase 1 clinical trial required for registration of a thorough QT study (EBO-104).

Since launching operations in November 2019, we have devoted substantially all of our resources to developing our initial product candidate. We have incurred significant operating losses to date. We expect that our operating expenses will increase significantly as we advance our current and future product candidates through preclinical, nonclinical and clinical development, seek regulatory approval, and prepare for and, if approved, proceed to commercialization; acquire, discover, validate and develop additional product candidates; obtain, maintain, protect and enforce our intellectual property portfolio; hire additional personnel; and incur costs associated with operating as a public company.

We do not have any products approved for sale and have not generated any revenue since inception. Our net losses were $64.7 million and $41.0 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, we had an accumulated deficit of $154.5 million. We have funded our operations from the sale and issuance of redeemable convertible preferred stock, proceeds from our initial public offering ("IPO"), "at-the-market" equity offering program ("ATM Offering") and an underwritten offering (the "Underwritten Offering"). From November 2019 through October 2020, we raised an aggregate of $12.0 million from the sale of Series A redeemable convertible preferred stock. In March 2021, we raised an aggregate of $80.0 million from the sale of Series B redeemable convertible preferred stock. In March and April 2022, we completed our IPO, with gross proceeds of $79.4 million and net proceeds of $70.4 million, net of underwriting discounts, commissions and offering expenses. In June 2023, we raised gross proceeds of $20.0 million from the ATM Offering and net proceeds of $19.1 million, after deducting commissions and offering expenses. In August 2023, we raised gross proceeds of $70.0 million from the Underwritten Offering and net proceeds of $65.5 million, after deducting commissions and offering expenses.

As of December 31, 2023, we had cash, cash equivalents and investments of $134.5 million. We believe that our available cash will be sufficient to fund our planned operations through at least twelve months following the date of this Form 10-K.

Our ability to generate product revenue will depend on the successful development, regulatory approval and eventual commercialization of one or more of our product candidates. Until such time as we can generate revenue from our product sales, if ever, we expect to finance our operations through private or public equity or debt financings, collaborative or other arrangements with corporate sources, non-dilutive financing, or through other sources of financing. Adequate funding may not be available to us on acceptable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we may have to significantly delay, scale back or discontinue the development and commercialization of our product candidates.

We plan to continue to use third-party service providers, including outside research laboratories, clinical research organizations ("CROs"), and contract manufacturing organizations ("CMOs"), to carry out our preclinical, nonclinical and clinical development, and to manufacture and supply the materials to be used during the development and commercialization of our product candidates. We do not currently have a sales force. If we obtain regulatory approval for epetraborole or any of our other product candidates, we intend to hire and deploy a specialty sales force, which will increase our operating costs.

Due to ongoing developments in our business and clinical development and regulatory efforts, among other factors, our results of operations may vary substantially from year to year and from quarter to quarter and, as a result, we believe that period to period comparisons of our operating results may not be meaningful and should not be relied upon as being indicative of our future performance. For more information on the risks and uncertainties associated with our business and our clinical development and regulatory efforts, among other factors, see "Part I, Item 1A—Risk Factors."

Components of Our Operating Results

Operating Expenses

Research and Development Expenses

Substantially all of our research and development expenses consist of expenses incurred in connection with the development of our initial product candidate, epetraborole, and other product candidates. These expenses include fees incurred under arrangements with third parties, including CROs, CMOs, preclinical and nonclinical testing organizations, and academic and non-profit institutions. Research and development expenses also include consulting fees, license fees, payroll and personnel-related expenses, including salaries and bonuses, payroll taxes, employee benefit costs and non-cash stock-based compensation for our research and development employees. We expense both internal and external research and development expenses as they are incurred.

We expect our research and development expenses to increase substantially in the future, as we advance epetraborole and any other product candidates into and through additional clinical trials and pursue regulatory approval. The process of conducting the necessary clinical studies to obtain regulatory approval is costly and time-consuming. Clinical studies 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 study expenses, which involve a degree of estimation. The successful development of our product candidates is highly uncertain. The actual probability of success for our product candidates may be affected by a variety of risks and uncertainties associated with drug development, including those set forth in the section of this Form 10-K titled “Risk Factors.” At this time, we cannot reasonably estimate the nature, timing or costs required to complete the remaining development of our current or any future product candidates. As a result of these uncertainties, 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 product candidates.

General and Administrative Expenses

Our general and administrative expenses consist primarily of payroll and personnel-related expenses, including salaries and bonuses, payroll taxes, employee benefit costs and non-cash stock-based compensation. Other general and administrative expenses include legal costs of pursuing patent protection of our intellectual property, and professional service fees for auditing, tax, general legal services and other external consulting and vendor services. We expect our general and administrative expenses to continue to increase in the future, including expenses related to legal, accounting, regulatory and tax-related services associated with maintaining compliance with requirements of The Nasdaq Stock Market LLC and the SEC, directors and officers liability insurance premiums and investor relations activities.

Other Income, Net

Other income, net consists of interest income and investment income earned on our cash, cash equivalents and investments and income associated with foreign currency fluctuations.

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:

	Year Ended December 31,			
	2023	2022	Change	% Change
	(in thousands, except percentages)			
Operating Expenses:				
Research and development	$ 54,871	$ 28,511	$ 26,360	92%
Research and development—related party	—	1,000	(1,000)	(100)%
General and administrative	14,764	12,751	2,013	16%
Total operating expenses	69,635	42,262	27,373	65%
Loss from operations	(69,635)	(42,262)	(27,373)	65%
Other income, net	4,903	1,306	3,597	*
Net loss	$ (64,732)	$ (40,956)	$ (23,776)	58%
**Change not meaningful*				

Research and Development Expenses

Research and development expenses, including related-party research and development expenses, were $54.9 million for the year ended December 31, 2023 compared to $29.5 million for the year ended December 31, 2022. The increase of $25.4 million was primarily due to increases in clinical trial costs, personnel-related expenses, chemistry manufacturing and controls ("CMC") expenses, and consulting and outside services, partially offset by lower licensing fees. Clinical trials expenses increased by $11.6 million due to increased costs associated with our Phase 2/3 clinical trial in 2023, partially offset by the elimination of costs associated with our three Phase 1 clinical trials conducted in 2022. Personnel-related costs increased by $8.3 million due to increased research and development headcount, higher bonuses based on target performance achievement and stock-based compensation expense. Costs related to CMC activities increased by $3.6 million due to pre-registration manufacturing activities. Consulting and outside services increased by $1.9 million for clinical trial activities. Costs related to research and preclinical studies increased by $0.1 million. Other expenses, including rent, utilities and information technology expenses, increased by $0.9 million to support our increased headcount, offset by lower licensing fees paid in the prior year of $1.0 million to Anacor upon achievement of a milestone. During the year ended December 31, 2023, a total reimbursement of $2.5 million of operating expenses was recognized related to our funding arrangements.

The following table shows our research and development expenses by type of activity:

	Year Ended December 31,			
	2023	2022	Change	% Change
	(in thousands)			
Clinical trials	$ 21,200	$ 9,563	$ 11,637	122%
Chemistry manufacturing and controls expenses	7,316	3,749	3,567	95%
Research and preclinical studies	3,517	3,368	149	4%
Research and development—related party	—	1,000	(1,000)	(100)%
Other expenses	1,507	656	851	130%
Personnel related expenses	16,561	8,266	8,295	100%
Consulting and outside services	4,770	2,909	1,861	64%
Total research and development expenses	$ 54,871	$ 29,511	$ 25,360	86%

General and Administrative Expenses

General and administrative expenses were $14.8 million for the year ended December 31, 2023 compared to $12.8 million for the year ended December 31, 2022. The increase of $2.0 million was primarily attributable to a $1.9 million increase in personnel-related costs primarily related to stock-based compensation expense and a $1.0 million increase in legal and accounting services. These increases were partially offset by a $0.9 million decrease, primarily related to directors and officers liability insurance premiums.

Other Income, Net

Other Income, Net was $4.9 million for the year ended December 31, 2023 compared to $1.3 million for the year ended December 31, 2022. The increase of $3.6 million was due to higher interest rates and higher cash, cash equivalents and short and long-term investment balances in 2023 as compared to 2022.

Liquidity and Capital Resources

Sources of Liquidity

We have incurred net losses since our inception. For the year ended December 31, 2023 and 2022, we had net losses of $64.7 million and $41.0 million, respectively, and we expect to incur substantial additional losses in future periods. As of December 31, 2023, we had an accumulated deficit of $154.5 million. As of December 31, 2023, we had cash, cash equivalents, short-term investments and long-term investments of $134.5 million. Based on our current business plan, we believe that our available cash will be sufficient to fund our planned operations for at least 12 months following the date of this Form 10-K.

To date, we have funded our operations primarily through our Underwritten Offering, ATM Offering, IPO and private placements of our redeemable convertible preferred stock. In August 2023, we generated approximately $65.5 million from the Underwritten Offering, after deducting commissions and offering expenses. In June 2023, we generated

approximately $19.1 million in net proceeds from the ATM Offering, after deducting commissions and offering expenses. In March and April 2022, we generated aggregate net proceeds of approximately $70.4 million from our IPO, after deducting underwriting discounts and commissions and offering expenses. Prior to our IPO, we raised $91.6 million from the issuance of our redeemable convertible preferred stock. Upon the closing of our IPO, all then outstanding shares of redeemable convertible preferred stock were converted into shares of our common stock.

Future Funding Requirements

We do not have any products approved for sale, and we have never generated any revenue from contracts with customers. We do not expect to generate any meaningful revenue unless and until we obtain regulatory approval for and commercialize any of our current and future product candidates and we do not know when, or if, those events will occur. Historically, we have incurred operating losses and negative cash flows as a result of ongoing efforts to develop our initial drug product candidate, epetraborole, including conducting ongoing preclinical and nonclinical studies, clinical trials, registration API and drug product materials manufacturing, and providing general and administrative support for these operations. We expect our negative cash flows to increase significantly over the next several years as we advance epetraborole and any other product candidates through clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization, and continue our research and development efforts. We are subject to all the risks typically related to the development of new product candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. Moreover, we expect to continue to incur costs associated with operating as a public company. We anticipate that we will need substantial additional funding in connection with our continuing operations, as we do not expect positive cash flows from operations in the foreseeable future.

Until we can generate a sufficient amount of revenue from the commercialization of our product candidates, if ever, we expect to finance our future cash needs through public or private equity offerings or debt financings. Additional capital may not be available on reasonable terms, if at all. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of one or more of our current or future product candidates. If we raise additional funds by issuing equity or convertible debt securities, it could result in dilution to our existing stockholders and increased fixed payment obligations. 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. If we incur indebtedness, we could become subject to covenants that would restrict our operations and potentially impair our competitiveness, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. Additionally, any future collaborations we enter into with third parties may provide capital in the near term but we may have to relinquish valuable rights to our product candidates or grant licenses on terms that are not favorable to us. Any of the foregoing could significantly harm our business, financial condition, results of operations and prospects.

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 product candidates, we are unable to estimate the exact amount of our operating capital requirements. Our future capital requirements depend on many factors, including:

- the scope, timing, rate of progress, results and costs of our preclinical and nonclinical development activities and clinical trials for our current and future product candidates;
- the timing of, and the costs involved in, obtaining regulatory approvals for our drug product candidates;
- the timing of enrollment of our current and any future clinical trials;
- the scope and costs of development and commercial manufacturing activities;
- the number and characteristics of any additional product candidates we develop or acquire;
- the cost of manufacturing our product candidates that we successfully commercialize;
- the cost of building a specialty sales force in anticipation of product commercialization;
- the cost of commercialization activities, including building a commercial infrastructure, 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 securities class action, product liability or other lawsuits related to our products;
- the expenses needed to attract, hire, and retain skilled personnel;
- our implementation of operational, financial, and management systems;
- the ongoing costs associated with being a public company;
- the costs involved in preparing, filing, prosecuting, maintaining, defending, and enforcing our intellectual property portfolio; and
- the timing, receipt, and amount of sales of any future approved products, if any.

A change in the outcome of any of these or other variables with respect to the development of any of our current and future product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, our operating plans may change in the future, and we will continue to require additional capital to meet operational needs and capital requirements associated with such operating plans. Any future debt financing into which we enter may impose upon us additional covenants that restrict our operations, including limitation on our ability to incur liens or additional debt, pay dividends, repurchase our common stock, make certain investments or engage in certain merger, consolidation or asset sale transactions. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders.

Adequate funding may not be available to us on acceptable terms or at all. Our failure to raise capital as and when needed could have a negative impact on our financial condition and ability to pursue our business strategies. If we are unable to raise additional funds when needed, we may be required to delay, reduce or terminate some or all of our development programs and clinical trials or we may also be required to terminate rights to our current and future product candidates. If we are required to enter into collaborations and other arrangements to supplement our funds, we may have to give up certain rights that limit our ability to develop and commercialize our product candidates or may have other terms that are not favorable to us or our stockholders, which could materially affect our business and financial condition.

