UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

x **Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the fiscal year ended: December 31, 2022

or

o **Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

FOR THE TRANSITION PERIOD FROM _____ TO _____

Commission file number: 001-40551

Acumen Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**36-4108129**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
427 Park St.	
Charlottesville, VA	**22902**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code (434) 297-1000

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, $0.0001 par value per share	ABOS	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. o Yes x No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. o Yes x 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. x Yes o 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). x Yes o 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	o	Accelerated filer	o
Non-accelerated filer	x	Smaller reporting company	x
Emerging growth company	x		

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

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

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

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 Act). o Yes x No

The aggregate market value of the common stock of the registrant held by non-affiliates of the registrant as of June 30, 2022, the last business day of the registrant's second fiscal quarter, was $135.4 million.

The number of the registrant's shares of common stock outstanding as of March 22, 2023 was 41,025,062.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement relating to its 2023 annual meeting of the shareholders, or the 2023 Proxy Statement, are incorporated by reference into Part III of this Annual Report on Form 10-K where indicated. The 2023 Proxy Statement will be filed with the U.S. Securities and Exchange Commission within 120 days after the end of the fiscal year to which this report relates.

TABLE OF CONTENTS

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, about us and our industry that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this Annual Report on Form 10-K including statements regarding our future results of operations or financial condition, business strategy and plans and objectives of management for future operations, are forward-looking statements. In some cases, you can identify forward-looking statements because they contain words such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “will” or “would” or the negative of these words or other similar terms or expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- the sufficiency of our existing cash and cash equivalents and marketable securities to fund our future operating expenses and capital expenditure requirements;
- our ability to obtain funding for our operations, including funding necessary to develop and commercialize ACU193, subject to necessary regulatory approvals;
- the ability of our clinical trials to demonstrate the safety and efficacy of ACU193, and other positive results;
- the therapeutic potential of ACU193, including its potential for improved safety and efficacy, as compared to other monoclonal antibodies approved and or in development, as well as the expectations concerning the INTERCEPT-AD trial;
- the success, cost and timing of our development activities, nonclinical studies and clinical trials;
- the timing and focus of our future clinical trials, and the reporting of data from those trials;
- our plans relating to commercializing ACU193, subject to obtaining necessary regulatory approvals;
- our ability to attract and retain key scientific and clinical personnel;
- our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;
- our reliance on third parties to conduct clinical trials of ACU193, and for the manufacture of ACU193 for nonclinical studies and clinical trials;
- the success of competing therapies that are or may become available;
- our plans and ability to obtain or protect our intellectual property rights, including extensions of existing patent terms where available or the use of data market exclusivity to provide protection from generic or biosimilar versions of our product;
- the scope of protection we are able to establish and maintain for intellectual property rights covering ACU193 and technology;
- potential claims relating to our intellectual property;
- existing regulations and regulatory developments in the United States and other jurisdictions;
- our ability to obtain and maintain regulatory approval of ACU193, and any related restrictions, limitations and/or warnings in the label of any approved product candidate;
- our plans relating to the further development and manufacturing of ACU193, including additional therapeutic indications which we may pursue;
- our ability to develop and maintain our corporate infrastructure, including our ability to design and maintain an effective system of internal controls;
- our financial performance; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

You should not rely on forward-looking statements as predictions of future events. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described under the header “Risk Factors” and elsewhere in this Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible for us to predict all

risks and uncertainties that could have an impact on the forward-looking statements contained herein. The results, events and circumstances reflected in the forward-looking statements may not be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements.

The forward-looking statements made in this Annual Report on Form 10-K relate only to events as of the date on which the statements are made, and we undertake no obligation to update them to reflect events or circumstances after the date of this Annual Report on Form 10-K or to reflect new information or the occurrence of unanticipated events, except as required by law.

Unless the context otherwise indicates, references in this report to the terms “Acumen,” “the Company,” “we,” “our” and “us” refer to Acumen Pharmaceuticals, Inc.

We may announce material business and financial information to our investors using our investor relations website (www.investors.acumenpharm.com). We therefore encourage investors and others interested in Acumen to review the information that we make available on our website, in addition to following our filings with the Securities and Exchange Commission, or SEC, webcasts, press releases and conference calls. Our website and information included in or linked to our website are not part of this Annual Report on Form 10-K.

RISK FACTORS SUMMARY

Our business is subject to a number of risks of which you should be aware before making a decision to invest in our common stock. These risks are more fully described in "Part I, Item 1A. Risk Factors" of this Annual Report on Form 10-K, including the following:

- We are a clinical-stage biopharmaceutical company with a limited operating history.
- We have no product candidates approved for commercial sale, we have never generated any revenue from product sales and we may never be profitable.
- We will require substantial additional funding to finance our operations, complete the development and commercialization of ACU193 for Alzheimer's disease, or AD, and evaluate future product candidates. If we are unable to raise this funding when needed, we may be forced to delay, reduce or eliminate our drug development programs or other operations.
- We are substantially dependent on the success of ACU193, our sole product candidate, which will require significant clinical testing before we can seek regulatory approval and potentially launch commercial sales, and which may not be successful in clinical trials, receive regulatory approval or be successfully commercialized, even if approved.
- We have concentrated our research and development efforts on the treatment of AD, a field that has to date seen very limited success in drug development.
- Our approach to the potential treatment of AD is based on a novel therapeutic approach, which exposes us to unforeseen risks.
- Nonclinical and clinical drug development involves a lengthy, expensive and uncertain process. The results of nonclinical studies and early clinical trials are not always predictive of future results. ACU193 or any other product candidate that we advance into clinical trials may not achieve favorable results in later clinical trials, if any, or receive marketing approval.
- Clinical failure can occur at any stage of clinical development and we have never completed a clinical trial or submitted a biologics license application, or BLA, or marketing authorization application, or MAA.
- We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.
- Our cash and cash equivalents could be adversely affected if the financial institutions in which we hold our cash and cash equivalents fail.
- We currently rely on contract manufacturing organizations, or CMOs, to manufacture and formulate ACU193. The loss of any of these CMOs or the failure of any of them to meet their obligations to us could affect our ability to develop ACU193 in a timely manner.
- We intend to rely on contract research organizations, or CROs, and other third parties to conduct, supervise and monitor a significant portion of our research and nonclinical testing and clinical trials for our product candidates, and if those third parties do not successfully carry out their contractual duties, comply with regulatory requirements or otherwise perform satisfactorily, we may not be able to obtain regulatory approval or commercialize product candidates, or such approval or commercialization may be delayed, and our business may be substantially harmed.
- We face significant competition in an environment of rapid technological and scientific change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more effective than ours.
- If we are unable to enter into a commercial collaboration or, alternatively, establish internal sales, marketing and distribution capabilities, for ACU193 or any other product candidate that may receive regulatory approval, we may not be successful in commercializing those product candidates if and when they are approved.
- If we are unable to obtain and maintain sufficient intellectual property protection for ACU193 and any future product candidate, and other proprietary technologies we develop, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our product candidate, and other proprietary technologies if approved, may be adversely affected.

PART I

Item 1. Business.

Overview

We are a clinical-stage biopharmaceutical company developing a novel disease-modifying approach to target what we believe to be a key underlying cause of Alzheimer's disease, or AD. Alzheimer's disease is a progressive neurodegenerative disease of the brain that leads to loss of memory and cognitive functions and ultimately results in death. Our scientific founders pioneered research on soluble amyloid-beta oligomers, or AßOs, which are globular assemblies of the amyloid-beta, or Aß, peptide that are distinct from Aß monomers and amyloid plaques. Based on decades of research and supporting evidence, AßOs have gained increasing scientific acceptance as a primary toxin involved in the initiation and propagation of AD pathology. We are currently focused on advancing a targeted immunotherapy drug candidate, ACU193, through clinical proof of mechanism trials in early AD patients. ACU193 is a recombinant humanized immunoglobulin gamma 2, or IgG2, monoclonal antibody, or mAb, that was designed to selectively target AßOs, has demonstrated functional and protective effects in in vitro assays, and has demonstrated in vivo safety and pharmacologic activity in multiple animal species, including transgenic models for AD.

ACU193 is the result of over a decade of research and development undertaken by the company, which included a drug discovery partnership with Merck & Co., Inc., or Merck, from 2003 to 2011. ACU193's mechanism of action is intended to slow disease progression and potentially preserve or improve memory function in early AD patients by binding to AßOs and neutralizing their toxicity. AßOs have been shown to bind to neurons, contributing to synaptic malfunction, memory deficits, cognitive impairment and, ultimately, neurodegeneration and cell death. As such, we believe AßOs are the most toxic and pathogenic form of Aß in the brains of AD patients relative to other forms of amyloid, including Aß monomers and amyloid plaques. We believe the development and commercialization of a drug that reduces toxicity of AßOs is one of the most promising approaches for the potential treatment and prevention of the progression of AD.

In our nonclinical studies, we observed that ACU193 has over 500-fold greater selectivity for targeting AßOs over Aß monomers and, based on immunohistochemical studies of human AD brain tissue, appears to have limited or no binding to amyloid plaques. Also, ACU193 potently prevents binding of AßOs to hippocampal neurons and preserves long-term potentiation for those cell, an electrophysiological surrogate for brain circuit function such as memory. Recent laboratory studies conducted by Acumen and others suggest that inhibiting AßOs may enable damaged brain circuits to regain some function and prevent further degeneration from occurring. ACU193 has demonstrated in vivo biochemical and behavioral activity in several AD mouse models, including crossing the blood-brain barrier and forming complexes with AßOs in a dose-dependent manner. ACU193 has shown consistent pharmacokinetics and brain penetration properties in four animal species. Safety toxicology studies in rats and monkeys provide acceptable margins for acute and chronic dosing in the clinic. Additionally, studies in transgenic mice indicate low potential for microhemorrhage. Based in part on its binding selectivity for AßOs rather than amyloid plaques, ACU193 has the potential to have a lower rate of amyloid-related imaging abnormalities, or ARIA, than the plaque-directed anti-amyloid antibody therapies currently in development or approved. ARIA is a common adverse event for antibodies targeting amyloid plaque and can be a dose-limiting safety liability for those antibodies.

We initiated a Phase 1 clinical trial of ACU193 in the second quarter of 2021, which we named "INTERCEPT-AD." This trial enrolled 65 patients with mild dementia or mild cognitive impairment, or MCI, due to AD, conditions referred to as "early AD." INTERCEPT-AD is a U.S.-based, multi-center, randomized, double-blind, placebo-controlled clinical trial with overlapping single ascending dose, or SAD, and multiple ascending dose, or MAD, cohorts involving patients with early AD. The overall objective of the trial is to evaluate the safety and tolerability of ACU193 and to establish clinical proof of mechanism of ACU193 administered intravenously. The primary trial endpoints are focused on safety and immunogenicity. An important safety measure will be the use of magnetic resonance imaging, or MRI, to assess the presence or absence of ARIA. Secondary endpoints include pharmacokinetics in plasma and cerebrospinal fluid, or CSF, and target engagement as evidenced by detection of ACU193 bound to AßOs in CSF. Clinical scales typically used in AD trials as well as computerized cognitive testing and arterial spin labelling with MRI scans are included as exploratory measures. In October 2021, we announced the initial dosing of the first patient in the INTERCEPT-AD trial and the subsequent successful sentinel safety review of the first two patients.