See the section titled “Risk Factors” in Part I, Item 1A of this Annual Report on Form 10-K for additional risks associated with our substantial capital requirements.

Summary Statements of Cash Flows

The following table sets forth a summary of the primary sources and uses of cash:

	Year Ended December 31,	
	2023	2022
	(in thousands)	
Cash used in operating activities	$ (53,288)	$ (33,462)
Cash used in investing activities	(43,278)	(21,771)
Cash provided by financing activities	84,994	70,355
Net (decrease) increase in cash	$ (11,572)	$ 15,122

Cash Used in Operating Activities

Net cash used in operating activities was $53.3 million for the year ended December 31, 2023, which consisted of a net loss of $64.7 million, due to the use of funds to develop our initial drug product candidate offset by a net increase of $5.8 million in our net operating assets and liabilities and $5.6 million in non-cash charges. The net increase in our operating assets and liabilities was primarily due to an increase of $6.2 million in accounts payable, accrued compensation and accrued liabilities due to an increase in accrued research and development expenses, and an increase of $0.7 million in other current liabilities, partially offset by a decrease of $1.0 million in prepaid expenses and other current assets and a decrease of $0.1 million in operating lease liabilities. The non-cash charges consisted of stock-based compensation expense of $8.4 million and non-cash operating lease expense of $0.1 million, partially offset by net accretion of discounts on investments of $2.9 million.

Net cash used in operating activities was $33.5 million for the year ended December 31, 2022, which consisted of a net loss of $41.0 million, due to the use of funds to develop our initial drug product candidate offset by a net increase of $3.7 million in our net operating assets and liabilities and $3.8 million in non-cash charges. The net increase in our operating assets and liabilities was primarily due to an increase of $5.5 million in accounts payable, accrued compensation and accrued liabilities due to an increase in accrued research and development expenses, partially offset by an increase of $1.7 million in prepaid expenses and other current assets and a decrease of $0.1 million in operating lease liabilities. The non-cash charges consisted of stock-based compensation expense of $4.4 million and non-cash operating lease expense of $0.1 million, partially offset by net accretion of discounts on investments of $0.7 million.

Cash Used in Investing Activities

Net cash used in investing activities was $43.3 million for the year ended December 31, 2023, which primarily consisted of $132.2 million in purchases of investments, partially offset by $88.9 million in proceeds from maturities of investments.

Net cash used in investing activities was $21.8 million for the year ended December 31, 2022, which primarily consisted of $93.8 million in purchases of investments, partially offset by $72.0 million in proceeds from maturities of investments.

Cash Provided by Financing Activities

Net cash provided by financing activities was $85.0 million for the year ended December 31, 2023, which primarily consisted of net proceeds from the issuance of common stock in our Underwritten Offering and ATM Offering.

Net cash provided by financing activities was $70.4 million for the year ended December 31, 2022, which primarily consisted of net proceeds from the issuance of common stock in our IPO.

Contractual Obligations and Commitments

In November 2019, we entered into an exclusive worldwide license agreement with Anacor for certain compounds and other intellectual property controlled by Anacor for the treatment, diagnosis, or prevention of disease. In exchange for the worldwide, sublicensable, exclusive right and licenses to develop, manufacture, and commercialize the specified compounds, we paid Anacor a $2.0 million upfront payment in November 2019 and issued Anacor shares of our Series A redeemable convertible preferred stock. We agreed to make further payments to Anacor upon achievement of various development milestones for an aggregate maximum payment of $2.0 million, various commercial and sales threshold milestones for an aggregate maximum payment of $125.0 million, and up to 50% of royalties received under certain sublicensing arrangements. Royalties are subject to certain customary reductions, including lack of patent coverage and generic product entry. We also agreed to pay Anacor sales royalties as a percentage of net sales ranging from single to mid-teens.

We enter into contracts in the normal course of business with third-party contract organizations for preclinical and nonclinical studies and clinical trials, manufacture and supply of our preclinical, nonclinical, clinical trial, and other services and products used for operating purposes. These contracts generally provide for termination following a certain period after notice, and therefore we believe that our non-cancelable obligations under these agreements are not material.

Critical Accounting Policies, Significant Judgements, and Use of Estimates

Our financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"). The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported expenses incurred during the reporting periods. 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 judgements about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgements and estimates. While our significant accounting policies are described in more detail in Part I, Note 2—Basis of Presentation and Summary of Significant Accounting Policies to our financial statements appearing elsewhere in this Form 10-K, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Research and Development

We have entered into various agreements with CMOs and CROs. We record research and development expenses to operations as incurred. Research and development expenses represent costs incurred by us for the discovery and development of our product candidates and the development of our technology and include: internal research and development expense, including employee-related expenses (such as salaries, bonus, benefits, travel and non-cash stock-based compensation expense); external research and development expenses incurred under arrangements with third parties, such as CROs, preclinical testing organizations, CMOs, academic and non-profit institutions and consultants; related-party milestone payments; license fees; and other expenses. Costs to develop our technologies are recorded as research and development expense as incurred.

As part of the process of preparing financial statements, we are required to estimate and accrue expenses. We record the estimated expenses of research and development activities conducted by third-party service providers based upon the estimated level of services performed, progress of the studies, including the receipt of deliverables or completion of agreed-upon events, and contracted costs, within research and development expense in the statements of operations and comprehensive loss. These services include the conduct of clinical, nonclinical and preclinical studies, contract manufacturing activities and consulting services.

Payments made to CMOs and CROs under these arrangements in advance of the performance of the related services are deferred and recognized as expense in the period in which the related goods are received or services are realized or utilized. If the costs have been prepaid, this expense reduces the prepaid expenses in the balance sheets, and if not yet invoiced, the costs are included in accrued liabilities in the balance sheets. These costs are a significant component of our research and development expenses. We record amortization of prepaid expenses or accrued expenses for these costs based on the estimated amount of work completed and in accordance with agreements established with these third parties. Such payments are evaluated for current or long-term classification based on when they will be realized. If the actual timing of the performance of services or the level of effort varies from the original estimates, we will adjust the accrual accordingly. To date, our estimated accruals have not differed materially from the actual costs.

Costs for certain research and development activities are recognized based on an evaluation of the progress to completion of specific tasks. We estimate the amount of work completed through discussions with internal personnel and external service providers as to the progress or stage of completion of the services and the agreed-upon fee to be paid for such services. We make judgments and estimates in determining the accrued balance in each reporting period. As actual costs become known, we adjust our accrued estimates. 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 may vary from our estimates and could result in us reporting amounts that are too high or too low in any particular period. Our accrued expenses are dependent, in part, upon the receipt of timely and accurate reporting from external CROs, CMOs and other third-party service providers. To date, we have not experienced material differences between our accrued expenses and actual expenses.

Stock-Based Compensation

We use a fair value-based method to account for all stock-based compensation arrangements with employees and non-employees, which include stock options. The fair value of the option granted is recognized on a straight-line basis over the period during which an optionee is required to provide services in exchange for the option award, known as the requisite service period, which usually is the vesting period. We account for forfeitures as they occur. In determining fair value of the stock options granted, we use the Black–Scholes option pricing model, which requires the input of subjective assumptions. These assumptions include: estimating the length of time employees will retain their vested stock options before exercising them (expected term), the estimated volatility of our common stock price over the expected term (expected volatility), risk-free interest rate, and expected dividends. See Note 10—Equity Incentive Plan and Stock-Based Compensation to our audited financial statements included elsewhere in this Form 10-K for information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted in the years ended December 31, 2023 and 2022. Changes in the following assumptions can materially affect the estimate of fair value and ultimately how much stock-based compensation expense is recognized; and the resulting change in fair value, if any, is recognized in our statement of operations and comprehensive loss during the period the related services are rendered. These inputs are subjective and generally require significant analysis and judgment to develop.

- Fair Value of Common Stock—See the subsection titled “Common Stock Valuations” below.
- Expected Term—The expected term is calculated using the simplified method which is used when there is insufficient historical data about exercise patterns and post-vesting employment termination behavior. The simplified method is based on the vesting period and the contractual term for each grant, or for each vesting-tranche for awards with graded vesting. The mid-point between the vesting date and the maximum contractual expiration date is used as the expected term under this method. For awards with multiple vesting-tranches, the times from grant until the mid-points for each of the tranches may be averaged to provide an overall expected term.
- Expected Volatility—We use an average historical stock price volatility of a peer group of comparable publicly traded companies in biotechnology and pharmaceutical-related industries to be representative of our expected future stock price volatility, as we have limited trading history for our common stock. For purposes of identifying these peer companies, we consider the industry, therapeutic area, stage of development, size and financial leverage of potential comparable companies. For each grant, we measure historical volatility over a period equivalent to the expected term.
- Risk-Free Interest Rate—The risk-free interest rate is based on the implied yield currently available on U.S. Treasury zero-coupon issues with a remaining term equivalent to the expected term of the stock award.
- Expected Dividend Rate—We have not paid and do not anticipate paying any dividends in the near future. Accordingly, we estimate the dividend yield to be zero.

For the years ended December 31, 2023 and 2022, there was an insignificant amount of cash received and no cash received upon exercise of stock options, respectively.

Common Stock Valuations

Prior to our IPO, in the absence of a public trading market for our common stock, the estimated fair value of the common stock underlying our stock options was determined at each grant date by our Board, with input from management. All options to purchase shares of our common stock are intended to be exercisable at a price per share not less than the per-share fair value of our common stock underlying those options on the date of grant.

On each grant date, we developed an estimate of the fair value of our common stock based on the information known to us on the date of grant, upon a review of any recent events and their potential impact on the estimated fair value per share of the common stock, and valuations from an independent third-party valuation firm.

The valuations of our common stock were determined in accordance with the guidelines outlined in the American Institute of Certified Public Accountants Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation (the “Practice Aid”).

The assumptions used to determine the estimated fair value of our common stock are based on numerous objective and subjective factors, combined with management judgment, including:

- external market conditions affecting the pharmaceutical and biotechnology industry and trends within the industry;
- our stage of development and business strategy;
- the rights, preferences and privileges of our redeemable convertible preferred stock relative to those of our common stock;
- the prices at which we sold shares of our redeemable convertible preferred stock;
- our financial condition and operating results, including our levels of available capital resources;
- equity market conditions affecting comparable public companies; and
- general U.S. market conditions and the lack of marketability of our common stock.

The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock to determine the estimated fair value of common stock at each valuation date. In accordance with the Practice Aid, we considered the following methods:

- **Option Pricing Method**. Under the option pricing method (the "OPM method"), shares are valued by creating a series of call options with exercise prices based on the liquidation preferences and conversion terms of each equity class. The estimated fair values of the preferred and common stock are inferred by analyzing these options.
- **Current Value Method**. Under the current value method (the "CVM method"), the Company's current value is allocated among various equity holders based on liquidation preferences and other rights under the assumption that all capital owners act to maximize their financial return.
- **Probability-Weighted Expected Return Method**. The probability-weighted expected return method (the "PWERM method"), is a scenario-based analysis that estimates value per share based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available to us, as well as the economic and control rights of each share class.
- **Hybrid Method**. Under the Hybrid Method the Company's current value is estimated based on a combination of the OPM, PWERM, and CVM methods, whereby each valuation method is applied to a different scenario. The different scenarios are then weighted based on their probable outcomes.

Subsequent to December 31, 2021 and through March 23, 2022, prior to the availability of a market price for our common stock on the Nasdaq Global Select Market, we used the Hybrid Method to determine our enterprise value. We took into account our estimated equity value of our anticipated IPO, the estimated present value of the assumed IPO price per share, the estimated time to IPO and a discount for lack of marketability. We also factored in the non-IPO Scenario, assumed that we will stay private and used a hybrid backsolve method to conclude our equity value based on our most recent arms-length financing transaction, adjusted for market trends. The non-IPO Scenario also involved making assumptions for the expected time to liquidity, volatility, and risk-free rate.

Subsequent to December 31, 2021 and through March 23, 2022, we determined that the Hybrid Method was also the most appropriate method for allocating our enterprise value to determine the estimated fair value of our common stock. The OPM and CVM methods were used based on the future IPO Scenario, equity value and the expected future allocation to the preferred and common stockholders. The CVM and OPM methods were combined and weighted to reflect our estimation of the occurrence of each scenario.

In determining the estimated fair value of our common stock, our Board also considered the fact that our stockholders could not freely trade our common stock in the public markets. Accordingly, we applied discounts to reflect the lack of marketability of our common stock based on the weighted-average expected time to liquidity. The estimated fair value of our common stock at each grant date reflected a non-marketability discount partially based on the anticipated likelihood and timing of a future liquidity event.