In January 2023, we submitted a protocol amendment to the U.S. Food and Drug Administration, or FDA, to modify the planned dose level of Cohort 7 of INTERCEPT-AD to 25 mg/kg every two weeks from 60 mg/kg every two weeks. The proposed change was based in part on a blinded review of preliminary pharmacokinetic data, inclusive of plasma and cerebrospinal fluid levels, which indicated a dose of 60 mg/kg every two weeks should not be needed to attain central

target engagement, and preliminary safety data, inclusive of two asymptomatic cases of ARIA-E (one in Cohort 4 after a single 60 mg/kg dose and one in Cohort 5 after a third 10 mg/kg dose). We announced the completion of enrollment in INTERCEPT-AD in February 2023 and we anticipate reporting topline data from this trial in the third quarter of 2023.

Alzheimer's disease is a progressive neurodegenerative disease that destroys memory and other important cognitive functions and ultimately leads to patient death. AD currently affects over 6 million people in the United States and approximately 32 million people worldwide and is the sixth-leading cause of death in the United States. However, due to the aging population, patient populations in the United States impacted by AD are expected to grow to approximately 13 million people by 2050 without effective preventative measures or safe and effective disease-modifying treatments. By 2050, healthcare costs for AD in the United States alone are estimated to exceed $1 trillion. The target population for ACU193 and other monoclonal antibodies in development is what is now being called "early AD." This population includes people with a clinical diagnosis of mild cognitive impairment, or MCI, or mild dementia due to AD who are also amyloid positive based on either imaging studies or cerebrospinal fluid biochemical analyses. The term "mild cognitive impairment or mild dementia due to AD" has also been used and is accepted by regulators as inclusion/exclusion criteria in clinical trials. While epidemiologic studies of this population are evolving, approximately 4-5 million people in the United States are likely to have early AD.

In June 2021, the FDA granted approval for Biogen's Aduhelm (aducanumab) under the FDA's Accelerated Approval Pathway, or AAP. Aduhelm was the first new AD product approval since 2004 and the first approved disease-modifying product. In April 2022, the Centers for Medicare and Medicaid Services, or CMS, released a final National Coverage Decision, or NCD, that restricts reimbursement for monoclonal antibodies directed against amyloid for the treatment of AD, including Aduhelm, under a Coverage with Evidence Development, or CED, designation. The CED limits reimbursement of anti-amyloid antibodies, including Aduhelm, to placebo-controlled clinical trials. In May 2022, Biogen announced its decision to eliminate substantially all commercial support for Aduhelm in the U.S. and withdrew its marketing application for Aduhelm in Europe.

In January 2023, the FDA granted approval for Eisai's Leqembi™ (lecanemab) under the AAP based on results of its Phase 2 study. Lecanemab is a recombinant humanized immunoglobulin gamma 1 (IgG1) monoclonal antibody directed against aggregated soluble (protofibrils) and insoluble (plaque) forms of amyloid beta. In September 2022, Eisai announced positive results of its lecanemab Phase 3 CLARITY-AD trial. In CLARITY-AD, lecanemab demonstrated highly statistically significant effects on primary and secondary clinical measures and a lower rate of ARIA than observed for aducanumab in the Phase 3 EMERGE and ENGAGE studies. Though a full FDA approval for Leqembi is anticipated for the third quarter of 2023 based on the Phase 3 CLARITY-AD results, the need for additional options for AD treatment and prevention becomes more urgent with each passing year, and we believe that our novel approach can potentially help address this pressing need.

Understanding the Foundation of Our Therapeutic Approach

While the pathology of AD was first described by Dr. Alois Alzheimer in 1906, the amyloid hypothesis was not developed until the Aß peptide was first identified as a major constituent of amyloid plaques in the 1980s. Historically, the primary hypothesis of decades of AD research, known as the amyloid hypothesis, held that AD dementia is the clinical consequence of Aß peptide monomers accumulating into extracellular amyloid plaques, or amyloid plaques, which in turn contribute to the formation of intracellular neurofibrillary tangles composed of the tau protein and cause inflammation, ultimately leading to neuronal cell loss and progressive dementia. The primary constituent of amyloid plaques is the Aß peptide, although other proteins are present to lesser degrees.

The amyloid hypothesis was more firmly established when a series of genetic mutations causing AD were discovered in the early to mid-1990s. These mutations were found in genes coding for the Amyloid Precursor Protein, or APP, and the genes coding for one of the enzymes which cleaves APP, creating the Aß peptide. Based on this hypothesis, a number of monoclonal antibodies currently or previously in clinical development for AD have primarily targeted either Aß monomers or amyloid plaques; for our purposes, this broadly defined class is referred to as anti-Aß/plaque antibodies. Several of these antibodies are currently in late-stage development, two having received accelerated regulatory approval, and collectively they have provided a biological foothold for treating AD. While aducanumab targets deposited amyloid plaques, lecanemab was intended to target soluble aggregated species of Aß known as protofibrils (although it also lowers plaque). However, the clinical data available to date indicate some of the potential limitations of these approaches with respect to clinically meaningful patient benefit and safety.

Though alternative hypotheses to the amyloid hypothesis propose that amyloid accumulation is a consequence of another process such as infection, the field has now developed an understanding that three predominant pools of Aß species exist in vivo: Aß monomers (single Aß peptides), amyloid plaques (insoluble fibrillar Aß), and soluble AßOs (dimers and up to 200-mers). Some experts in the field differentiate soluble AßO oligomers into globular structures or linear protofibrils. Linear soluble protofibrils may elongate to form the insoluble fibrils that make up deposited amyloid plaques. ACU193 was developed to bind to globular AßOs rather than to Aß monomers or deposited amyloid plaques. The more recent appreciation of the crucial role of soluble AßOs in the pathologic process is the central tenet of our therapeutic approach.

Our therapeutic approach focuses on targeting AßOs, which we believe are the most toxic and pathogenic form of Aß relative to Aß monomers and insoluble amyloid plaques. Growing evidence, spurred by advances in AD research and analytic techniques, supports our view that AßOs are one of the primary instigators of AD neurodegeneration. AßOs have been observed to be potent neurotoxins that cause both acute synaptic toxicity and induce neurodegeneration. Experimentally in animal models, the accumulation of AßOs is associated with core AD neuropathology, including synapse deterioration and loss, tau hyper-phosphorylation, and inflammation. Research has also shown that the accumulation of AßOs is associated with AD-related behavioral deficits, such as learning and memory impairment. In light of this evidence, we believe that blocking the toxicity of AßOs is a promising approach for maximizing the therapeutic index (efficacy compared to safety) for the treatment of AD, which led us to discover and develop ACU193.

Our Product Candidate

Our product candidate, ACU193, is a recombinant humanized, affinity-matured, immunoglobulin G2, or IgG2, subclass monoclonal antibody, derived from the murine immunoglobulin G1, or IgG1, parent, ACU3B3. We are developing ACU193 for intravenous, or IV, administration every four weeks for the treatment of early AD. We believe that ACU193 represents a differentiated approach from current and prior anti-Aß/plaque immunotherapies because it is highly selective for soluble AßOs. ACU193 has a nanomolar affinity for AßOs, over 500-fold greater selectivity for AßOs over Aß monomers, and limited or no binding to dense core amyloid plaques. We believe that ACU193 is the most advanced immunotherapy candidate in development that was designed to selectively target AßOs.

We believe that ACU193 has characteristics that make it a promising potential treatment for AD relative to other antibodies that do not selectively target AßOs. ACU193 is designed to have reduce immune effector function signaling and to avoid binding to vascular amyloid plaques, which we expect will reduce the incidence of ARIA observed with amyloid plaque-targeting immunotherapies approved and in development for AD. We are currently assessing ACU193 in INTERCEPT-AD, a proof of mechanism Phase 1 clinical trial involving early AD patients. We anticipate our next clinical study, pending success in Phase 1, starting as a Phase 2 clinical trial with the potential to expand to a Phase 3 registration trial based in part on an interim expansion analysis. However, completion of a Phase 2 trial, with or without an expansion to Phase 3, will likely require us to raise capital in an amount sufficient to extend our cash runway into the second half of 2026.

Our Differentiated Approach to the Treatment of AD

We believe that, based on its differentiated mechanism of action, potential for symptomatic improvement and disease modification, and potential for higher dosing, ACU193 has several potential advantages in comparison to other AD drugs that are currently approved or in development:

Differentiated mechanism of action:

- **Potentially addresses an underlying cause of AD**. A growing body of evidence indicates that AßOs, rather than Aß monomers or amyloid plaques, are the primary toxic species of Aß that impair neuronal synaptic function and contribute to impairment in memory and cognition and neurodegeneration. We believe that AßOs are an optimal therapeutic target relative to other Aß species and that ACU193 has the potential to be the first AßO mAb treatment to slow the progression of AD.
- **Selectively binds to AßOs.** ACU193 is the first monoclonal antibody discovered and designed to selectively target AßOs. In our nonclinical studies, ACU193 demonstrated a greater than 500-fold affinity to bind to AßOs over monomers and did not bind vascular amyloid or dense core amyloid plaques. In immunohistochemical studies using human AD brain tissue, little or no binding to thioflavin-S positive amyloid plaques appeared to be present. In comparison, most other non-selective anti-Aß/amyloid antibodies in development bind primarily to Aß monomers or amyloid plaques.

- **Binds to a broad spectrum of toxic AßOs.** AßOs are present in the brain in a wide range of sizes. ACU193 has the ability to bind to a broad spectrum of toxic AßOs across various molecular weights. Nonclinical data shows that ACU193 binds to oligomeric species from dimers to approximately 100-mers of Aß.

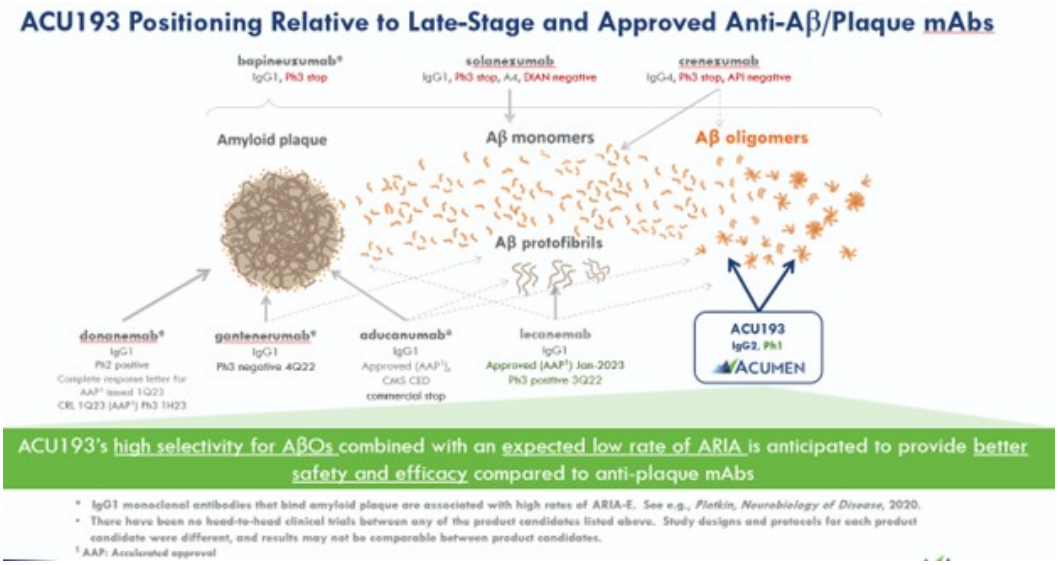
Potential for symptomatic improvement and disease modification:

- **May provide symptomatic improvement in addition to disease modification.** While recent anti-Aß monoclonal antibody results have established a biological foothold for disease-modifying treatments for AD, they fail to demonstrate clinically meaningful *symptomatic* improvement as measured by AD clinical assessments. Recent nonclinical studies show that AßOs are acutely toxic to neuronal function. By selectively targeting and neutralizing AßO toxicity, we believe that ACU193 has the potential to build upon this biological foothold and provide improvements in cognitive function in addition to disease-modifying effects.

Potential for higher dosing:

- **Selectivity for AßOs could result in reduced rates of ARIA, allowing a broader therapeutic window.** Amyloid plaque binding antibodies have been associated with ARIA, with IgG1 monoclonal antibodies in particular showing elevated rates of ARIA, which presents a safety concern. In contrast, ACU193 was developed as an IgG2 subclass monoclonal antibody, which has reduced inflammatory effector functions compared to IgG1 antibodies. Because ACU193 exhibits limited or no binding to amyloid plaques and has reduced inflammatory effector functions, we believe that treatment with ACU193 could result in lower rates of ARIA-E relative to IgG1 monoclonal antibodies that bind to amyloid plaque. ACU193 has demonstrated a favorable pharmacokinetic profile in nonclinical studies. Based on the results of Good Laboratory Practice, or GLP, safety studies in rats and monkeys, dose-ranging for the INTERCEPT-AD study included doses up to 60 mg/kg, and based on ongoing blinded safety reviews, the ARIA rate to date has been low. While certain anti-plaque antibodies have dose limitations due to ARIA, we believe that ACU193 may be well-tolerated at higher doses compared to other antibodies.

Figure 1: Summary comparison of ACU193 to anti-Aß/plaque antibodies in clinical development



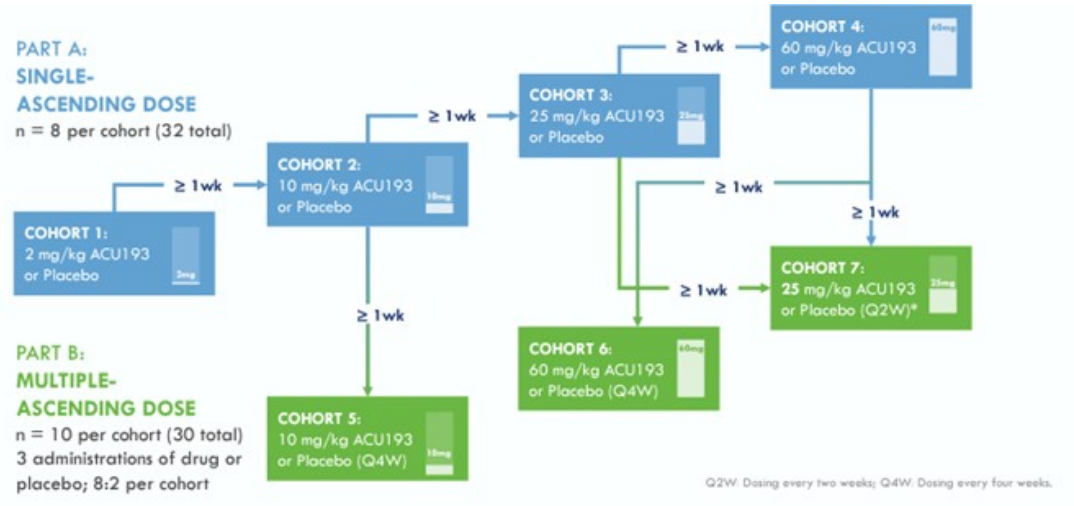
Despite recognition that AßOs are key structures contributing to AD memory dysfunction, cognitive deficits, and neurodegeneration, drug discovery efforts targeting these species have been hampered by technical difficulties of generating physiologically relevant preparations of synthetic AßOs, or syn-AßOs. Our founders and early-stage researchers were instrumental in the development of well-characterized preparations of syn-AßOs, initially termed Aß Derived Diffusible Ligands, or ADDLs, which are globular structures. ADDL preparations were used as the immunogen to generate and discover ACU3B3, the murine IgG1 parent of ACU193.

In December 2003, we entered into an exclusive license and research and development collaboration agreement with Merck for the research, discovery, development, and commercialization of immunotherapies for AD. From 2003 to 2011, Merck carried out extensive research leading to the humanization of ACU3B3 and creation of ACU193. ACU193 emerged as the lead product candidate based on its preferential AßO binding, favorable immunogenicity profile, and an absence of off-target binding. In 2011, Merck chose to terminate the program largely based on internal strategic priorities. Consequently, we regained an exclusive, perpetual, irrevocable, royalty-free, worldwide license for the research, development, manufacturing or commercialization of ADDL antibodies, ADDL antigens, or products, including ACU193.

Clinical Development Plan

We are currently conducting INTERCEPT-AD, a U.S.-based, multi-center, randomized, placebo-controlled, single and multiple ascending dose Phase 1 clinical trial of ACU193 in 65 patients with early AD. The early AD patient group is comprised of individuals who have mild dementia or MCI due to AD, and our trial excludes patients with moderate to severe AD dementia. Patients have been enrolled across seven cohorts, consisting of a single ascending dose in Part A and an overlapping multiple ascending dose in Part B. Part A contains Cohorts 1 through 4; each cohort received a single IV dose between 2mg/kg and 60 mg/kg, or placebo. Part B contains Cohorts 5 through 7; each cohort receives a total of three doses of ACU193 or placebo as follows: 10 mg/kg every four weeks (Q4W), 60 mg/kg Q4W, or 25 mg/kg every two weeks (Q2W).

Figure 2: Design of INTERCEPT-AD



Trial Design Part A - Single Ascending Dose

In Part A of our clinical trial, participants were randomized in a 6:2 ratio into one of four cohorts to receive a single dose of ACU193 or placebo as follows:

- Cohort 1: One IV dose of ACU193 (2 mg/kg) or placebo.
- Cohort 2: One IV dose of ACU193 (10 mg/kg) or placebo.
- Cohort 3: One IV dose of ACU193 (25 mg/kg) or placebo.
- Cohort 4: One IV dose of ACU193 (60 mg/kg) or placebo.

The double-blind treatment period for Cohorts 1-4 of Part A was approximately 20 weeks and included ten visits (four inpatient and six outpatient). A sequential dosing scheme was followed for each cohort in Part A. Dosing of Cohorts 1-3 began at least one week after all participants in the immediately preceding lower-dose cohort had received one administration of study drug and safety data had been reviewed by our internal blinded safety team. Dosing of Cohort 4 began at least one week after all participants in Cohort 3 received one administration of study drug and these safety data, along with Cohort 2 aggregate pharmacokinetic data, had been reviewed by our internal blinded safety team. An unblinded,

independent Data Monitoring Committee, or DMC, also monitored the trial and was able to review safety data on an ad hoc basis if requested by the blinded study team.

Trial Design Part B - Multiple Ascending Dose

In Part B of our clinical trial, participants were randomized in an 8:2 ratio into one of three cohorts to receive a total of three doses of ACU193 or placebo as follows:

- Cohort 5: One IV dose of ACU193 (10 mg/kg) or placebo once every four weeks.
- Cohort 6: One IV dose of ACU193 (60 mg/kg) or placebo once every four weeks.
- Cohort 7: One IV dose of ACU193 (25 mg/kg) or placebo once every two weeks.

Participants in Cohorts 5 and 6 will be evaluated over approximately 35 weeks, consisting of a seven-week screening period followed by a 28-week, double-blind treatment period. A follow-up safety check will be performed approximately eight weeks after the final visit of the double-blind treatment period.

Participants in Cohort 7 will be evaluated over approximately 31 weeks, consisting of a seven-week screening period, followed by a 24-week, double-blind treatment period. A follow-up safety check will be performed approximately eight weeks after the final visit of the double-blind treatment period.

In order to maintain participant safety for Part B of the clinical trial, dosing of Cohort 5 began at least one week after all participants in Cohort 2 of Part A had received one administration of ACU193 or placebo and the Cohort 2 safety data had been reviewed by our internal blinded safety team. For Cohort 6, dosing began at least one week after all participants in Cohort 4 of Part A had received one administration of ACU193 or placebo and the Cohort 4 safety data had been reviewed by our internal blinded safety team. Dosing of Cohort 7 began after review of Cohort 3 and Cohort 4 safety data at least one week after the last person in the cohort was dosed. If a potential safety signal, an unexpected adverse reaction, or higher than expected exposure had occurred, our internal blinded safety team would have notified the independent, unblinded DMC to review the safety and pharmacokinetic data and advise on dose escalation. Cohort 7 will allow for additional pharmacokinetic modeling to more accurately determine if every two-week dosing is necessary and if accumulation of ACU193 occurs with this dosing frequency.

Endpoints

Our goal for the Phase 1 trial is to establish clinical proof of mechanism of ACU193 in patients with early AD. The endpoints we will measure as part of this trial include:

Primary Endpoint

- safety and immunogenicity, including assessment for ARIA;

Secondary Endpoints and Exploratory Objectives

- pharmacokinetics in plasma;
- determination of CSF concentrations of ACU193;
- evaluation of central target engagement as measured by levels of ACU193 AßO complex in CSF;
- evaluation of possible changes in concentration of biomarkers for AD in CSF or blood;
- evaluation of possible changes in amyloid plaque load as determined by PET imaging;
- exploratory evaluation of possible changes in cerebral blood flow as determined by MRI imaging, using Arterial Spin Labeling (ASL) pulse sequence; and
- exploratory evaluation of possible changes in cognitive, functional, and behavioral measures using computerized testing and standard clinical measures for AD.