There are significant judgments and estimates inherent in the determination of our enterprise value and the fair value of our common stock, such as those regarding our discount rates, the selection of comparable companies, and the probability of possible future events. Such estimates involve inherent uncertainties and the application of significant judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation could be materially different. Changes in judgements could have a material impact on our results of operation. Following the completion of the IPO, the fair value of our common stock is based on the closing quoted market price of our common stock on the date of grant.

Redeemable Convertible Preferred Stock

We recorded all shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. The redeemable convertible preferred stock was recorded outside of permanent equity because while it is not mandatorily redeemable, in certain events considered not solely within our control, such as a merger, acquisition, or sale of all or substantially all of our assets (each, a deemed liquidation event), the redeemable convertible preferred stock would have become redeemable at the option of the holders of at least a majority of the then outstanding shares. In addition, shares of preferred stock must be redeemed by the Company at a price of $2.55 and $15.00 per share for Series A and Series B redeemable convertible stock, respectively, plus any accrued dividends (whether or not declared) in three annual installments on or after the seventh anniversary of the Series B original issue date (on or after March 5, 2028) upon a written request by at least two-thirds of the holders of the Series A and Series B redeemable convertible preferred stock, voting together as a single class. During the year ended December 31, 2022, we accreted $1.8 million to the redemption value of the redeemable convertible preferred stock representing cumulative dividends. Immediately prior to the closing of the IPO, all outstanding shares of the Company's redeemable convertible preferred stock were converted into shares of common stock and the related carrying value was reclassified to common stock and additional paid-in capital. There were no shares of redeemable convertible preferred stock outstanding as of December 31, 2023 and 2022.

Indemnification Agreements

We enter into standard indemnification arrangements in the ordinary course of business. Pursuant to these arrangements, we indemnify, hold harmless and agree to reimburse the indemnified parties for losses suffered or incurred by the indemnified party, including in connection with any trade secret, copyright, patent, or other intellectual property infringement claim by any third party with respect to its technology. The term of these indemnification agreements is generally perpetual any time after the execution of the agreement. The maximum potential amount of future payments we could be required to make under these arrangements is not determinable. We have never incurred costs to defend lawsuits or settle claims related to these indemnification agreements. As a result, we believe the fair value of these agreements is minimal.

We have also agreed to indemnify our directors and officers for certain events or occurrences while the director or officer is, or was serving, at our request in such capacity. The indemnification period covers all pertinent events and occurrences during the director's or officer's service. The maximum potential amount of future payments we could be required to make under these indemnification agreements is not specified in the agreements; however, we have director and officer insurance coverage that reduces our exposure and enables us to recover a portion of any future amounts paid.

Recent Accounting Pronouncements

See the section "Recently Adopted Accounting Pronouncements" in Note 2 to the Notes to Financial Statements in Part IV, Item 15 of this Annual Report on Form 10-K.

JOBS Act Accounting Election

The JOBS Act permits an "emerging growth company" or "EGC" such as us to delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to use this extended period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that we (i) are no longer an EGC or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, the information we provide may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

In addition, we intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act.

We will remain an EGC until the earliest to occur of: (1) the last day of our first fiscal year in which we have total annual revenues of more than $1.235 billion; (2) the date we qualify as a “large accelerated filer,” with at least $700.0 million of equity securities held by non-affiliates; (3) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three- year period; and (4) the last day of the fiscal year ending after the fifth anniversary of our IPO.

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

Interest Rate Sensitivity

We are exposed to market risk related to changes in interest rates. We had cash, cash equivalents and investments of $134.5 million as of December 31, 2023, which consisted primarily of money market funds and marketable securities, largely composed of investment grade, short and long- term fixed income securities and government 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. To achieve our objectives, we maintain a portfolio of cash, cash equivalents, and investments in accordance with our Board-approved investment charter.

Our investments are subject to interest rate risk and could fall in value if market interest rates increase. A hypothetical 10% relative change in interest rates during any of the periods presented would not have had a material impact on our financial statements. We do not believe that inflation, interest rate changes or exchange rate fluctuations had a significant impact on our results of operations for any periods presented herein.

Foreign Currency Risk

A small portion of our expenses are denominated in foreign currencies, most notably the Australian Dollar. Future fluctuations in the value of the U.S. Dollar may affect the price we pay for services performed outside the United States. We were not exposed to material foreign currency risk during the year ended December 31, 2023.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and operating costs including clinical trial, non-clinical study and manufacturing costs. We believe that inflation has not had a material effect on our financial statements included elsewhere in this Annual Report on Form 10-K.

Item 8. Financial Statements and Supplementary Data.

The financial statements and related financial statement schedules required to be filed are listed in Part IV, Item 15 of this Annual Report on Form 10-K.

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 Officer (“CEO”) and Chief Financial Officer (“CFO”), has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) as of the end of the period covered by this Form 10-K.

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 rules and forms of the Securities and Exchange Commission. 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 CEO and CFO, or persons performing similar functions, 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.

Our CEO and CFO have concluded that as of December 31, 2023, our disclosure controls and procedures were not effective due to material weaknesses in internal control over financial reporting, as described below.

Notwithstanding the identified material weaknesses, management, including our CEO and CFO, have determined, based on the procedures we have performed, that the financial statements included in this Annual Report on Form 10-K were prepared in accordance with U.S. GAAP.

Management’s Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. 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 U.S. GAAP.

Management has evaluated the effectiveness of our internal control over financial reporting as of December 31, 2023 using the criteria set forth in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on its evaluation, management has concluded that as of December 31, 2023, our internal control over financial reporting was not effective due to material weaknesses in internal control over financial reporting, as described below.

During the course of preparing for our March 2022 IPO, we identified material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of its annual or interim financial statements will not be prevented or detected on a timely basis.

The material weaknesses identified were as follows, and continue to exist as of December 31, 2023:

- We did not design and maintain an effective control environment commensurate with our financial reporting requirements. Specifically, we lacked a sufficient complement of resources with (i) an appropriate level of accounting knowledge, experience and training to appropriately analyze, record and disclose accounting matters timely and accurately, and (ii) an appropriate level of knowledge and experience to establish effective processes and controls. Additionally, the lack of a sufficient number of professionals resulted in an inability to consistently establish appropriate authorities and responsibilities in pursuit of our financial reporting objectives, as demonstrated by, among other things, insufficient segregation of duties in our finance and accounting functions. This material weakness contributed to the following additional material weaknesses.
- We did not design and maintain effective controls related to the period-end financial reporting process, including designing and maintaining formal accounting policies, procedures and controls to achieve complete, accurate and timely financial accounting, reporting and disclosures. Additionally, we did not design and maintain controls over the preparation and review of account reconciliations and journal entries, including maintaining appropriate segregation of duties.

The above material weaknesses resulted in adjustments to accrued expenses balances, which were recorded prior to the issuance of the financial statements, as of and for the years ended December 31, 2019 and 2020. Additionally, these material weaknesses could result in a misstatement of substantially all of our accounts or disclosures that would result in a material misstatement to the annual or interim financial statements that would not be prevented or detected.

- We did not design and maintain effective controls over information technology ("IT") general controls for information systems that are relevant to the preparation of our financial statements. Specifically, we did not design and maintain (i) program change management controls to ensure that IT program and data changes affecting financial IT applications and underlying accounting records are identified, tested, authorized and implemented appropriately, (ii) user access controls to ensure appropriate segregation of duties and that adequately restrict user and privileged access to financial applications, programs, and data to appropriate Company personnel, (iii) computer operations controls to ensure that critical batch jobs are monitored and data backups are authorized and monitored, and (iv) testing and approval controls for program development to ensure that new software development is aligned with business and IT requirements.

These IT deficiencies did not result in adjustments to the financial statements. However, the IT deficiencies, when aggregated, could impact maintaining effective segregation of duties, as well as the effectiveness of IT-dependent controls (such as automated controls that address the risk of material misstatement to one or more assertions, along with the IT controls and underlying data that support the effectiveness of system-generated data and reports) that could result in misstatements potentially impacting all financial statement accounts and disclosures that would not be prevented or detected. Accordingly, management has determined the IT deficiencies in the aggregate constitute a material weakness.

Attestation Report of Independent Registered Public Accounting Firm

This Annual Report on Form 10-K does not include an attestation report from our independent registered public accounting firm on our internal control over financial reporting due to an exemption established by the JOBS Act for EGCs.

Remediation of Prior Material Weakness

Management previously identified a material weakness in the design and operating effectiveness of controls related to the accounting for certain non-routine or complex transactions, including the proper application of U.S. GAAP to such transactions. As of September 30, 2023, we finalized the design and were validating the effectiveness of controls to account for and disclose complex transactions. As of December 31, 2023, we validated the effectiveness of controls to account for and disclose complex transactions. The applicable controls have been in operation for a sufficient period of time, and management has concluded, through testing, that these controls are operating effectively. Accordingly, the material weakness associated with the accounting for certain non-routine or complex transactions, including the proper application of U.S. GAAP, was remediated as of December 31, 2023.

Remediation Plan for Remaining Material Weaknesses

The Company is committed to remediating the material weaknesses in our internal control over financial reporting. We have implemented measures designed to improve our internal control over financial reporting to remediate these material weaknesses, and are refining the design and validating the effectiveness of these controls, including (i) ongoing hiring of additional accounting personnel; (ii) designing and implementing internal controls in our financial control environment, including establishing formal accounting policies and procedures and financial reporting controls; and (iii) implementing an accounting system upgrade with IT controls to ensure appropriate and restricted access to our accounting applications, programs, and data, including upgrading of our accounting system.

Other than the material weakness associated with the accounting for certain non-route or complex transactions, including the proper application of U.S. GAAP, which has been remediated, the remaining material weaknesses will not be considered remediated until the design requirements described above have been finalized, and the applicable controls have operated for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Accordingly, the material weaknesses related to lack of sufficient resources, insufficient segregation of duties, lack of designing and maintaining formal accounting policies, procedures and controls and lack of designing and maintaining effective controls over IT, were not remediated as of December 31, 2023.

Limitations on the Effectiveness of Controls

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the three months ended December 31, 2023 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None of our directors or officers (as defined in Section 16 of the Securities Exchange Act of 1934, as amended) adopted or terminated any contract, instruction or written plan for the purchase or sale of our securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any “non-Rule 10b5-1 trading arrangement,” as defined in Item 408(a) of Regulation S-K.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this item is incorporated by reference to the Proxy Statement to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

Item 11. Executive Compensation.

The information required by this item is incorporated by reference to the Proxy Statement to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this item is incorporated by reference to the Proxy Statement to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this item is incorporated by reference to the Proxy Statement to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

Item 14. Principal Accounting Fees and Services.

The information required by this item is incorporated by reference to the Proxy Statement to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2023.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) The following documents are filed as a part of this Annual Report:

(1) Financial Statements:

(2) Financial Statement Schedules:

All financial statement schedules have been omitted because they are not applicable, not required or the information required is shown in the financial statements or the notes thereto.

(3) Exhibits:

The list of exhibits filed with this Annual Report on Form 10-K is set forth in the Exhibit Index preceding the signature page and is incorporated herein by reference or filed with this Annual Report, in each case as indicated therein (numbered in accordance with Item 601 of Regulation S-K).

Item 16. Form 10-K Summary.

None.