The main objective of INTERCEPT-AD is to evaluate the safety, tolerability, pharmacokinetics, pharmacodynamics, and target engagement of single and multiple ascending doses of ACU193 administered by intravenous infusions. Exploratory outcomes will include cognitive scales and computerized cognitive testing. Our goal is to establish clinical proof of mechanism of ACU193 in early AD patients in order to enable progression into an adaptive Phase 2/3 clinical trial. In October 2021, we announced the initial dosing of the first patient in the INTERCEPT-AD trial and the subsequent successful sentinel safety review of the first two patients. Due to delays in clinical trial site activation and patient enrollment that we believe are principally related to effects of the COVID-19 pandemic, we expanded the anticipated number of trial sites to support our enrollment objectives and anticipated timelines. We announced enrollment completion in February 2023 and anticipate reporting our topline data from this trial in the third quarter of 2023. Following, and subject to the results of, INTERCEPT-AD, we plan to request an end-of-Phase 2/pre-Phase 3 meeting with the FDA, which we anticipate will occur in the fourth quarter of 2023, to discuss the clinical trial design for our next clinical study and potential pathway for registration. The FDA granted Fast Track designation to ACU193 in October 2022.

Nonclinical and Laboratory Data

In nonclinical studies, ACU193 has demonstrated promising characteristics that indicate its potential to inhibit AßOs as a possible therapeutic treatment of AD. ACU193 has high selectivity, with over 500-fold binding selectivity for AßOs compared to Aß monomers and has limited or no binding to amyloid plaques. ACU193 binds to a broad spectrum of small to large soluble AßOs. Additionally, ACU193 has been shown to offer protection from synaptic toxicity by inhibiting binding of AßOs to primary hippocampal neurons. ACU193 has also demonstrated suitable in vivo pharmacology, target engagement, blood-brain barrier penetration and reduction of behavioral deficits. Based on nonclinical studies, AßO target engagement has the potential to be achieved at doses of ACU193 that will be tested in our Phase 1 clinical trial. Lastly, Good Laboratory Practice, or GLP, toxicity studies conducted in two animal species supported the Phase 1 study. We believe these data indicate that ACU193 has the potential to offer patients a reduction in cognitive decline.

Summary of Nonclinical Studies

In our nonclinical studies, ACU193 has demonstrated: (i) preferential selectivity for binding to AßOs versus other forms of Aß monomers and amyloid plaques in in vitro assays, human AD tissue samples and in vivo transgenic mouse models; (ii) consistent data in support of ACU193 protective effects against AßO synaptic toxicity in in vitro and ex vivo assays; (iii) in vivo pharmacology in multiple species confirming blood-brain barrier penetration, target engagement, and behavioral effects; and (iv) safety data in multiple species including GLP toxicology studies in Sprague-Dawley rats and cynomolgus monkeys confirming an adequate safety margin for the first in human clinical trial. Based on the strength of the data we observed in our nonclinical studies, we initiated INTERCEPT-AD, a Phase 1 clinical trial, in the second quarter of 2021.

Key Characteristics and Data

Selectivity	• ACU193 binds a broad range of synthetic and human-derived AßOs (~dimers to ~100-mers).
In vivo pharmacology	• ACU193 crosses the blood-brain barrier and demonstrates dose-dependent target engagement in the brain following peripheral administration of antibody.
Safety	• GLP studies via IV route established no observed adverse effect level, or NOAEL, of 300 mg/kg/dose in a 14-week cynomolgus monkey study and 250 mg/kg/dose in a 28-day rat study.

Selectivity for AßOs

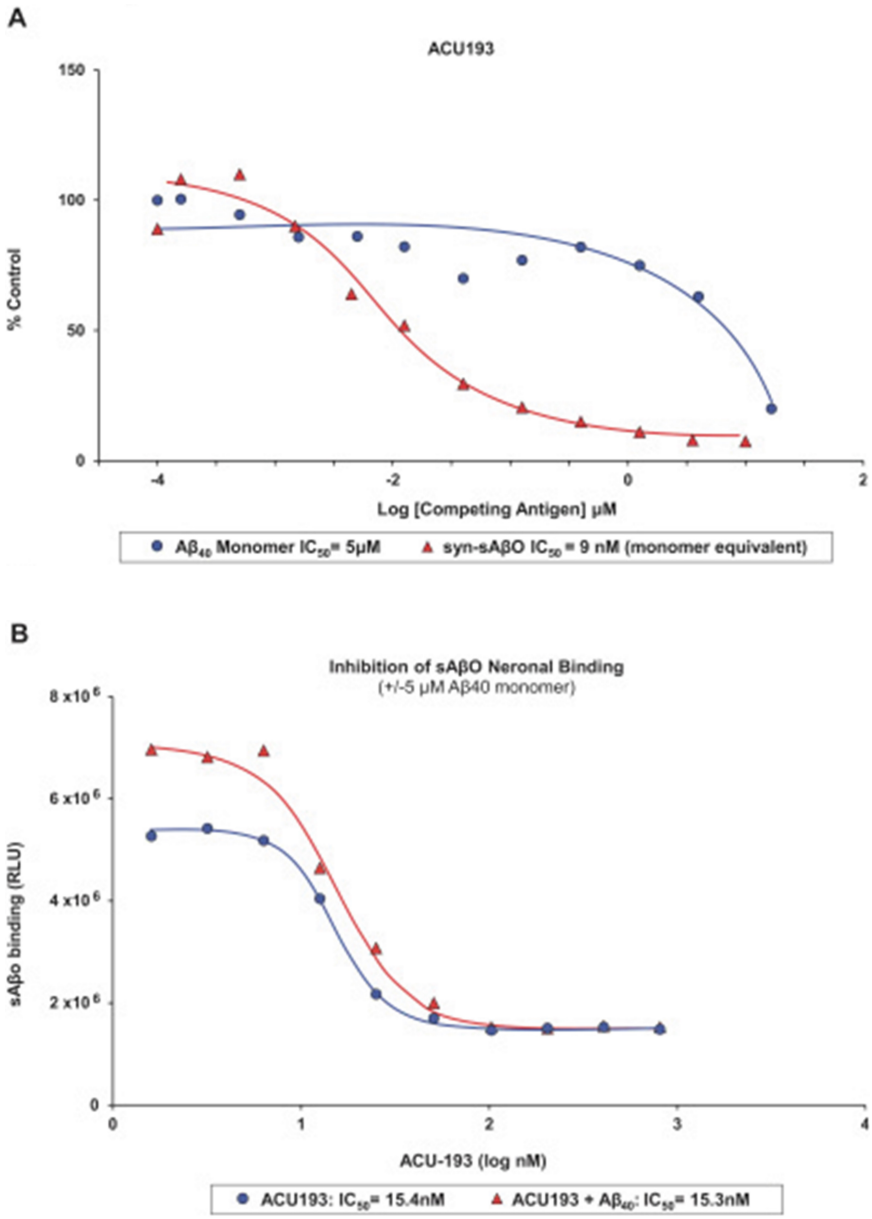
In order to understand ACU193 selectivity for AßOs, we performed biochemical assays and immunohistochemistry experiments.

Selectivity for AßOs versus Aß monomers

We demonstrated that ACU193 shows significant preferential selectivity for AßOs compared to Aß monomers. In a competition ELISA assay, ACU193's binding to AßOs was 556-fold greater than binding to Aß monomers. Figure 3A shows comparative syn-AßO versus Aß monomer affinity data for ACU193, and illustrates the high selectivity of ACU193 for AßOs. Further evidence of ACU193 selectivity for syn-AßOs was obtained using a very high concentration of monomeric Aß, 5 µm, which did not decrease binding to syn-AßOs (Figure 3B). We believe ACU193's selectivity for AßOs in the presence of abundant Aß monomers is representative of the in vivo levels of these Aß species in AD patients.

Thus, ACU193 does not experience “target distraction” from non-toxic Aß monomers in an environment simulating brain interstitial fluid.

Figure 3: [A] Competitive ELISA for ACU193 binding to syn-AßO or monomeric Aß40 [B] 5µM monomeric Aß did not substantially change binding to syn-AßO



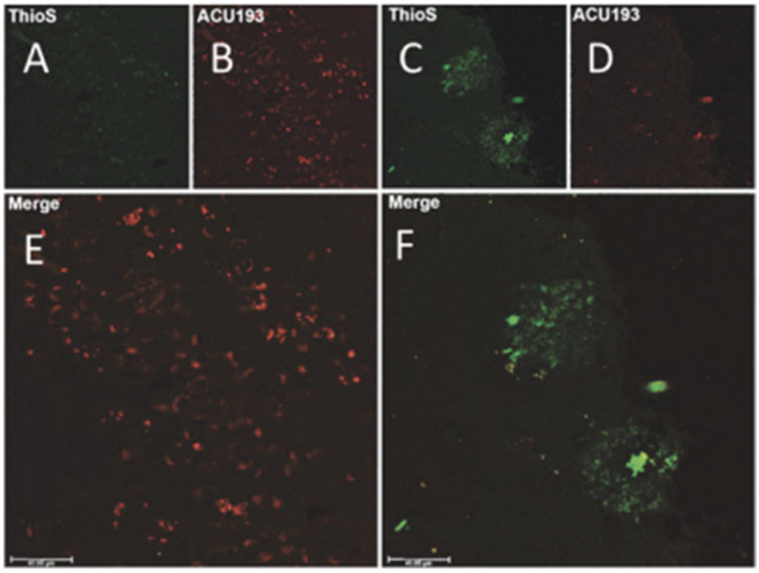
These results support the conclusion that selectivity of ACU193 for AßOs is maintained in a biochemical environment simulating the brain.