Exhibit Index

Exhibit Number	Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
3.1	Amended and Restated Certificate of Incorporation.	S-1	333-263295	3.2	March 4 2022
3.2	Amended and Restated Bylaws.	S-1	333-263295	3.4	March 4, 2022
4.1	Form of Common Stock Certificate.	S-1	333-263295	4.1	March 21, 2022
4.2	Amended and Restated Investors' Rights Agreement, by and among the Registrant and certain of its stockholders, dated March 5, 2021.	S-1	333-263295	4.2	March 4, 2022
4.3	Description of Securities	10-K	001-41331	4.3	March 29, 2023
10.1#	AN2 Therapeutics, Inc. 2017 Equity Incentive Plan, as amended.	S-1	333-263295	10.1	March 4, 2022
10.2#	Forms of Stock Option Grant Notice, Stock Option Agreement and Notice of Exercise and Early Exercise Stock Purchase Agreement under the AN2 Therapeutics, Inc. 2017 Equity Incentive Plan.	S-1	333-263295	10.2	March 4, 2022
10.3#*	AN2 Therapeutics, Inc. 2022 Equity Incentive Plan.				
10.4#	Forms of Stock Option Grant Notice, Stock Option Agreement and Notice of Exercise under the AN2 Therapeutics, Inc. 2022 Equity Incentive Plan.	S-1	333-263295	10.4	March 4, 2022
10.5#*	Form of Restricted Stock Unit Grant Notice and Award Agreement under the AN2 Therapeutics, Inc. 2022 Equity Incentive Plan.				
10.6#*	AN2 Therapeutics, Inc. 2022 Employee Stock Purchase Plan.				
10.7#	AN2 Therapeutics, Inc. 2022 Non-Employee Director Compensation Policy.	S-1	333-263295	10.7	March 4, 2022
10.8#	AN2 Therapeutics, Inc. Officer Severance Plan.	S-1	333-263295	10.8	March 4, 2022
10.9#	Form of Indemnity Agreement by and between the Registrant and its directors and executive officers.	S-1	333-263295	10.9	March 4, 2022
10.10#	Offer Letter by and between the Registrant and Eric Easom, dated November 19, 2019.	S-1	333-263295	10.10	March 4, 2022
10.11#	Offer Letter by and between the Registrant and Lucy Day, dated November 19, 2019.	S-1	333-263295	10.11	March 4, 2022
10.12#	Offer Letter by and between the Registrant and Sanjay Chanda, dated November 19, 2019.	S-1	333-263295	10.12	March 4, 2022
10.13‡	License Agreement by and between the Registrant and Anacor Pharmaceuticals, Inc., dated November 20, 2019, as amended on December 3, 2021.	S-1	333-263295	10.13	March 4, 2022
10.14‡	License Agreement by and between the Registrant and Brii Biosciences Limited, dated November 20, 2019.	S-1	333-263295	10.14	March 4, 2022
10.15	Amended and Restated Global Health Agreement by and among the Registrant, Adjuvant Global Health Technology Fund L.P., and Adjuvant Global Health Technology Fund DE L.P., dated March 5, 2021.	S-1	333-263295	10.15	March 4, 2022
10.16#	Offer Letter by and between the Registrant and Joshua Eizen, dated September 19, 2022.	10-Q	001-41331	10.1	November 9, 2022
10.17#	Offer Letter by and between the Registrant and Kevin Krause, dated November 19, 2019.	10-K	001-41331	10.17	March 29, 2023
10.18#	Offer Letter by and between the Registrant and Paul Eckburg, dated April 30, 2021.	10-K	001-41331	10.18	March 29, 2023

Exhibit Number	Description	Incorporated by Reference			
		Form	File No.	Exhibit	Filing Date
23.1*	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm.				
24.1*	Power of Attorney (incorporated by reference to the signature page to this Annual Report on Form 10-K.)				
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
32.1*†	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
32.2*†	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
97.1*	Compensation Recovery Policy.				
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.				
101.SCH	Inline XBRL Taxonomy Extension Schema Document**				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document**				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document**				
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document**				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document**				
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				

* Filed herewith.

# Indicates management contract or compensatory plan.

‡ Portions of this exhibit (indicated by [*]) have been omitted because the registrant has determined that the information is both not material and is the type that the registrant treats as private or confidential.

** The following materials are formatted in Inline XBRL (Extensible Business Reporting Language): (i) the cover page; (ii) the Balance Sheets as of December 31, 2023 and 2022; (iii) the Statements of Operations and Comprehensive Loss for the years ended December 31, 2023 and 2022; (iv) the Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit) for the years ended December 31, 2023 and 2022; (vi) the Statements of Cash Flows for the years ended December 31, 2023 and 2022; (vii) Notes to Financial Statements tagged as blocks of text.

† The certification attached as Exhibit 32.1 and Exhibit 32.2 that accompany this Annual Report is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company 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, irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized on March 29, 2024.

AN2 Therapeutics, Inc.

By: /s/ Eric Easom

Eric Easom
Chief Executive Officer and Director
(Principal Executive Officer)

By: /s/ Lucy O. Day

Lucy O. Day
Chief Financial Officer
(Principal Financial and Accounting Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Eric Easom and Lucy O. Day, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, 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 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 all that said attorneys-in-fact and agents, or any of them, or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Eric Easom **Eric Easom**	Chief Executive Officer and Director (Principal Executive Officer)	March 29, 2024
/s/ Lucy O. Day **Lucy O. Day**	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 29, 2024
/s/ Joseph Zakrzewski **Joseph Zakrzewski**	Chair and Director	March 29, 2024
/s/ Kabeer Aziz **Kabeer Aziz**	Director	March 29, 2024
/s/ Maggie FitzPatrick **Maggie FltzPatrick**	Director	March 29, 2024
/s/ Gilbert L. Marks **Gilbert L. Marks**	Director	March 29, 2024
/s/ Patricia (Patty) Martin **Patricia (Patty) Martin**	Director	March 29, 2024
/s/ Rob Readnour **Rob Readnour**	Director	March 29, 2024
/s/ Melvin Spigelman **Melvin Spigelman**	Director	March 29, 2024
/s/ Stephanie Wong **Stephanie Wong**	Director	March 29, 2024

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of AN2 Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of AN2 Therapeutics, Inc. (the "Company") as of December 31, 2023 and 2022, and the related statements of operations and comprehensive loss, of redeemable convertible preferred stock and stockholders' equity (deficit) and of cash flows for each of the two years in the period ended December 31, 2023, including the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

We conducted our audits of these financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the 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.

Emphasis of Matter

As discussed in Note 2 to the financial statements, the Company will require additional financing to fund future operations. Management's plans in regard to this matter are also described in Note 2.

/s/ PricewaterhouseCoopers LLP

San Jose, California

March 29, 2024

We have served as the Company's auditor since 2021, which includes periods before the Company became subject to SEC reporting requirements.

AN2 THERAPEUTICS, INC.
BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 15,647	$ 27,219
Short-term investments	91,648	68,840
Prepaid expenses and other current assets	3,212	2,509
Right-of-use asset, net	—	53
Total current assets	110,507	98,621
Long-term investments	27,194	3,219
Other assets, long-term	1,043	720
Total assets	$ 138,744	$ 102,560
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,676	$ 2,122
Accrued compensation	4,018	2,168
Accrued liabilities	6,681	2,837
Other current liabilities	666	—
Operating lease liabilities	—	53
Options subject to repurchase, short-term	2	6
Total current liabilities	14,043	7,186
Options subject to repurchase, long-term	—	2
Total liabilities	14,043	7,188
Commitments and contingencies (Note 8)		
Stockholders' equity:		
Preferred stock, $0.00001 par value; 10,000,000 shares authorized December 31, 2023 and 2022; no shares issued and outstanding at December 31, 2023 and 2022	—	—
Common stock, $0.00001 par value; 500,000,000 shares authorized at December 31, 2023 and 2022; 29,741,445 and 19,402,658 shares issued and outstanding at December 31, 2023 and 2022, respectively	—	—
Additional paid-in capital	278,881	185,469
Accumulated other comprehensive gain (loss)	275	(374)
Accumulated deficit	(154,455)	(89,723)
Total stockholders' equity	124,701	95,372
Total liabilities and stockholders' equity	$ 138,744	$ 102,560

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

AN2 THERAPEUTICS, INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share amounts)

	Years ended December 31,	
	2023	**2022**
Operating expenses:		
Research and development	$ 54,871	$ 28,511
Research and development—related party	—	1,000
General and administrative	14,764	12,751
Total operating expenses	69,635	42,262
Loss from operations	(69,635)	(42,262)
Other income, net	4,903	1,306
Net loss	(64,732)	(40,956)
Accretion to redemption value and cumulative dividends on preferred stock	—	(1,820)
Net loss attributable to common stockholders	$ (64,732)	$ (42,776)
Net loss per share attributable to common stockholders, basic and diluted	$ (2.74)	$ (2.79)
Weighted-average number of shares used in computing net loss per share, basic and diluted	23,600,107	15,340,134
Other comprehensive loss:		
Unrealized gain (loss) on investments	649	(347)
Comprehensive loss	$ (64,083)	$ (41,303)

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

AN2 THERAPEUTICS, INC.
STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share and per share amounts)

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balances at December 31, 2021	11,409,488	$ 109,319	2,730,298	$ —	$ —	$ (27)	$ (47,384)	$ (47,411)
Conversion of convertible preferred stock into common stock	(11,409,488)	(111,139)	11,409,488	—	111,139	—	—	111,139
Issuance of common stock upon initial public offering, net of underwriters' commission and offering costs of $8.9 million	—	—	5,290,000	—	70,366	—	—	70,366
Vesting of early exercised stock options	—	—	—	—	21	—	—	21
Repurchase of early exercised stock options	—	—	(27,128)	—	(11)	—	—	(11)
Stock-based compensation	—	—	—	—	4,391	—	—	4,391
Accretion to redemption value and cumulative dividends on preferred stock	—	1,820	—	—	(437)	—	(1,383)	(1,820)
Unrealized loss on available-for-sale investments	—	—	—	—	—	(347)	—	(347)
Net loss	—	—	—	—	—	—	(40,956)	(40,956)
Balances at December 31, 2022	—	—	19,402,658	—	185,469	(374)	(89,723)	95,372
Issuances of common stock in the "at the market" offering, net of underwriter's commission and offering costs of $0.9 million	—	—	2,502,000	—	19,050	—	—	19,050
Issuances of common stock in the Underwritten Offering, net of underwriter's commission and offering costs of $4.5 million	—	—	7,777,778	—	65,479	—	—	65,479
Issuance of common stock under the ESPP	—	—	44,009	—	366	—	—	366
Issuance of common stock upon exercise of stock options	—	—	15,000	—	99	—	—	99
Vesting of early exercised stock options	—	—	—	—	6	—	—	6
Stock-based compensation	—	—	—	—	8,412	—	—	8,412
Unrealized gain on available-for-sale investments	—	—	—	—	—	649	—	649
Net loss	—	—	—	—	—	—	(64,732)	(64,732)
Balances at December 31, 2023	—	$ —	29,741,445	$ —	$ 278,881	$ 275	$ (154,455)	$ 124,701

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

AN2 THERAPEUTICS, INC.
STATEMENTS OF CASH FLOWS
(in thousands)

	Year ended December 31,	
	2023	2022
Cash flows from operating activities		
Net loss	$ (64,732)	$ (40,956)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	8,412	4,391
Non-cash operating lease expense	53	77
Net accretion of discount on investments	(2,855)	(692)
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(1,026)	(1,678)
Accounts payable	553	2,497
Accrued compensation	1,850	1,252
Accrued liabilities	3,844	1,724
Operating lease liabilities	(53)	(77)
Other current liabilities	666	—
Net cash used in operating activities	(53,288)	(33,462)
Cash flows from investing activities		
Purchases of investments	(132,178)	(93,836)
Maturities of investments	88,900	72,065
Net cash used in investing activities	(43,278)	(21,771)
Cash flows from financing activities		
Proceeds from issuance of common stock from the Underwritten Offering, net of commissions and offering expenses	65,479	—
Proceeds from issuance of common stock from the “at-the-market” offering, net of commissions and offering expenses	19,050	—
Proceeds from issuance of common stock under the ESPP	366	—
Proceeds from exercise of stock options	99	—
Proceeds from issuance of common stock from the initial public offering, net of underwriting discounts, commissions and offering expenses	—	70,366
Repurchase of early exercised stock options	—	(11)
Net cash provided by financing activities	84,994	70,355
Net (decrease) increase in cash and cash equivalents	(11,572)	15,122
Cash and cash equivalents at the beginning of the period	27,219	12,097
Cash and cash equivalents at the end of the period	$ 15,647	$ 27,219
Supplemental disclosure of noncash financing items		
Conversion of redeemable convertible preferred stock into common stock	—	111,139
Accretion to redemption value and cumulative dividends on preferred stock	—	1,820

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

Note 1. Organization and Description of the Business

Description of Business

AN2 Therapeutics, Inc. (the “Company”) is a clinical-stage biopharmaceutical company focused on developing treatments for rare, chronic, and serious infectious diseases with high unmet needs. The Company’s initial product candidate, epetraborole, is under development as a once-daily, oral treatment for patients with non-tuberculous mycobacterial (NTM) lung disease. The Company was incorporated in the state of Delaware in February 2017, began operations in November 2019, began trading on the Nasdaq Global Select Market on March 25, 2022 under the symbol “ANTX”, and is based in Menlo Park, California.

Since launching operations in November 2019, the Company has devoted substantially all of its resources to performing research and development activities, including with respect to its initial product candidate, epetraborole, and other product candidates, business planning, hiring personnel, raising capital and providing general and administrative support for these operations.

Initial Public Offering

On March 24, 2022, the Company’s registration statement on Form S-1 (File No. 333-263295) relating to its initial public offering (“IPO”) of common stock became effective. The IPO closed on March 29, 2022, at which time the Company issued an aggregate of 4,600,000 shares of its common stock at a price to the public of $15.00 per share. In addition, immediately prior to the closing of the IPO, all outstanding shares of the Company’s redeemable convertible preferred stock automatically converted into 11,409,488 shares of common stock. The aggregate offering proceeds for shares sold in the IPO was $69.0 million. After deducting underwriting discounts and commissions of $4.8 million and offering costs paid or payable by the Company of $3.3 million, the net proceeds from the offering were approximately $60.9 million.

On April 8, 2022, the underwriters from the IPO exercised an option to purchase 690,000 additional shares of the Company's common stock at a public offering price of $15.00 per share, resulting in additional gross proceeds to the Company of $10.4 million, and additional net proceeds of approximately $9.5 million. After giving effect to this exercise of the overallotment option, the total number of shares sold by the Company in the IPO increased to 5,290,000 shares with total net proceeds to the Company of approximately $70.4 million.

At-The-Market Offering

On April 6, 2023, the Company entered into a sales agreement ("Sales Agreement") with Cowen and Company, LLC as the Company’s sales agent (“Agent”) to issue and sell up to an aggregate gross sales of $100.0 million in shares (“Shares”) of the Company’s common stock through an “at-the-market” equity offering program (“ATM Offering”). The Company will pay commissions to the Agent of up to 3.0% of the gross proceeds of the sale of the Shares sold under the Sales Agreement and reimburse the Agent for certain expenses. During the year ended December 31, 2023, the Company issued and sold 2,502,000 shares of common stock under the ATM Offering, resulting in net proceeds of $19.1 million, after deducting commissions and other offering costs.

Underwritten Offering

On August 15, 2023, the Company entered into an underwriting agreement (the "Underwriting Agreement") with Cowen and Company, LLC, Leerink Partners LLC and Evercore Group L.L.C. as representatives of several underwriters to issue and sell 7,777,778 shares of common stock at an offering price of $9.00 per share, resulting in net proceeds of $65.5 million, after deducting commissions and other offering costs (the "Underwritten Offering").

Note 2. Summary of Significant Accounting Policies

Basis of Presentation

The Company's financial statements have been prepared in accordance with United States generally accepted accounting principles ("U.S. GAAP"). Certain reclassifications have been made to the prior year presentation to conform to the current year presentation. The prior year presentation of "interest income" and "other expense" on the statements of operations and comprehensive loss has been condensed into "other income, net" and conformed to reflect the current year's presentation. The prior year presentation of issuance of common stock upon initial public offering has been condensed within the statements of redeemable convertible preferred stock and stockholders' equity (deficit).

For all periods presented, shares of common stock and then existing redeemable convertible preferred stock and per share amounts have been adjusted on a retroactive basis to reflect our 2.352936-for-1 forward stock split, which was effected on March 18, 2022. The stock split did not change the par value of the common stock and redeemable convertible preferred stock or the authorized number of shares of common stock and redeemable convertible preferred stock.

Risks and Uncertainties

Liquidity

Prior to the Company's IPO in March 2022, the Company's operations had historically been financed through the issuance of redeemable convertible preferred stock. Since inception, the Company has incurred significant losses and negative net cash flows from operations. During the years ended December 31, 2023 and 2022, the Company incurred a net loss of $64.7 million and $41.0 million, respectively, and had cash flows used in operating activities of $53.3 million and $33.5 million, respectively. The Company has an accumulated deficit of $154.5 million and $89.7 million as of December 31, 2023 and 2022, respectively, and will require substantial additional capital for research and development activities. The Company anticipates incurring additional losses until such time, if ever, that it can generate significant sales of its product candidate currently in development.

As of December 31, 2023, the Company had cash, cash equivalents, short-term investments and long-term investments of $134.5 million. Management believes that its cash, cash equivalents and investments as of December 31, 2023 will be sufficient to fund its current operating plan through at least 12 months from the issuance date of these financial statements. Future capital requirements will depend on many factors, including the timing and extent of spending on research and development, including costs for preclinical and nonclinical studies, clinical trials and clinical trial and material manufacturing. There can be no assurance that, in the event the Company requires additional financing, such financing will be available at terms acceptable to the Company, if at all. Failure to generate sufficient cash flows from operations, raise additional capital, and reduce discretionary spending should additional capital not become available could have a material adverse effect on the Company's ability to achieve its intended business objectives.

Segments

The Company operates and manages its business as one reportable and operating segment. The Company's chief executive officer, who is the chief operating decision maker, reviews financial information on a company-wide basis for purposes of allocating resources and assessing financial performance.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the financial statements and the reported amounts of expenses during the reporting period. On an ongoing basis, management evaluates its estimates, including those related to research and development accruals, fair value of assets and liabilities and stock-based compensation. Management bases its estimates on historical experience and on various other market-specific and relevant assumptions that management believes to be reasonable under the circumstances. Actual results could differ from those estimates.

Deferred Offering Costs

The Company capitalizes certain legal, accounting and other third-party fees that are directly related to the Company's equity financings, including its Underwritten Offering in August 2023, ATM Offering filed in April 2023 and its IPO in 2022, until such financings are consummated. After consummation of the equity financing, these costs are recorded as a reduction of the proceeds received as a result of the financing. The Company capitalized certain legal, accounting and other third-party fees that were directly related to the Company's Underwritten Offering, ATM Offering and IPO. After the completion of the IPO in March 2022, the total deferred offering costs of $3.3 million were offset against the proceeds from the IPO and reclassified to additional paid-in capital in the accompanying balance sheets. After the completion of the ATM Offering in June 2023, the total deferred offering costs of $0.9 million were offset against the proceeds from the ATM Offering and reclassified to additional paid-in capital in the accompanying balance sheets. After the completion of the Underwritten Offering in August 2023, the total deferred offering costs of $4.5 million were offset against the proceeds from the Underwritten Offering and reclassified to additional paid-in capital in the accompanying balance sheets. At December 31, 2023 and 2022, no deferred offering costs were included as non-current assets in the accompanying balance sheets.

Research and Development Expenses

All research and development costs, including work performed by third parties, are expensed as incurred. Research and development costs consist of salaries and other personnel-related expenses, including associated stock-based compensation, consulting fees, and facility costs, as well as fees paid to other entities that conduct certain research and development activities on behalf of the Company. Payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods are received or services are rendered.

As part of the process of preparing its financial statements, the Company estimates its accrued expenses. This process involves reviewing quotations and contracts, identifying services that have been performed on the Company's behalf and estimating the level of services performed and the associated cost incurred for services for which the Company has not yet been invoiced or otherwise notified of the actual cost. The majority of the Company's service providers invoice monthly in arrears for services performed or when contractual milestones are met. The Company makes estimates of its accrued expenses at the end of each reporting period based on the facts and circumstances known to the Company at that time. The significant estimates in the Company's accrued research and development expenses relate to expenses incurred with respect to contract manufacturing and clinical and other research organizations, academic research centers and other vendors in connection with research and development activities for which the Company has not yet been invoiced.

Redeemable Convertible Preferred Stock

The Company recorded the redeemable convertible preferred stock at fair value on the dates of issuance, net of issuance costs. The carrying value of the redeemable convertible preferred stock was accreted to its redemption value. Immediately prior to the closing of the IPO, all outstanding shares of the Company's redeemable convertible preferred stock were converted into shares of common stock and the related carrying value was reclassified to common stock and additional paid-in capital. There were no shares of redeemable convertible preferred stock outstanding as of December 31, 2023 and 2022.

Stock-Based Compensation

The Company measures and recognizes compensation expense for equity-classified stock-based awards made to employees, directors and non-employees based on the grant date estimated fair value of each award. Compensation expense for employee and director awards is recognized on a straight-line basis over the requisite service period which is generally the vesting period for the entire award. Expense is adjusted for forfeitures as they occur. Compensation expense for non-employee awards is recognized in the same period and manner as if the Company had paid cash for the goods or services provided.

The valuation model used for calculating the fair value of stock options for stock compensation expense is the Black-Scholes option-pricing model (the Black-Scholes model). The Black-Scholes model requires management to make assumptions and judgments about the variables used in the calculation, including the expected term, the expected volatility of common stock, an assumed risk-free interest rate, and expected dividends the Company may pay. Management elected to apply the practical expedient for private companies and used the simplified method to determine the awards' expected term. Volatility is based on an average of the historical volatilities of the common stock of entities with characteristics similar to the Company's. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods corresponding with the expected life of the option. The Company uses an assumed dividend yield of zero as the Company has never paid dividends and has no current plans to pay any dividends on its common stock.

For option awards that contain performance conditions, compensation cost is recognized in the period in which it becomes probable that the performance condition will be satisfied. For option awards that vest upon a liquidity event or a change in control, the performance condition is not probable of being achieved until the event occurs. As a result, no compensation expense would be recognized until the performance-based vesting condition is achieved.

Fair Value of Common Stock

Prior to the Company's IPO, the absence of an active market for the Company's common stock required the Company's board of directors ("Board") to determine the fair value of its common stock for purposes of granting stock options. The fair value of the Company's common stock was determined by the Company's Board with assistance from management and an independent third-party valuation firm. Management's approach to estimating the fair value of the Company's common stock was consistent with the methods outlined in the American Institute of Certified Public Accountants' Practice Aid, *Valuation of Privately-Held- Company Equity Securities Issued as Compensation*. Determining the best estimated fair value of the Company's common stock requires significant judgment and management considers several factors, including the Company's stage of development, equity market conditions affecting comparable public companies, significant milestones and progress in research and development efforts. Since the completion of its IPO, the Company uses its stock price traded on the Nasdaq Global Select Market to determine the fair value of its common stock.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents. Cash equivalents, which consist of money market funds, corporate debt securities and corporate commercial paper, are stated at fair value. As of December 31, 2023 and 2022, the Company had cash and cash equivalents of $15.6 million and $27.2 million, respectively.

Investments

Investments consist of U.S. Treasury securities, commercial paper, and U.S. Government agency securities. All of the Company's investments are classified as available-for-sale and are carried at estimated fair values and reported in cash equivalents, short-term investments or long-term investments. Management determines the appropriate classification of the investments at the time they are acquired and evaluates the appropriateness of such classifications at each balance sheet date. Investments with contractual maturities greater than 12 months are considered long-term investments. The cost of investments sold, if any, is based on the specific identification method.

Unrealized gains and losses on available-for-sale investments are reported in accumulated other comprehensive gain (loss) as a separate component of stockholders' equity (deficit). For available-for-sale debt securities in an unrealized loss position, the Company first assesses whether it intends to sell, or it is more likely than not that it will be required to sell the security before recovery of its amortized cost basis. If either of the criteria regarding intent or requirement to sell is met, the security's amortized cost basis is written down to fair value and recognized in other income (expense) in the statements of operations and comprehensive loss. If neither criterion is met, the Company evaluates whether the decline in fair value is related to credit-related factors or other factors. In making this assessment, management considers the extent to which fair value is less than amortized cost, any changes to the rating of the security by a rating agency, and adverse conditions specifically related to the security, among other factors. Credit-related impairment losses, limited by the amount that the fair value is less than the amortized cost basis, are recorded through an allowance for credit losses in other income, net. Any unrealized losses from declines in fair value below the amortized cost basis as a result of non-credit factors are recognized in accumulated other comprehensive income (loss) as a separate component of stockholders' equity, along with unrealized gains. Realized gains and losses and declines in fair value, if any, on available-for-sale securities are included in other income, net in the statements of operations and comprehensive loss.

For purposes of identifying and measuring credit-related impairments, the Company's policy is to exclude applicable accrued interest from both the fair value and amortized cost basis of the related security. The Company has elected to write-off uncollectible accrued interest receivable balances in a timely manner, which is defined by the Company as when interest due becomes 90 days delinquent. The accrued interest write-off will be recorded by reversing interest income. Accrued interest receivable is recorded to prepaid expenses and other current assets.

As of December 31, 2023 and 2022, the Company had investments of $118.8 million and $72.1 million, respectively.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash, cash equivalents and investments. The Company's cash is invested through financial institutions in the United States. The Company's investments consist of debt securities, issued by highly rated corporate entities or the U.S. government, and asset-backed securities. The Company's exposure to any individual corporate entity is limited by its investment policy. Deposits may at times exceed federally insured limits, but minimal credit risk exists. The Company invests its cash equivalents in highly rated money market funds. The Company has not experienced any credit losses in such accounts and does not believe it is exposed to any significant credit risk on these funds.

The Company is exposed to credit risk in the event of a default by the financial institutions holding its cash to the extent recorded on the balance sheets. In March 2023, one of the financial institutions utilized by the Company was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation as receiver. Through December 31, 2023, the Company has no off-balance sheet concentrations of credit risk.

Government Contract

In September 2022, the Company received a cost-reimbursement contract award under which the Company is eligible to receive up to $17.8 million from the U.S. National Institute of Allergy and Infection Diseases ("NIAID") to support preclinical, Phase 1 studies and other activities to enable advancement of epetraborole into late-stage development for acute systemic melioidosis and other biothreat pathogens. This project will be funded in whole or in part with Federal funds from the NIAID, National Institutes of Health, Department of Health and Human Services, under Contract No. 75N93022C00059. Accounting for this contract does not fall under ASC 606, Revenue from Contracts with Customers, as NIAID will not benefit directly from the advancement of epetraborole. As there is no authoritative guidance under U.S. GAAP on accounting for government assistance to for-profit business entities, the Company applied International Accounting Standards (IAS) 20, Accounting for Government Grants and Disclosure of Government Assistance, by analogy when accounting for the NIAID contract payments to the Company. Under IAS 20, government contract proceeds are recognized when there is reasonable assurance the conditions of the contract will be met and the contract funding will be received. For the NIAID contract, this occurs after the qualifying expenses related to the contract have been incurred, or the Company concludes the conditions of the contract have been substantially met. The income related to the reimbursement of operating expenses is then recorded as a reduction of those expenses (see Note 4—Funding Arrangements).