Selectivity for AßOs versus amyloid plaques

We have shown in our nonclinical data that ACU193 binds AßOs from AD patients with limited or no binding to amyloid plaques. In Figure 4 below, thioflavin S-positive ß-amyloid plaques are shown in green fluorescence while ACU193 binding is shown in red fluorescence. ACU193 binds significantly in regions that are thioflavin-S-negative, i.e., without

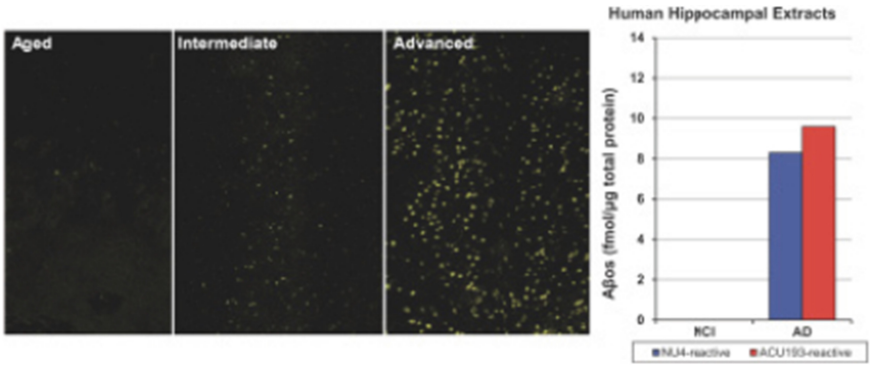
amyloid plaques (Figure 4, Panels B and E), but only infrequently and minimally binds to thioflavin-S-positive fibrillar Aß structures (Figure 4, Panel D); close examination shows possible co-localization of ACU193 with thioflavin-S-positive Aß deposits in their periphery (Figure 4, Panel F). We believe a likely explanation of ACU193 infrequent binding near the periphery of some amyloid plaques is due to binding to AßOs that surround the periphery of amyloid plaques. Taken together, these results are consistent with the concept that ACU193 binds endogenous AßOs, does not block binding by thioflavin-S, and, importantly, preferentially binds AßOs versus fibrillar Aß.

Figure 4: ACU193 binding to AßOs versus amyloid plaques



The upper left portion of the immunohistochemistry figure shows that in areas with no amyloid plaque binding (no green fluorescence staining, A) there is substantial binding by ACU193 (red fluorescence staining, B) that is not related to amyloid plaque. The merge of these panels (Panel E) shows ACU193 binding with no amyloid plaque present. On the upper right portion of the figure, the area that is positive for amyloid plaque (green fluorescence staining, C) shows minimal ACU193 binding (red fluorescence staining, Panel D). The merge of these panels (F) shows the minimal binding of ACU193 (red fluorescence staining) on the periphery of the amyloid plaque (green fluorescence staining), likely related to AßO binding in the halo of the amyloid plaque.

Figure 5: AD stages based on AD neuropathic change, or ADNC, scoring

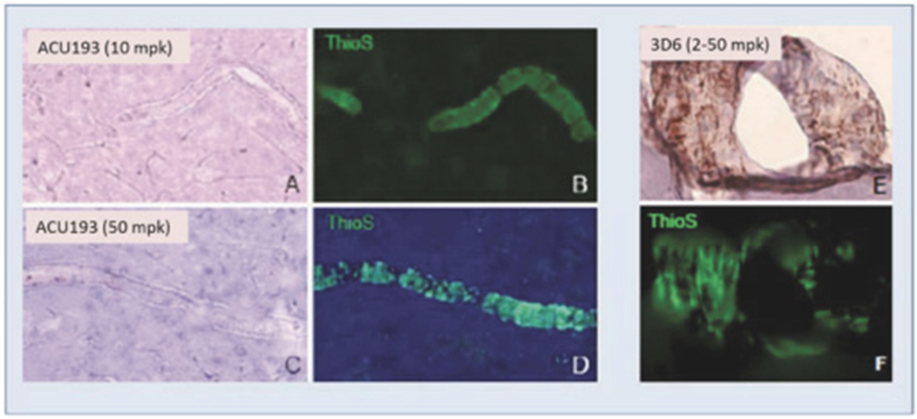


ADNC scoring is a combination of amyloid plaque levels, neuritic plaque levels, and neurofibrillary tangle pathology, or NFT, levels (Braak stage). In human tissue samples, ACU193 shows a disease state-relevant signal based on

immunohistochemistry shown on the left from aged controls, intermediate AD pathology, and advanced AD pathology. On the far-right panel, ACU193 detects AßOs in soluble hippocampal extracts from an autosomal dominant AD patient, but not from a cognitively normal patient.

Furthermore, we have demonstrated that ACU193 does not bind to amyloid plaque surrounding blood vessels (cerebral amyloid angiopathy). In a study of transgenic mice, we did not observe binding to vascular amyloid, in contrast to hu3D6 (bapineuzumab), which displayed significant binding at all dose levels.

Figure 6: ACU193 versus hu3D6 binding to vascular amyloids



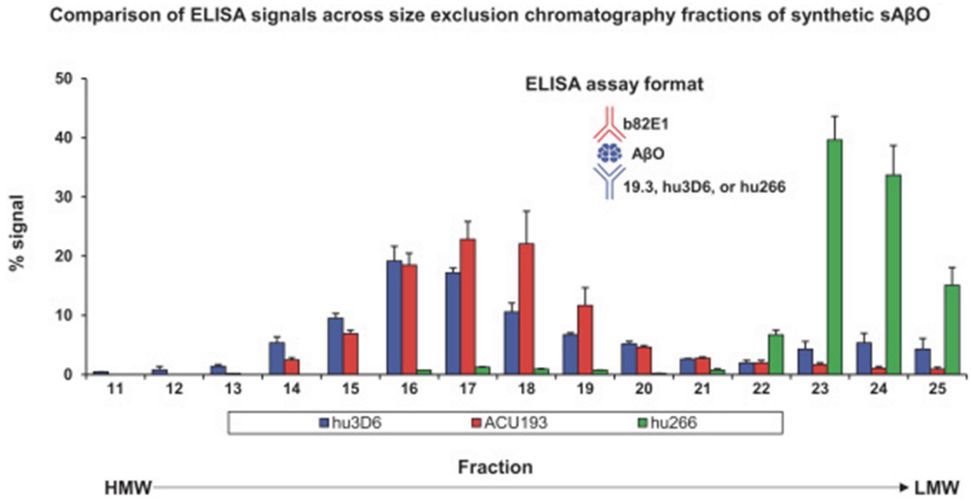
ACU193 (A and C) shows no binding to the vascular amyloid that is visible in the vessels stained by thioflavin-S (green fluorescence, B and D) in the brain 24 hours following IV dosing of 10 or 50 mg/kg in seven- to eight-month-old Tg2576 mice. In contrast, hu3D6 (bapineuzumab) binds vascular amyloid (E) at all dose levels assessed.

The data above related to vascular plaque binding support our belief that ACU193 is likely to have limited ARIA liability. Given that the amyloid plaque-binding properties of multiple antibodies have been associated with ARIA (e.g., aducanumab, lecanemab, gantenerumab, and donenamab), we believe that ACU193's negligible binding of amyloid plaques, including amyloid plaques associated with cerebral amyloid angiopathy, provides evidence that ACU193 may have a lower rate of ARIA in comparison.

Binding to a broad spectrum of molecular weight AßOs

In addition, we demonstrated that ACU193 binds a broad spectrum of AßOs across various molecular weights. In another series of experiments, syn-AßOs were fractionated by size exclusion chromatography and characterized by ELISA using ACU193, hu3D6 (bapineuzumab) or hu266 (solanezumab) as the capture antibody and biotinylated anti-human Aß antibody 82E1 for detection. These data show ACU193 binds AßOs ranging from dimers to approximately 100-mers, with preferential binding to mid-molecular weight oligomers compared to hu266. This range of sizes is very similar to the range of sizes of oligomers thought to be most toxic.

Figure 7. Binding of humanized antibodies to size exclusion chromatography fractions of synthetic Aß species



Size exclusion chromatography fractionation of syn-AßO prep with sandwich ELISA detection. hu3D6 is also known as bapineuzumab; hu266 is also known as solanezumab. These data demonstrate the specificity of ACU193 for oligomers versus monomers, and also demonstrate a range of oligomers that are bound by ACU193.

Collectively the data show that ACU193 binds AßOs with 556-fold selectivity versus Aß monomers and demonstrates limited to no binding to amyloid plaques, but does bind to a broad range of synthetic and endogenous low, mid, and higher molecular weight AßOs. Based on these and other data, we believe that ACU193 can target therapeutically relevant AßOs in the brain of early AD patients.

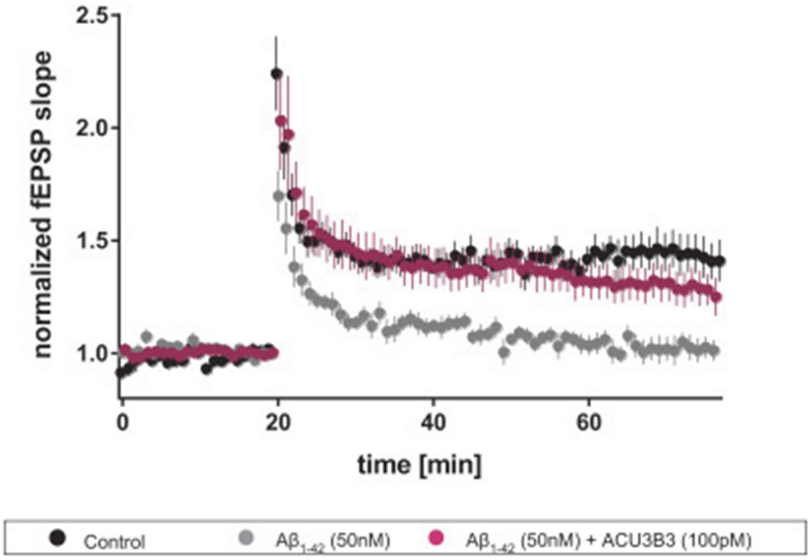
Protection from AßO-induced synaptic toxicity

In order to understand ACU193's ability to either neutralize or limit AßO-induced physiological changes, we performed ex vivo studies using brain slices or cell cultures.

Prevention of AßO toxic effects on neuronal electrophysiology

In ex vivo studies using the murine hippocampal slice long term potentiation, or LTP, model, pre-incubation with ACU193 or ACU3B3 has been shown to prevent the LTP deficit caused by AßOs (formed by administration of 50nM $Aß_{1-42}$). LTP is an electrophysiological phenomenon demonstrated in neurons that may be associated with memory formation and other important neurological functions. Disruption of LTP has been associated with animal models in a variety of central nervous system disease states.