Grant Agreements

In September 2022, the Company entered into a subcontract agreement with the University of Georgia Research Foundation ("UGARF") to receive up to $1.4 million from UGARF to support preclinical development of a boron-containing small molecule for Chagas disease.

In September 2023, the Company entered into a grant agreement with the Bill and Melinda Gates Foundation ("BMGF") to fund up to $1.8 million to generate new boron-based lead compounds with the potential to be developed into drugs that treat tuberculosis and malaria.

The Company recognizes grant proceeds in accordance with ASC 958-605, Revenue Recognition Not-for-Profit Entities, when qualifying costs are incurred and the conditions of the grant agreement have been met. When receipt of grant proceeds is reasonably assured, the Company records a reduction to the research and development expenses incurred and a corresponding grant receivable. Cash received from grants in advance of incurring qualifying costs is recorded as a liability and recognized as a reduction to the qualifying research and development expenses incurred (see Note 4—Funding Arrangements).

Comprehensive Loss

Comprehensive loss includes net loss and certain changes in stockholders' equity (deficit) that are excluded from net loss. The Company's other comprehensive loss consists of net changes in unrealized gains and losses on its available-for-sale investments. For the years ended December 31, 2023 and 2022, the Company had $0.6 million of net unrealized gain and $0.3 million of net unrealized loss on available-for-sale investments, respectively.

Net Loss Per Share

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration for potentially dilutive securities. Diluted net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, stock options, common stock subject to repurchase related to unvested early exercise of stock options are considered to be potentially dilutive securities. Basic and diluted net loss attributable to common stockholders per share is presented in conformity with the two-class method required for participating securities as the redeemable convertible preferred stock is considered a participating security because it participates in dividends with common stock and is accreted to redemption. The Company also considers the shares issued upon the early exercise of stock options subject to repurchase to be participating securities because holders of such shares have non-forfeitable dividend rights in the event a dividend is paid on common stock. The holders of all series of redeemable convertible preferred stock and the holders of early exercised shares subject to repurchase do not have a contractual obligation to share in the Company's losses. As such, the net loss was attributed entirely to common stockholders. Because the Company has reported a net loss for all periods presented, diluted net loss per share is the same as basic net loss per share for those periods because the impact of potentially dilutive securities would be anti-dilutive.

JOBS Act Accounting Election

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date the Company (i) is no longer an emerging growth company or (ii) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. The Company may take advantage of these provisions for up to five years (which is through March 2027), unless the Company ceases to be an emerging growth company at an earlier date. As a result, these financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

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 ("ASU 2016-13"), which requires an entity to utilize a new impairment model known as the current expected credit loss ("CECL") model to estimate its lifetime "expected credit loss" and record an allowance that, when deducted from the amortized cost basis of the financial assets and certain other instruments, including but not limited to available-for-sale debt securities. Credit losses relating to available-for-sale debt securities will be recorded through an allowance for credit losses rather than as a direct write-down to the security. ASU 2016-13 requires a cumulative effect adjustment to the balance sheet as of the beginning of the first reporting period in which the guidance is effective. In November 2019, the FASB issued ASU 2019-10, Financial Instruments—Credit Losses (Topic 326), Derivatives and Hedging (Topic 815) and Leases (Topic 842): Effective Dates, which defers the effective date of ASU 2016-13 to fiscal years beginning after December 15, 2022 for SEC reporting companies that are smaller reporting companies such as the Company. The Company adopted this standard beginning January 1, 2023. Adoption of this standard did not have a material impact on the Company's financial statements.

In July 2018, the FASB issued ASU No. 2018-11, Leases (Topic 842): Targeted Improvements ("ASU 2018-11"). ASU 2018-11 provided an alternative method in addition to the modified retrospective transition method for ASU No. 2016-02, Leases: Amendments to the FASB Accounting Standards Codification ("ASU 2016-02"), issued in February 2016. Under ASU 2018-11, an entity may elect to initially apply the new lease standard at the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Under ASU 2016-02, a lease is required to recognize assets and liabilities with lease terms of more than twelve months. ASU 2016-02 is effective for nonpublic business entities and public entities eligible to be Smaller Reporting Companies for fiscal years beginning after December 15, 2021.

The Company adopted the new standard on January 1, 2022 using the modified retrospective approach. The Company has elected to apply the transition method that allows companies to continue applying the guidance under the lease standard in effect at that time in the comparative periods presented in the financial statements and recognize a cumulative-effect adjustment to the opening balance of accumulated deficit on the date of adoption. The Company has elected to combine lease components (e.g., fixed rent payments) with non-lease components (e.g., common-area maintenance costs) on its facility and clinical research organization ("CRO") embedded lease asset classes. The Company also elected the "package of practical expedients", which permits the Company not to reassess under the new standard the Company's prior conclusions about lease identification, lease classification and initial direct costs. The Company also elected the short-term lease practical expedients allowed under the standard. Lastly, the Company did not elect the practical expedient allowing the use-of-hindsight which would require the Company to reassess the lease term of its leases based on all facts and circumstances through the effective date.

Results for reporting periods beginning after January 1, 2022 are presented under the new standard, while prior period amounts are not adjusted and continue to be reported under the accounting standards in effect for the prior period. Upon adoption of the new lease standard, on January 1, 2022, the Company capitalized operating lease right-of-use (ROU) assets of $50 thousand and $50 thousand of operating lease liabilities, within the balance sheets upon adoption.

In November 2021, the FASB issued ASU No. 2021-10, Government Assistance (Topic 832) Disclosures by Business Entities about Government Assistance. Current U.S. GAAP has no specific authoritative guidance on the accounting for, or the disclosure of, government assistance received by business entities. The amendments in this update improve financial reporting by requiring disclosures that increase the transparency of transactions with a government accounted for by applying a grant or contribution accounting model by analogy, including the types of transactions, the accounting for those transactions, and the effect of those transactions on an entity's financial statements. The amendments in this update require the following annual disclosures about transactions with a government that are accounted for by applying a grant or contribution accounting model by analogy, including: (1) information about the nature of the transactions and the related accounting policy used to account for the transactions; (2) the line items on the balance sheet and income statement that are affected by the transactions, and the amounts applicable to each financial statement line item; and (3) the significant terms and conditions of the transactions, including commitments and contingencies. The amendments in this update are effective for all entities within their scope for financial statements issued for annual periods beginning after December 15, 2021. Early application of the amendments is permitted. The Company adopted this update during the year ended December 31, 2022 and accounted for the NIAID contract in accordance with this update, which did not have a material impact on the Company's financial statements.

In August 2018, the FASB issued ASU 2018-15, "Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)". This update is intended to guide entities in evaluating the accounting for fees paid by a customer in a cloud computing arrangement by providing guidance for determining when the arrangement includes a software license. This standard was effective for financial statements issued by public companies for annual and interim periods beginning after December 15, 2019, and effective for financial statements issued by non-public entities for annual periods beginning after December 15, 2020. The Company adopted this standard beginning July 1, 2022, noting that this standard was applied prospectively. Adoption of this standard did not have a material impact on the Company's financial statements.

Recent Accounting Pronouncements Not Yet Adopted

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise noted, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial statements and disclosures. As an "emerging growth" company, it has been the Company's intention to take advantage of certain temporary exemptions from various reporting requirements, as well as taking advantage of additional transitional relief.

In November 2023, the FASB issued ASU 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures ("ASU 2023-07"). The amendments in ASU 2023-07 are intended to improve reportable segment disclosure, primarily through enhanced disclosures about significant segment expenses. ASU 2023-07 is effective for annual periods beginning after December 15, 2023, and interim periods beginning after December 15, 2024. The amendments in this ASU should be applied retrospectively to all prior periods presented in the financial statements. Early adoption is permitted. The Company is evaluating the impact of this guidance on its financial statements and related disclosures.

In December 2023, the FASB issued ASU 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures ("ASU 2023-09"). ASU 2023-09 requires enhanced annual disclosures regarding the rate reconciliation and income taxes paid information. ASU 2023-09 is effective for annual periods beginning after December 15, 2024 and may be adopted on a prospective or retrospective basis. Early adoption is permitted. The Company is evaluating the impact of this guidance on its financial statements and related disclosures.

Note 3. Fair Value Measurements

The Company adopted ASU 2016-13 beginning January 1, 2023. The Company records certain financial assets and liabilities at fair value. The accounting guidance for fair value provides a framework for measuring fair value, clarifies the definition of fair value, and expands disclosures regarding fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value as follows:

- Level 1: Inputs which include quoted prices in active markets for identical assets and liabilities.
- Level 2: Inputs other than Level I that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company's primary financial instruments include cash, cash equivalents, short-term investments and long-term investments, prepaid expenses, accounts payable, and accrued liabilities. The carrying amounts of the Company's financial instruments, other than cash equivalents, short- and long-term investments, approximate fair value due to their relatively short maturities.

The following table presents the Company's financial assets, which consist of cash equivalents and investments classified as available-for-sale investments, that are measured at fair value on a recurring basis (in thousands):

		December 31, 2023			
	Level	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
Cash equivalents:					
Money market funds	Level 1	$ 4,478	$ —	$ —	$ 4,478
Short-term investments:					
U.S. Treasury securities	Level 1	15,649	31	—	15,680
U.S. Treasury securities	Level 2	1,247	—	(1)	1,246
Commercial paper	Level 2	41,472	47	(2)	41,517
U.S. Government agency securities	Level 2	19,479	30	(5)	19,504
Asset Backed Securities	Level 2	8,770	12	(3)	8,779
Corporate Debt Securities	Level 2	4,914	8	—	4,922
Long-term investments:					
U.S. Treasury securities	Level 1	23,542	131	—	23,673
U.S. Government agency securities	Level 2	3,494	28	(1)	3,521
Total		$ 123,045	$ 287	$ (12)	$ 123,320

		December 31, 2022			
	Level	Amortized Cost	Unrealized Gain	Unrealized Loss	Estimated Fair Value
Cash equivalents:					
Money market funds	Level 1	$ 10,152	$ —	$ —	$ 10,152
Short-term investments:					
U.S. Treasury securities	Level 1	29,381	—	(213)	29,168
Commercial paper	Level 2	27,701	2	(82)	27,621
U.S. Government agency securities	Level 2	12,126	4	(79)	12,051
Long-term investments:					
U.S. Treasury securities	Level 1	1,224	—	(1)	1,223
U.S. Government agency securities	Level 2	2,001	—	(5)	1,996
Total		$ 82,585	$ 6	$ (380)	$ 82,211

The Company classifies its money market funds and U.S. Treasury securities, which are valued based on quoted market prices in active markets with no valuation adjustment, as Level 1 assets within the fair value hierarchy.

The Company classifies its investments in commercial paper, corporate debt securities, U.S. government agency securities and asset-backed securities as Level 2 within the fair value hierarchy. The fair values of these investments are estimated 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. There were no transfers of financial instruments between valuation levels during the year ended December 31, 2023.

As of December 31, 2023, none of the Company's available-for-sale investments that were in an unrealized loss position had been in an unrealized loss position for more than 12 months. During the years ended December 31, 2023 and 2022, the Company did not sell any available-for-sale investments.

The Company's short-term investments had maturities of less than one year from the balance sheet date. The Company's long-term investments had maturities of between one and two years from the balance sheet date.

The Company does not intend to sell the securities in an unrealized loss position and does not expect they will be required to sell the securities before recovery of the unamortized cost basis. Additionally, the Company evaluated its securities for credit losses and considered the decline in market value to be primarily attributable to current economic and market conditions and not credit related. Accordingly, no allowance for credit losses has been recognized as of December 31, 2023 and 2022. During the years ended December 31, 2023 and 2022, the Company did not recognize any impairment losses related to investments.

As of December 31, 2023 and 2022, the Company had accrued interest receivable of $0.4 million and $0.2 million, respectively, which was included in prepaid expenses and other current assets on the balance sheets.

Note 4. Funding Arrangements

NIAID Contract

In September 2022, the Company received a cost-reimbursed contract award from the NIAID to support preclinical, Phase 1 studies and other activities to enable the advancement of epetraborole into late-stage development for acute systemic melioidosis and other biothreat pathogens. The Company can receive up to $17.8 million in funding over a total term of 48 months, consisting of a base period and seven option periods. In July 2023, the NIAID exercised one of seven available options under the NIAID contract (No: 75N93022C00059), resulting in an increase in committed contract funding of $0.7 million, for a total of $5.0 million. Funding for this option extends the estimated completion of the contract by 13 months beyond the base period of 18 months (April 2025). As of December 31, 2023, a total of $5.0 million of funding for the 18-month base period plus an additional 13 months for a total of 31 months has been committed.

During the year ended December 31, 2023, the Company recorded income of $0.9 million as reduction in research and development operating expenses under the NIAID contract, of which $0.5 million was received during the year. As of December 31, 2023, the Company had recorded a receivable of $0.4 million which was included in prepaid expenses and other current assets on the balance sheets. The Company did not recognize any income under this agreement during the year ended December 31, 2022.

UGARF Grant

In September 2022, the Company entered into a subcontract agreement with the UGARF to conduct preclinical activities on behalf of UGARF ("UGARF Agreement"). UGARF reimburses the Company under an award from The Wellcome Trust. The Company is eligible to receive up to $1.4 million from UGARF to support preclinical development of a boron-containing small molecule for Chagas disease. As of December 31, 2023, the Company had recorded a grant receivable of $0.6 million which was included in prepaid expenses and other current assets on the balance sheets. During the year ended December 31, 2023, the Company recorded income of $1.3 million as a reduction in research and development operating expenses under the UGARF agreement. The Company did not recognize any income under this agreement during the year ended December 31, 2022.

BMGF Grant

In September 2023, the Company received a cost-reimbursement contract award from the Bill and Melinda Gates Foundation ("BMGF Agreement") under which the Company was awarded $1.8 million to support the discovery of novel, boron containing small molecules for the treatment of tuberculosis and malaria. The Company is required to apply the funds it receives under the BMGF Agreement solely toward direct costs related to this research program. The Company received $1.0 million of funding in advance and tracks and reports eligible expenses incurred to the BMGF. Any unspent funds and any funds spent that have not yet been incurred are recorded as part of other current liabilities on the balance sheets. As of December 31, 2023, the Company had recorded $0.7 million to other current liabilities. During the year ended December 31, 2023, the Company recorded income of $0.3 million as a reduction in research and development operating expenses under the BMGF agreement.

Note 5. Collaboration and License Agreements

Anacor Licensing Agreement

In November 2019, the Company entered into an exclusive worldwide license agreement with Anacor Pharmaceuticals, Inc. ("Anacor") for certain compounds and other intellectual property controlled by Anacor for the treatment, diagnosis, or prevention of all human diseases (the "Anacor License"). The Anacor License will expire upon expiration of the last to expire royalty term. Either party may terminate the Anacor License for the other party's material breach following a cure period or immediately upon certain insolvency events relating to the other party. The Company has the right to terminate the agreement at its convenience upon 90-day written notice until the first regulatory approval or one-year notice thereafter. Furthermore, upon termination of the Anacor License for any of the foregoing reasons, the rights and licenses within will terminate.

In exchange for the worldwide, sublicensable, exclusive right and licenses to develop, manufacture, and commercialize the specified compounds, the Company paid Anacor a non-refundable $2.0 million upfront payment and granted Anacor shares of Series A redeemable convertible preferred stock.

The Company agreed to make further payments to Anacor upon achievement of various development milestones for an aggregate maximum of $2.0 million, upon achievement of various commercial and sales threshold milestones for an aggregate maximum payment of $125.0 million, and up to 50% of royalties received under certain sublicensing arrangements. Royalties are subject to certain customary reductions, including lack of patent coverage and generic product entry. The Company also agreed to pay Anacor non-refundable, non-creditable sales royalties on a tiered marginal royalty rate based on the country's status as a developing or developed country as defined in the license agreement. Sales royalties are a percentage of net sales, as specified in the Anacor License, and range from mid-single digits for developing countries (as classified by the World Bank) and single to mid-teens for all other countries or the China, Hong Kong, Taiwan and Macau territories, upon reaching a minimum of net sales in the low-teen millions. The sales royalties are required to be paid on a product-by-product and country-by-country basis, until the latest to occur of 15 years following the date of first commercial sale of a product, the expiration of all regulatory or data exclusivity, or the date upon of the expiration of the last to expire valid claim of a licensed patent covering such product in such country. Currently, the date of the expiration of the last to expire valid claim of a licensed patent covering epetraborole in the licensed territory is June 2028. In addition, Anacor is entitled to certain milestone payments upon a change of control of the Company.

In December 2021, the Company entered into an amendment to the Anacor License for certain compounds and other intellectual property controlled by Anacor for the treatment, diagnosis, or prevention of certain bacterial pathogens (the "Anacor License Amendment"). The Anacor License Amendment has no impact on the Anacor License financial terms.

None of the development, regulatory, commercial or sales milestones or royalty payments were recognized during the year ended December 31, 2023. As a result, the Company did not record any research and development expense—related party in the statements of operations for the year ended December 31, 2023. During the year ended December 31, 2022, the Company recorded $1.0 million in research and development expense—related party to Anacor upon the achievement of development milestones.

Brii Biosciences Agreement

In November 2019, the Company entered into a license agreement granting Brii Biosciences Limited the exclusive development and commercialization rights of certain compounds in China, Hong Kong, Taiwan, and Macau for the treatment of human diseases. The Company did not receive an upfront payment but is eligible to receive up to $15.0 million in the aggregate for development and regulatory milestones and up to $150.0 million in commercial milestones upon achieving sales thresholds. The Company is also entitled to tiered mid-single digits to high-first decile percentage sales-based royalties. The sales royalties are required to be paid on a product-by-product and region- by-region basis, until the latest to occur of 15 years following the date of first commercial sale of a product, the expiration of all regulatory or data exclusivity, or the date upon the expiration of the last to expire claim of a licensed patent covering the composition of matter or approved use of such product in such region. The last to expire valid claim of a licensed patent covering the composition of matter or approved use of such product in the licensed territory is June 2028. Future milestone payments and royalties will be accounted for under ASC 606.

Note 6. Leases

In May 2021, the Company entered into an operating lease agreement for its principal office in Menlo Park, California. In September 2021, the lease was amended to extend the term to expire in August 2022. In July 2022, the lease was amended to exercise a renewal option and extend the term to expire in August 2023. In July 2023, the lease was further amended to exercise a renewal option and extend the term to expire in August 2024. At the time of amendment, the Company determined that this lease meets the criteria for a short-term lease. Under the lease agreement, the Company has one additional 12-month renewal option through August 2025.

The Company has not entered into any finance lease agreements as of December 31, 2023.

The following table summarizes total lease expense during the year ended December 31, 2023 (in thousands):

	Statements of Operations and Comprehensive Loss Classification	Year Ended December 31, 2023
Operating lease expense	Operating expenses	$ 54
Short-term lease expense	Operating expenses	107
Total lease expense		$ 161

The Company paid $50 thousand and $80 thousand in operating cash flows from operating leases for amounts included in the measurement of liabilities during the years ended December 31, 2023 and 2022, respectively.

As of December 31, 2023, all leases were determined to be short-term leases. As of December 31, 2022, the weighted-average remaining lease term and discount rate for operating leases was 0.67 years and 5.1%, respectively.

Note 7. Balance Sheet Components

Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	December 31,	
	2023	2022
Accrued research and development-related expenses	$ 6,555	$ 2,517
Accrued professional services expenses	24	198
Other	102	122
Total accrued liabilities	$ 6,681	$ 2,837

Note 8. Commitments and Contingencies

Contingencies

From time to time, the Company may become involved in legal proceedings arising in the ordinary course of business. The Company was not subject to any material legal proceedings as of December 31, 2023 and 2022, and the Company is not currently a party to any legal proceeding that, if determined adversely to the Company, in management's opinion, is currently expected to individually or in the aggregate have a material adverse effect on the Company's business, financial condition or results of operations taken as a whole.

Guarantees and Indemnifications

The Company, as permitted under Delaware law and in accordance with its certification of incorporation, as amended, and bylaws, and pursuant to indemnification agreements with certain of its officers and directors, indemnifies its officers and directors for certain events or occurrences, subject to certain limits, which the officer or director is or was serving at the Company's request in such capacity. 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 limits the Company's exposure and may enable it to recover a portion of any future amounts paid. The Company believes that the fair value of these indemnification obligations is minimal. Accordingly, the Company has not recognized any liabilities relating to these obligations for any period presented.

Adjuvant Global Health Agreement

In conjunction with Adjuvant Global Health Technology Fund L.P.'s ("Adjuvant") investment in the Company's Series A redeemable convertible preferred stock financing in 2019 and 2020, the Company entered into a Global Health Agreement with Adjuvant, pursuant to which the Company agreed to support the creation of innovative and affordable drugs to treat disease, through public health programs and private purchasers in Low and Lower-Middle-Income Countries (as such terms are defined by the World Bank and in the agreement).

Adjuvant's investment supports the development of the Company's product candidate, epetraborole, for use in melioidosis-endemic and melioidosis-at-risk countries as defined in the agreement. These global access commitments became effective as of the Series A redeemable convertible preferred stock financing closing date and will remain in effect until the latter of either that Adjuvant ceases to be a shareholder of the Company, or ten years following epetraborole approval for the treatment of melioidosis by a regulatory authority.

The Global Health Agreement contains various affirmative and negative covenants agreed to by the Company, including its use of reasonably diligent endeavors to develop the agreed-upon products using non-dilutive funding and make accessible to people in need in the target countries so long as the Company does not sell products at a loss. Other covenants include prohibition of use of investment for propaganda, attempt to influence legislation, influence of any public election or voter registration drive or promotion of terrorist activities, as well as compliance with certain environmental, social and governance requirements and anti-corruption requirements. If the Company does not maintain compliance with these non-financial covenants, Adjuvant may be entitled to repayment for any portion of its investment that is not used for the purposes outlined in the Global Health Agreement.

In conjunction with Adjuvant's investment in the Company's Series B redeemable convertible preferred stock financing in 2021, the Company entered into an Amended and Restated Global Health Agreement (the "Adjuvant Amendment"). The Adjuvant Amendment expands Adjuvant's investment support to include the development of the Company's product candidate, epetraborole, for use in tuberculosis-endemic and tuberculosis-at-risk countries as defined in the agreement.

In connection with Adjuvant's investment in the Company's common stock as part of the IPO, the Company entered into an Amended and Restated Global Health Agreement dated March 24, 2022 (the "Adjuvant IPO Amendment"). As part of the Adjuvant IPO Amendment, Adjuvant purchased 166,666 shares of the Company's common stock in March 2022 for a total additional investment of $2.5 million, which is subject to Adjuvant's right of repayment should the Company not utilize the proceeds from Adjuvant's investment towards the agreed-upon purpose. The Company has complied with all applicable covenants as of December 31, 2023. As of December 31, 2023, the $2.5 million of proceeds from Adjuvant's IPO investment, as well as the proceeds from Adjuvant's Series A and B redeemable convertible preferred stock investments, were fully utilized to support the epetraborole development program, which overlaps with the melioidosis and other global health development programs.

Note 9. Equity

Common Stock

The Company's certificate of incorporation, as amended, authorizes the Company to issue up to 500,000,000 shares of $0.00001 par value common stock. Holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders of the Company.

Subject to the preferences that may be applicable to any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably such dividends, if any, as may be declared by the Board. No dividends have been declared to date.

On April 6, 2023, the Company entered into a Sales Agreement with Cowen and Company, LLC as the Company's Agent, to issue and sell up to an aggregate gross sales of $100.0 million in Shares of the Company's common stock through the ATM Offering. During the year ended December 31, 2023, the Company issued and sold 2,502,000 shares of common stock under the ATM program, resulting in net proceeds of $19.1 million, after deducting commissions and other offering costs.

On August 15, 2023, the Company entered into an Underwriting Agreement with Cowen and Company, LLC, Leerink Partners LLC and Evercore Group L.L.C. as representatives of several underwriters to issue and sell 7,777,778 shares of common stock at an offering price of $9.00 per share through the Underwritten Offering, resulting in net proceeds of $65.5 million, after deducting commissions and other offering costs.

Shares of common stock reserved for future issuance, on an as-if-converted basis, as of December 31, 2023 and 2022, consists of the following:

	December 31,	
	2023	2022
Stock options, issued and outstanding	3,930,306	2,796,241
Stock options, authorized for future issuance	1,254,721	1,627,680
ESPP, authorized for future issuance	337,017	187,000
Total	5,522,044	4,610,921

Preferred Stock

The Company's certificate of incorporation, as amended, authorizes the Company to issue up to 10,000,000 shares of $0.00001 par value preferred stock. The preferred stock is not convertible. No shares of preferred stock were issued and outstanding at December 31, 2023 and 2022.

Note 10. Equity Incentive Plan and Stock-Based Compensation

2022 Equity Incentive Plan

The Company adopted the 2022 Equity Incentive Plan (the "2022 Plan") effective upon the closing of the IPO, which provides for the granting of incentive stock options ("ISOs") to the Company's employees, and for the grant of nonstatutory stock options ("NSOs"), stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards, and other forms of awards to employees, directors, and consultants. As of December 31, 2023, no stock appreciation rights, restricted stock awards, restricted stock unit awards or performance awards were issued.