Figure 8. Effects of ACU3B3 and ACU193 on AßO-induced change in LTP

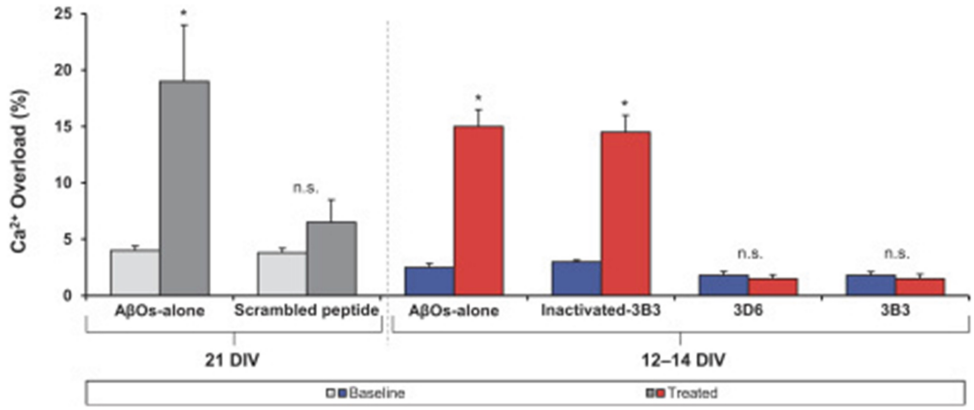


Note that AßOs disrupted normal LTP findings, but that pre-incubation with ACU3B3 prevented that disruption.

Prevention of toxic effects of AßOs on calcium homeostasis

Exposure to ACU3B3 has been shown to prevent calcium overload in cortical neuronal cultures induced by direct application of syn-AßOs (Figure 9). Disruptions in calcium homeostasis that cause cellular dysfunction have been implicated in a number of disease states, including myocardial infarction and stroke. Further, AßOs have been shown to cause disruption of calcium homeostasis, and thus, restoration of intracellular calcium to normal levels could serve as a functional indicator of potential treatment effect in AD. Multiphoton microscopy was used to examine the relationship of syn-AßO and neuronal calcium homeostasis in vitro (Figure 9). Direct application of syn-AßOs elicited calcium elevations in cortical neuronal cultures. Prior exposure to antibodies ACU3B3 and 3D6 prevented this calcium elevation (Figure 9). These results demonstrate that syn-AßOs induce elevated concentrations of intracellular neuronal calcium and that ACU3B3 prevented the syn-AßO-induced calcium overload.

Figure 9: Effect of ACU3B3 on calcium homeostasis



The relationship of syn-AßO and neuronal calcium homeostasis in the presence and absence of ACU3B3 was studied in primary cultures of transgenic APP-PS1 mouse cortical neurons. Multiphoton microscopy was used to obtain images of neuronal cultures at 12-14 days in vitro, or DIV, or 21 DIV. Cortical regions were identified and reimaged before and after topical applications of syn-AßOs to allow comparison of resting calcium within the same neuronal compartments. After baseline calcium was obtained, the cultures were treated with antibody-immunodepleted syn-AßOs (1 mL of 3 nM syn-AßOs with 9 µg of antibody) or syn-AßOs alone for 45 minutes. The cultures were then re-imaged in the same areas in the dish. Taken together, these studies show that ACU3B3 prevents the toxic effect of AßOs on calcium homeostasis.

In Vivo Pharmacology

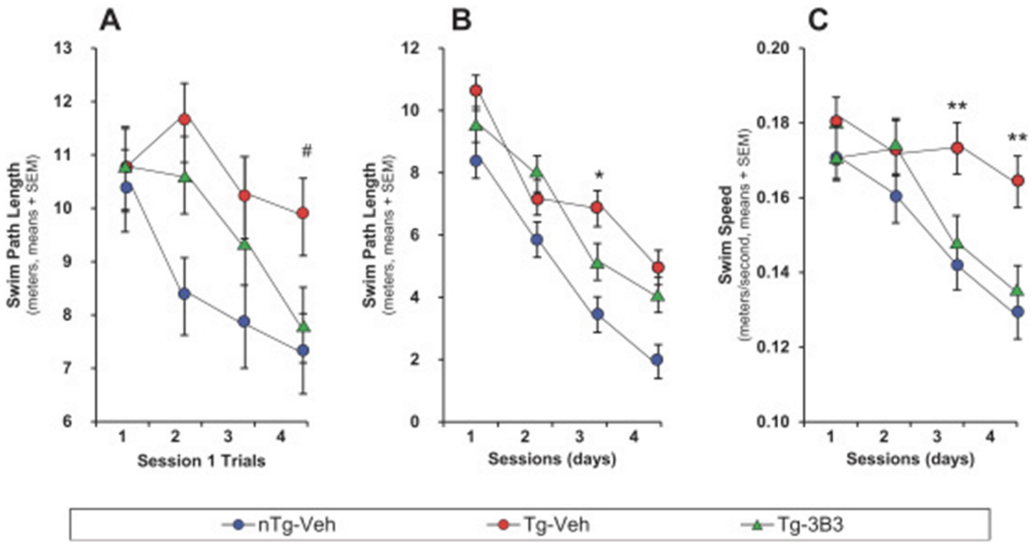
In order to understand the effects of ACU193 in intact animals, we performed behavioral studies in transgenic mice with genetic alterations that overproduce a mutant amyloid precursor protein that forms amyloid plaques. The transgenic mouse models are generally based on autosomal dominant mutations in the APP gene causing rare forms of human AD. Transgenic mouse models using these mutations may not cause the full spectrum of AD pathology, but they do provide relevant animal models for drug development in AD.

In vivo behavioral studies in multiple transgenic mouse models for AD

The behavioral studies described below, performed at three different laboratories, indicate in vivo central pharmacologic activity of peripherally administered ACU3B3. The behavioral effects seen in these studies indicate that sufficient amounts of ACU3B3 cross the blood-brain barrier to engage the target, resulting in behavioral improvements in these transgenic mice. The Phase 1 clinical trial includes doses in the range used in these nonclinical studies.

A study conducted at QPS and using nine- to ten-month-old APP/SL transgenic mice treated weekly with 20 mg/kg ACU3B3 for four weeks demonstrated statistically significant behavioral improvements in swim path length and swim speed during the water maze learning test (Figure 10).

Figure 10: Results of ACU3B3 treatment in mice study

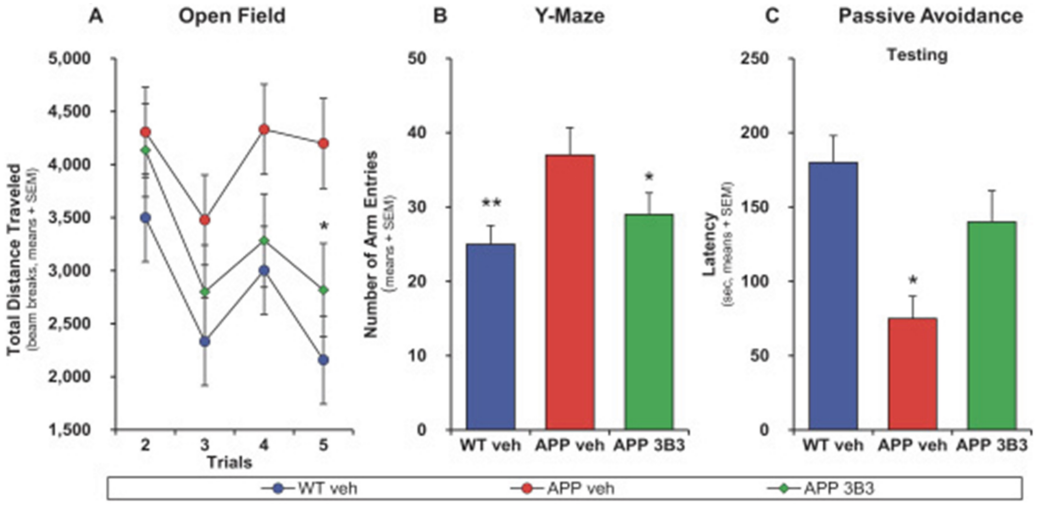


ACU3B3 treatment in nine- to ten-month-old APPSL mice (n=10/group) improves performance on the first day of water maze training (A; p=0.057), decreases swim path length (B; p=0.034), and reverses a swim speed abnormality (C; p<0.02).

In a separate study conducted at Stanford University, the hyperactivity phenotype of five- to seven-month-old Thy1-hAPP/SL transgenic mice in the open field and Y-maze tests was also significantly reduced after four to five weeks of treatment with ACU3B3 (20 and 30 mg/kg, weekly). Prior to dosing, Thy1-hAPP/SL mice showed increased activity in the activity chamber compared to wild-type mice. After treatment with ACU3B3, Thy1-hAPP/SL mice activity fell to a level

comparable to wild-type mice, particularly activity in the center of the test arena (Figure 11A). Similar effects of ACU3B3 were found with changes in Y-maze behavior (Figure 11B) and passive avoidance (Figure 11C).

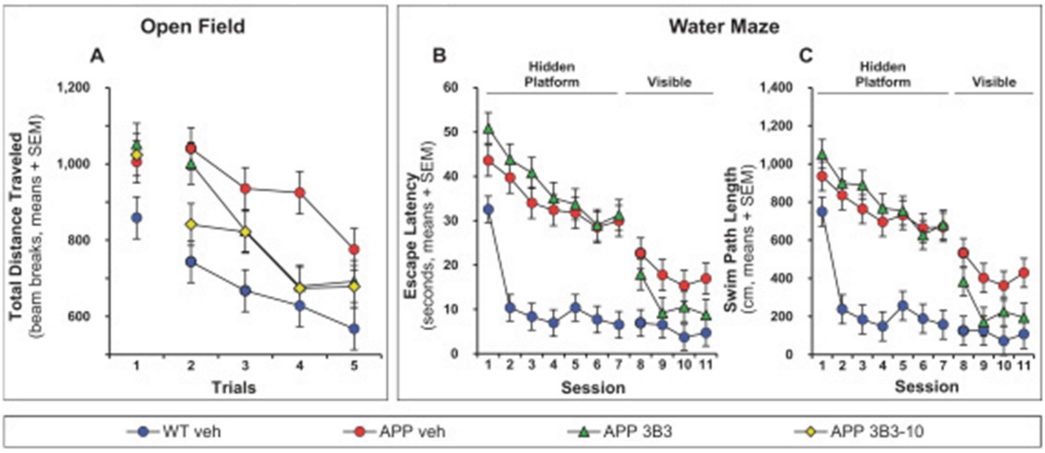
Figure 11: ACU3B3 treatment at 20 mg/kg in five- to seven-month-old Thy1-hAPP/SL mice (n=13-14/group, means + SEM)



[A] Open field total distance measurement, APP-Veh vs. APP-3B3, *p=0.029. [B] Y-maze arm entries, APP-Veh vs APP-3B3, *p=0.045; APP-Veh vs WT-Veh, **p=0.007. [C] Passive avoidance latency, APPSL-APP3B3 vs. APPSL-Veh trended for drug effect, but was not statistically significant.