The Company initially reserved for issuance 1,870,000 new shares of common stock pursuant to the 2022 Plan. The Company's 2017 Equity Incentive Plan (the "2017 Plan") was terminated in 2022; however, shares underlying outstanding stock awards granted under the 2017 Plan will continue to be governed by the 2017 Plan. Shares available under the 2017 Plan were added to the available shares in the 2022 Plan. Shares underlying outstanding stock awards granted under the 2017 Plan that expire or are repurchased by, forfeited to, cancelled or withheld by the Company will also be reserved for issuance under the 2022 Plan.

The maximum number of shares of the Company's common stock that may be issued under the 2022 Plan will not exceed 4,423,920 shares of the Company's common stock, which is the sum of (i) 1,870,000 new shares, plus (ii) 2,553,920 shares related to the 2017 Plan. In addition, the number of shares of the Company's common stock reserved for issuance under the 2022 Plan will automatically increase on January 1 of each year for a period of ten years, beginning on January 1, 2023 and continuing through January 1, 2032, in an amount equal to (1) 4% of the total number of shares of the Company's common stock outstanding on December 31 of the immediately preceding year, or (2) a lesser number of shares determined by the Board no later than December 31 of the immediately preceding year. The maximum number of shares of the Company's common stock that may be issued on the exercise of stock options under the 2022 Plan is 13,271,760 shares.

Since the date of incorporation and through December 31, 2023, the Company issued stock options to its employees, directors and consultants. As of December 31, 2023, 1,254,721 shares of common stock remained available for future issuance under the 2022 Plan.

ISOs granted to newly hired employees under the 2022 Plan generally vest 25% after the completion of 12 months of service, and the balance vests in equal monthly installments over the next 36 months of service and expire ten years from the grant date, unless subject to provisions regarding 10% stockholders. ISOs granted to existing employees generally vest ratably over a 48-month period of service and expire ten years from the grant date. NSOs vest in accordance with the terms of the specific agreement under which the options were provided and expire ten years from the date of grant.

Stock-Based Compensation Expense

The following table summarizes the components of stock-based compensation expense recognized in the Company's statements of operations and comprehensive loss during the years ended December 31, 2023 and 2022 (in thousands):

	Year Ended December 31,	
	2023	2022
Research and development expenses	$ 4,236	$ 1,688
General and administrative expenses	4,176	2,703
Total	$ 8,412	$ 4,391

Valuation of Stock Options

The Company estimated the fair value of stock options using the Black-Scholes option pricing model. The fair value of employee and non-employee stock options is being amortized on the straight-line basis over the requisite service period of the awards.

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

- Expected Term—The expected term represents the period that stock-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual term of the stock-based awards.
- Expected Volatility—Since the Company has limited trading history for its common stock, the expected volatility is based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, stage in the life cycle and area of specialty.
- Risk-Free Interest Rate—The risk-free interest rate is based on the U.S. Treasury zero-coupon issues in effect at the time of grant for periods corresponding with the expected term of option.
- Expected Dividend Rate—The Company has never paid dividends on its common stock and has no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

For options granted to non-employee consultants, the fair value of these options is also remeasured using the Black-Scholes option pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected term, which is assumed to be the remaining contractual term of the option.

The following weighted average assumptions were used to value options granted during the periods indicated:

	Year Ended December 31, 2023	Year Ended December 31, 2022
Expected term	5.98 years	5.94 years
Expected volatility	90.8%	83.4%
Risk-free interest rate	4.04%	3.07%
Expected dividend yield	—	—

Stock Option Plan Activity

A summary of the stock plan activity is as follows:

	Total Options Outstanding	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding at December 31, 2022	2,796,241	$ 10.13	8.81	$ 5,793
Granted	1,224,932	12.48		
Exercised	(15,000)	6.60		
Forfeited	(75,867)	11.08		
Outstanding at December 31, 2023	3,930,306	$ 10.86	8.14	$ 37,853
Exercisable as of December 31, 2023	1,847,955	$ 9.34	7.53	$ 20,612

As of December 31, 2023, there was unrecognized stock-based compensation expense of $18.0 million related to unvested stock options which the Company expects to recognize over a weighted-average period of 2.2 years.

Weighted-average grant-date fair value of the options granted during the year ended December 31, 2023 was $9.53 per share.

Liability for Early Exercise of Stock Options

The Company's 2017 Plan permitted early exercise of certain stock options prior to vesting to certain directors, officers, and employees. Any shares issued pursuant to unvested options are restricted and subject to repurchase by the Company until the conditions for vesting are met. The amounts paid for shares purchased under an early exercise of stock options and subject to repurchase by the Company are reported as options subject to repurchase, short and long-term on the balance sheet and is reclassified to common stock and additional paid-in capital as such shares vest. Upon termination of employment of an option-holder, the Company has the right to repurchase, at the original purchase price, any unvested options.

As of December 31, 2023, there were 5,040 unvested common shares outstanding that were issued upon the early exercise of stock options prior to the vesting of the underlying shares which are subject to repurchase by the Company at the original issuance price upon termination of the stockholders' services. The right to repurchase these shares generally lapses with respect to 25% of the shares underlying the option after one year of service to the Company and 1/48th of the shares underlying the original grant per month for 36 months thereafter. The shares purchased by the option-holders pursuant to the early exercise of stock options are not deemed, for accounting purposes, to be issued until those shares vest. As of December 31, 2023, the Company recorded an insignificant amount of liabilities associated with the cash received for shares issued subject to repurchase rights, recorded within the options subject to repurchase, short-term, and options subject to repurchase, long-term on the Company's balance sheets.

2022 Employee Stock Purchase Plan

The Company's 2022 Employee Stock Purchase Plan ("ESPP") has two components: a component that is intended to qualify as an "employee stock purchase plan" under Section 423 of the Code (the 423 Component) and a component that is not intended to qualify (the Non-423 Component). The ESPP allows eligible employees to purchase shares of the Company's common stock at a discount through payroll deductions of up to 15% of their eligible compensation. At the end of each offering period, employees are able to purchase shares at 85% of the lower of the fair market value of the Company's common stock at the beginning of the offering period or at the end of each applicable purchase period.

Subject to adjustment in the case of certain capitalization events, 187,000 shares of the Company's common stock were available for purchase at the adoption of the ESPP. Pursuant to the ESPP, the annual share increase pursuant to the evergreen provision is determined based on the least of (i) 1% of the Company's common stock outstanding as of December 31 of the immediately preceding year, (ii) 561,000 shares, or (iii) such number of shares as determined by the Board. Accordingly, effective January 1, 2023, the number of shares in the ESPP increased by 194,026 shares, representing 1% of the prior year end's common stock outstanding. As of December 31, 2023, 337,017 shares of common stock remained available for issuance under the ESPP.

The Company began recording stock-based compensation expense for its ESPP on October 1, 2022. During the years ended December 31, 2023 and 2022, the Company recognized $0.2 million and $0.1 million, respectively, in stock-based compensation expense related to the ESPP.

Note 11. Income Taxes

The Company is liable for income taxes in the United States. For the years ended December 31, 2023 and 2022, the Company did not have any income for income tax purposes and therefore, no tax liability or expense has been recorded in these financial statements.

The provision for income taxes differs from the tax expense that would result by applying the statutory federal income tax rate to loss before taxes due to the following (in thousands):

	December 31,	
	2023	2022
Federal tax benefit at statutory rate	$ (13,593)	$ (8,601)
State tax benefit at statutory rate, net of federal tax benefit	(4,917)	(3,053)
Change in valuation allowance	20,047	12,347
Research and development tax credits	(2,030)	(988)
Other	493	295
Provision for income taxes	$ —	$ —

The following table reflects the effective income tax rate reconciliation for the ended December 31, 2023 and 2022 (in thousands):

	December 31,	
	2023	2022
Statutory rate	21.0%	21.0%
Stock-based compensation	-0.7%	-0.7%
State taxes, net of the federal tax benefit	7.6%	7.4%
R&D credit benefit	3.1%	2.4%
Change in valuation allowance	-31.0%	-30.1%
Total	0.0%	0.0%

Recognition of deferred tax assets is appropriate when realization of such assets is more likely than not. Based upon the weight of available positive and negative evidence, which includes the Company's historical operating performance and the U.S. cumulative net losses in all prior periods, the Company has provided a valuation allowance against its U.S. deferred tax assets. The valuation allowance increased by $20.0 million from December 31, 2022 to December 31, 2023 due to generation of current year net operating losses, capitalization of research and development costs, and research and development credits claimed.

Deferred income taxes reflect the net tax effects of loss and credit carryforwards and temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Components of the Company's deferred tax assets are as follow (in thousands):

	December 31,	
	2023	2022
Deferred tax assets		
Net operating loss carryforwards	$ 20,778	$ 13,709
Capital research expenditures	14,014	5,337
Tax credit carryforwards	4,406	1,836
Stock-based compensation	2,568	887
Other	52	2
Gross deferred tax assets	41,818	21,771
Valuation allowance	(41,818)	(21,771)
Net deferred tax assets	$ —	$ —

As of December 31, 2023, the Company had $58.2 million of federal and $122.6 million of state net operating loss available to offset future taxable income. The federal net operating loss carryforwards do not expire. The state net operating loss carryforwards begin to expire in 2037. The Company also has federal and California state research and development credits of $3.4 million and $1.3 million, respectively. The federal tax credit carryforwards will expire in 2041 if not utilized. The state tax credit carryforwards do not expire.

Utilization of the net operating loss carryforwards is subject to an annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended, and similar state provisions.

A Section 382 ownership change generally occurs if one or more stockholders or groups of stockholders who own at least 5% of our stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Similar rules may apply under state tax laws. The Company is not currently in a taxable position and no net operating loss carryforwards or credits have been used to date.

As of December 31, 2023 and 2022, the Company has unrecognized tax benefits of $1.5 million and $0.8 million, respectively. As of December 31, 2023, the total amount of unrecognized tax benefits would not affect the effective tax rate, if recognized, due to the valuation allowance that currently offsets deferred tax assets. The Company does not expect the unrecognized tax benefits to change significantly over the next 12 months. A reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31, 2023 and 2022 was as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Balance at beginning of year	$ 783	$ 445
Additions related to current year positions	678	338
Balance at end of year	$ 1,461	$ 783

The Company recognizes interest and penalties related to unrecognized tax benefits within the income tax expense line in the statements of operations. Accrued interest and penalties are included within the related tax liability line in the balance sheet. No accrued interest and penalties have been recorded through December 31, 2023.

The Company files income tax returns in the U.S. federal jurisdiction and California, Illinois, New York, South Carolina, Virginia and New York City state and city jurisdictions. The Company is not currently under audit by the Internal Revenue Service or other similar state or local authorities. Carryover attributes beginning December 31, 2020 and December 31, 2019, respectively, remain open to adjustment by the U.S. and state taxing authorities to which the Company is subject.

Note 12. Net Loss Per Share

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

	Year Ended December 31,	
	2023	2022
Numerator:		
Net loss	$ (64,732)	$ (40,956)
Add accretion to redemption value and cumulative dividends on preferred stock	—	(1,820)
Net loss attributable to common stockholders	$ (64,732)	$ (42,776)
Denominator:		
Weighted-average common shares outstanding used to calculate net loss per share attributable to common stockholders, basic and diluted	23,600,107	15,340,134
Net loss per share attributable to common stockholders, basic and diluted	$ (2.74)	$ (2.79)

Since the Company was in a loss position for all periods presented, basic net loss per share is the same as diluted net loss per share for all periods as the inclusion of all potential common shares 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:

	December 31,	
	2023	2022
Options issued and outstanding	3,930,306	2,796,241
Early exercised common stock subject to future vesting	5,040	19,778
Total	3,935,346	2,816,019

Note 13. Related Party Transactions

In the year ended December 31, 2022, the Company paid $1.5 million for two development milestones to Anacor. Of this amount, a $0.5 million payment was recognized as expense in 2021 and was included as accrued expenses in the accompanying balance sheet at December 31, 2021.

In connection with Adjuvant's investment in the Company's common stock as part of the IPO, the Company entered into the 2022 Adjuvant Amendment. As part of the 2022 Adjuvant Amendment, Adjuvant purchased 166,666 shares of the Company's common stock in 2022 for a total additional investment of $2.5 million, which is subject to Adjuvant's right of repayment should the Company not utilize the proceeds from Adjuvant's investment towards the agreed-upon purpose. As of December 31, 2022, the $2.5 million of proceeds from Adjuvant's IPO investment have been fully utilized to support the epetraborole development program, which overlaps with the melioidosis and other global health development programs (see Note 8—Commitments and Contingencies).