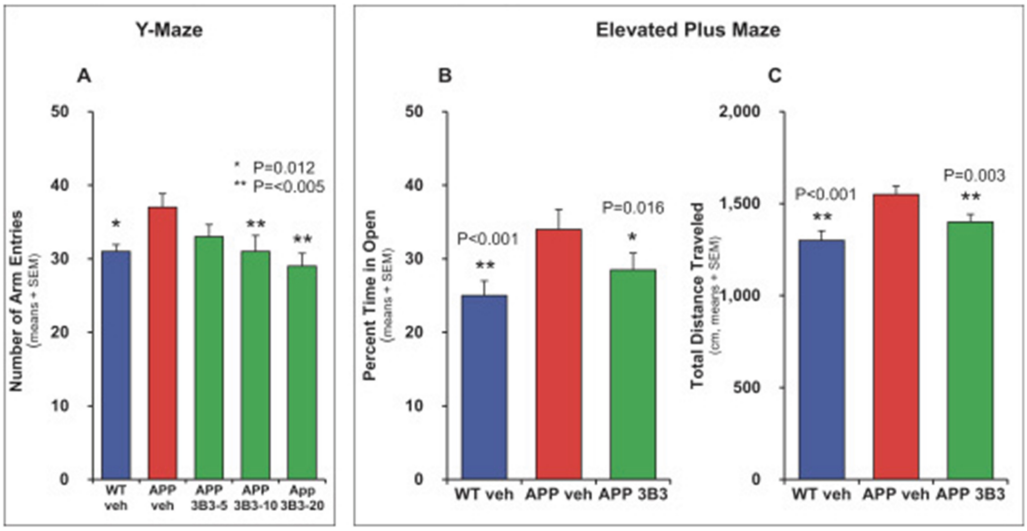
In separate studies conducted at the Gladstone Institute in young three- to five-month-old hAPP/J20 mice, behavioral abnormalities in these mice were reduced after chronic treatment with ACU3B3. Treatment ameliorated the hyperactivity phenotype, emotional response alterations and procedural learning deficits in this mouse model and hyperactivity in the Y-maze test was reduced dose-dependently (5 < 10 = 20 mg/kg) (Figure 12).

Figure 12: Open field and water-maze behavior in three- to five-month-old hAPP/J20 mice following repeat weekly IP dosing with ACU3B3 (n=13-14/group)



[A] Open field activity after four weekly doses. [B], [C] Water-maze behavior following eight weekly doses.

Figure 13: Y-maze and elevated plus-maze behavior in three- to five-month-old hAPP/J20 mice following repeat, weekly IP dosing with ACU3B3 (n=13-14/group)



[A] Y-maze activity after six weekly doses. [B], [C] Elevated plus-maze behavior following nine weekly doses.

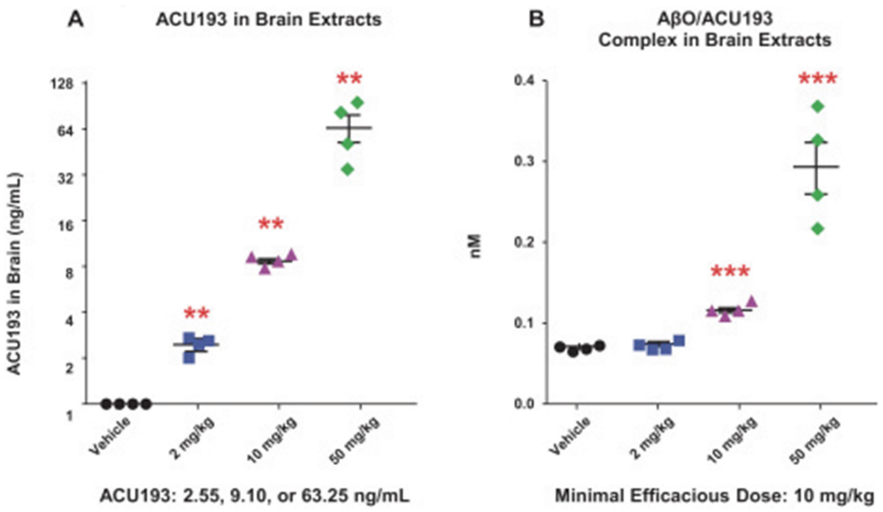
Taken together, these behavioral studies, performed at three different laboratories, indicate in vivo central pharmacologic activity of peripherally administered ACU3B3. The behavioral effects seen in these studies indicate that sufficient amounts of ACU3B3 cross the blood-brain barrier to engage the target, resulting in behavioral improvements in these transgenic mice. The range of doses used in these nonclinical studies are expected to be covered in INTERCEPT-AD.

Pharmacokinetics and Pharmacodynamics

ACU193 has demonstrated favorable pharmacokinetics and pharmacodynamics based on a number of nonclinical studies. ACU193 could be detected in plasma, CSF, and brain tissue of Tg2576 mice, rats, dogs, and rhesus monkeys following IV injection. Penetration of ACU193 into the brain was demonstrated by direct measurements of brain levels in Tg2576 mice, rats, and dogs, and by measurements of CSF levels in rats and rhesus monkeys. Brain levels were approximately 0.02% of plasma levels and CSF levels ranged from 0.05 to 0.15% of plasma levels, showing penetration of ACU193 into the brain. Toxicokinetic data collected as part of GLP toxicity studies in Sprague Dawley rats and cynomolgus monkeys showed clearance of 1 to 3 mL/h/kg and terminal half-life of approximately seven days.

Brain penetration and in vivo binding of ACU193 was explored in seven-month-old Tg2576 mice dosed intravenously with 2, 10 and 50 mg/kg of ACU193 or hu3D6 (bapineuzumab), and perfused brain tissue was collected 24 hours after dosing for analysis. A dose dependent increase in brain levels of ACU193 (Figure 14A) and ACU193/AßO complex (Figure 14B) was demonstrated, with a minimum effective dose for target engagement of 10 mg/kg.

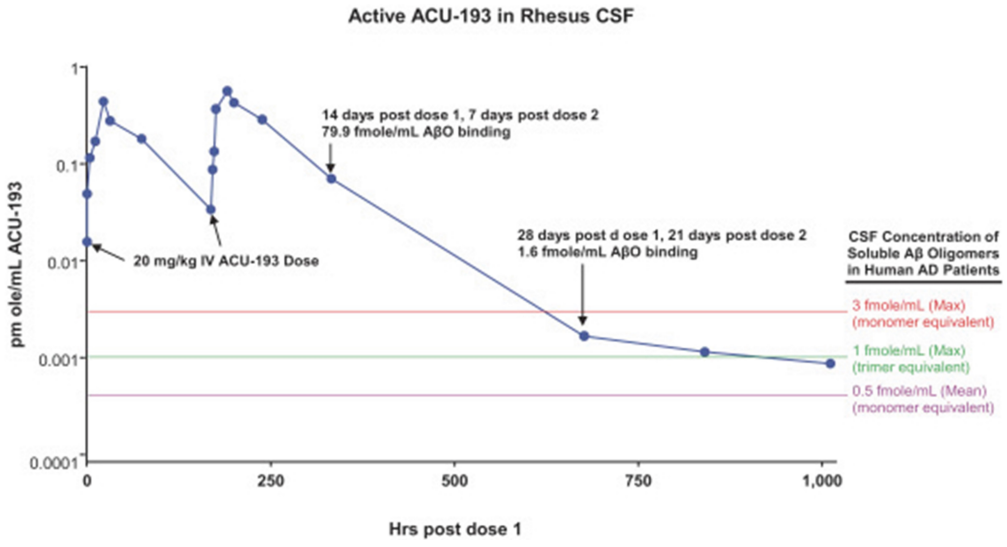
Figure 14: Levels of ACU193 and AßO/ACU193 complexes in the brain 24 hours following IV dosing in seven-month-old Tg2576 mice (n = 4/cohort)



These results show ACU193 can penetrate the blood-brain barrier and bind endogenous AßOs.

Additionally, a study of pharmacokinetics in CSF was conducted in rhesus monkeys. An intrathecal catheter was implanted in the monkeys, and two doses at 20 mg/kg IV were administered. As shown in Figure 15, the concentrations of ACU193 in CSF should provide adequate target engagement with dosing every four weeks.

Figure 15: Comparison of ACU193 levels in rhesus CSF to CSF Levels of AßO in human AD patients



Following two doses of 20 mg/kg ACU193 CSF concentrations were sufficient to provide target engagement at 28 days. An estimate of 1 fmole/mL for oligomer concentration is conservative given that it is based on AßOs consisting of trimers.

Safety Profile

GLP studies using IV administration of ACU193 established a no-observed-adverse-effect level, or NOAEL, of 250 mg/kg/dose, which was the maximum feasible dose, given every two weeks in a 28-day study in Sprague-Dawley rats. The NOAEL in cynomolgus monkeys was 300 mg/kg/dose in a 14-week study in cynomolgus monkeys using IV dosing every two weeks. In Sprague Dawley rats, no adverse findings were noted. In the 14-week study in cynomolgus monkeys, doses of 60, 300, or 600 mg/kg/dose ACU193 once every two weeks were administered. Three animals administered the highest 600 mg/kg/dose were sacrificed early for humane reasons on Days 43 or 60 due to ACU193-related, anaphylactoid-type reactions.

Thus, the 300 mg/kg/dose is considered the NOAEL for cynomolgus monkeys. The NOAELs of 300 mg/kg and 250 mg/kg compare favorably to the highest dose of ACU193 being used in our Phase 1 clinical trial (60 mg/kg).

Based in part on binding to AßOs rather than amyloid plaque, ACU193 has the potential to have a lower rate of ARIA than plaque-clearing anti-amyloid antibodies. Additionally, ACU3B3 showed no apparent increased risk of microhemorrhage when administered in vivo for three months in aged Tg2576 mice, as compared with 3D6, a plaque binding antibody used as a positive control.

With regard to effector function and possible inflammatory effects generally, ACU193 is an IgG2 subclass antibody which has limited inflammatory effector function signaling compared to other IgG subclasses.

Combination Potential

While we believe ACU193, if successful, will likely be a foundational treatment for people with early AD, it also could be used as part of a combination treatment regimen. The pathology of AD is complex, and many experts in the field expect that combination therapy using drugs with different mechanisms of action, such as tau, immune modulation, glial cells such as microglia and astrocytes, and growth factors, will ultimately prove most successful, similar to cutting edge approaches used in oncology. In addition, because symptomatic treatments, such as memantine and cholinesterase inhibitors, affect neurotransmitter systems rather than the underlying AD pathology, we believe that it is likely that they will be used together with disease-modifying treatments.

Manufacturing

We do not currently own or operate facilities for product manufacturing, storage and distribution, or testing. We contract with third parties for the manufacture of ACU193. Because we rely on contract manufacturers, we employ personnel with extensive technical, manufacturing, analytical and quality experience. Our staff has strong project management discipline to oversee contract manufacturing and testing activities, and to compile manufacturing and quality information for our regulatory submissions.

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

Our current supply chains for ACU193 involve several manufacturers that specialize in specific operations of the manufacturing process, including raw materials manufacturing, drug substance manufacturing and drug product manufacturing. We currently operate under work order programs for ACU193 with master services agreements in place that include specific supply timelines, volume and quality specifications. We believe our current manufacturers have the scale, the systems, and the experience to supply our currently planned clinical trials.

Competition

We face competition from several different institutions, including pharmaceutical and biotechnology companies, research institutions, governmental organizations and universities developing novel therapies for AD. We believe that the key factors affecting the clinical and commercial success of ACU193 will include safety profile, efficacy, cost, method of administration, level of marketing activity, insurance reimbursement and intellectual property protection.

If approved, ACU193 can be used in combination with therapies currently approved for the treatment of AD which treat the symptoms of AD rather than the underlying cause of the disease, such as memantine and cholinesterase inhibitors.

ACU193 may compete with one or more potentially disease-modifying therapeutics that target Aß or amyloid plaques, the most advanced of which are Biogen Inc.'s Aduhelm (aducanumab), which was given accelerated approval by FDA in June 2021, and Eisai's Leqembi (lecanemab), which was given accelerated approval by FDA in January 2023. FDA issued a complete response letter to Eli Lilly and Company in January 2023 for the accelerated approval submission of donanemab. Eisai filed for full approval of Leqembi in January 2023; however, Biogen has not filed for full approval of Aduhelm. Centers for Medicare and Medicaid Services (CMS) have stated they would not reimburse for a drug given an accelerated approval by FDA for Alzheimer's disease outside of a clinical trial. Roche Holding AG (gantenerumab) announced negative results from their Phase 3 study in November 2022, and Eli Lilly and Company (donenamab) is anticipated to complete its Phase 3 study in 2023.

Other companies known to be developing therapies with Aß, AßO-, and amyloid plaque-related targets include AltPep Corporation, Alzheon, Inc., Alzinova AB, Chugai Pharmaceutical Co. Ltd., Cognition Therapeutics, Inc., Grifols, S.A., KalGene Pharmaceuticals, Inc., Neurimmune AG, Novartis AG, ProMIS Neurosciences, Inc., Prothena Biosciences, Inc., Vaxxinity, Inc., Vivoryon Therapeutics N.V. and Wren Therapeutics, Inc. Additionally, ACU193, if approved, may also compete with other potential therapies intended to address underlying causes of AD that are being developed by several companies, including AbbVie Inc., AC Immune SA, Alector, Inc., Anavex Life Sciences Corp., Annovis Bio, Inc., Athira Pharma, Inc., Biohaven Pharmaceuticals, Inc., Cassava Sciences, Inc., Denali Therapeutics, Inc., Johnson & Johnson (including Janssen, its wholly-owned subsidiary) and Takeda Pharmaceutical Co. Ltd.

Table 1: Percent Slowing of Cognitive/Functional Decline*

Measured Outcome**	solanezumab EXPEDITION 3 (Phase 3)	Aduhelm aducanumab EMERGE (Phase 3)	Aduhelm aducanumab ENGAGE† (Phase 3)	lecanemab BAN2401 (Phase 3)	donanemab (Phase 2)
ADAS-cog	-11 %	-27 %	-12 %	-26 %	-39 %
ADCS-ADL	-15 %	-40 %	-18 %	-37 %	-23 %
CDR-SB	-15 %	-23 %	2 %	-27 %	-23 %
MMSE	-13 %	-15 %	3 %	N.A.	-21 %
iADRS	-11 %	N.A.	N.A.	N.A.	-32 %

* Percent Slowing= [1- [(endpoint score-baseline score)active/(endpoint score-baseline score)placebo]]*100%*(-1)

** ADAS-cog: Alzheimer's Disease Assessment Scale – Cognitive Subscale
ADCS-ADL: Alzheimer's Disease Cooperative Study – Activities of Daily Living
CDR-SB: Clinical Dementia Rating – Sum of Boxes
MMSE: Mini-Mental State Examination
iADRS: Integrated Alzheimer's Disease Rating Scale

†: ENGAGE Post-Protocol Version 4 – patients who received at least 14 doses of 10 mg/kg, High Dose cohort achieved 27% improvement on CDR-SB compared to placebo.

A potential limitation of the amyloid plaque-targeting antibodies under development is an adverse effect known as ARIA. ARIA has two different forms, ARIA-E, or cerebral edema, formerly called vasogenic edema, and ARIA-H, or cerebral microhemorrhages. While the mechanism of ARIA is not known with certainty, the prevailing theory is that ARIAs are related to the presence of amyloid plaques around blood vessels in the majority of people with AD, a condition known as cerebral amyloid angiopathy. It is generally believed that the removal of these amyloid plaques by the antibody can result in small hemorrhages, or ARIA-H. ARIA-H occurs in individuals with untreated AD and its occurrence is increased in individuals treated with antibodies that target amyloid plaques. Increased ARIA-H is correlated with worsening cognition. In contrast to ARIA-H, ARIA-E is hypothesized to result from the leakage of fluid from the blood vessels into the interstitial spaces in the brain, causing an effusion or edema, ARIA-E. ARIA-E, in particular, is sometimes associated with symptoms that include worsening of cognition, headache, gait disturbance and seizures, which can be severe enough to lead to hospitalization. ARIA-E usually resolves weeks to months following the cessation of treatment. In clinical trials for anti-Aß/plaque mAbs, surveillance MRI scans are required to detect asymptomatic ARIA. Table 2 below illustrates the rates of ARIA observed in Phase 2 or 3 studies for the most advanced mAbs.

Table 2: Percent of ARIA Events for Anti-Aß/plaque mAbs*

	Targeting Aß Monomers		Targeting Amyloid Plaques								Targeting Protofibrils	
	solanezumab EXPEDITION 3 (Phase 3)		Aduhelm aducanumab EMERGE (Phase 3)			Aduhelm aducanumab ENGAGE (Phase 3)			donanemab (Phase 2)		Leqembi lecanemab (Phase 3)	
	PC	Treated	PC	Low	High	PC	Low	High	PC	Treated	PC	Treated
ARIA-E	0.2%	0.1%	2.2%	26.2%	34.4%	3.0%	25.6%	35.7%	0.8%	27.5%	1.7%	12.6%
ApoE e4 carriers			1.9%	29.8%	42.5%	2.4%	28.7%	41.8%	3.6%	44.0%	2.3%	15.8%
ApoE e4 non-carriers			2.9%	18.1%	17.9%	4.3%	17.5%	27.7%			0.3%	5.4%
Any ARIA E or H			10.3%	32.8%	41.2%	9.8%	30.7%	40.3%	8.0%	38.9%	9.5%	21.5%

PC = Placebo, Low = Low Dose; High = High Dose

* Shows the absence of ARIA after treatment with antibodies targeting Aß monomers (solanezumab) in comparison to the increasing presence of ARIA after treatment at increasing dose levels with antibodies targeting amyloid plaques (aducanumab, BAN2401, and donanemab), indicating that ARIA results from the removal of amyloid plaques around blood vessels and likely does not result from treatment with antibodies that target Aß monomers.

Table 3: AD Product Candidates and Target Selectivity and ARIA Profile

	Target Selectivity+				ARIA Profile
Product Candidate	Amyloid plaque	Aß fibrils	Aß monomers	Aß oligomers	Lower rate of ARIA
ACU193	x	untested	x	✓	Expected
Leqembi lecanemab	✓	✓	x	✓	No
donanemab	✓	untested	x	x	No
Aduhelm aducanumab	✓	✓	x	✓	No
solanezumab*	x	x	✓	x	✓
gantenerumab	✓	✓	x	✓	No
crenezumab*	✓	✓	✓	✓	✓
bapineuzumab*	✓	✓	✓	✓	No

* Phase 3 discontinued for primary AD indication

\+ There have been no comprehensive head-to-head clinical trials between any of the product candidates listed above. Study designs and protocols for each product candidate were different, and results may not be comparable between product candidates.

Additional Treatment Modalities

While Aß and amyloid are generally considered to be the proximal cause of AD pathology, and alternative hypotheses to the amyloid hypothesis propose that amyloid accumulation is a consequence of other processes such as infection and that other pathogens lead to amyloid accumulation, downstream targets such as tau, inflammation-related targets, and growth factors may eventually be useful approaches in the treatment of AD and are being explored. Some of these treatment modalities have made nonclinical and early-stage clinical progress, although these efforts are still significantly less advanced than those approaches targeting Aß or amyloid plaques.

Collaboration Agreement with Merck

In December 2003, we entered into an exclusive license and research and development collaboration agreement with Merck to research, discover and develop certain technology related to amyloid beta-derived diffusible ligands, or ADDL, which agreement was amended and restated in October 2006. The agreement generally provided that, during the course of the collaboration, Merck would be responsible for the preclinical and clinical development and commercialization of any products covered by the agreement and, in return, we were eligible to receive potential nonclinical, clinical and regulatory milestone payments and royalties on future product sales. During the collaboration, Merck developed ACU193, an ADDL

antibody, and intellectual property related to ACU193 was filed by Merck. In 2011, Merck elected to voluntarily terminate the collaboration agreement. Pursuant to the surviving provisions of the agreement, effective upon termination of the collaboration, Merck granted us an exclusive, perpetual, irrevocable, royalty-free, worldwide license, with right to sublicense, under Merck's interest in the patent rights and know-how necessary for the research, development, manufacturing or commercialization of ADDL antibodies, ADDL antigens or products, including ACU193.

License Agreement with Lonza

On November 2, 2022, the Company entered into a License Agreement (the "Lonza License Agreement") with Lonza Sales. Under the terms of the Lonza License Agreement, Lonza granted the Company a worldwide non-exclusive license to use Lonza's glutamine synthetase gene expression system to manufacture and commercialize ACU193 (the "Product").

Pursuant to the Lonza License Agreement, we paid Lonza an upfront fee of 1.0 million Swiss Francs. The Company is also required to pay certain royalties upon commercialization and annual payments on a country-by-country basis in respect of the manufacturing and sale of the Product, which include (i) a royalty of less than 1.0% on net sales where Lonza manufactures the Product, (ii) an annual royalty payment in Swiss Francs in the low six-digits and a royalty of less than 1.0% on net sales where the Company manufactures the Product and (iii) an annual payment in Swiss Francs in the mid six-digits per sublicense and a royalty on net sales in the low single digits where a third party manufactures the Product. These payment obligations would expire ten years from the first commercial sales of the Product in such country of sale.

The Lonza License Agreement continues until terminated, and the Company or Lonza may terminate the Lonza License Agreement for uncured material breaches or insolvency of the other party. The Company can unilaterally terminate the Lonza License Agreement with prior written notice to Lonza, and Lonza can also unilaterally terminate the Lonza License Agreement upon certain actions by the Company. The Lonza License Agreement also contains customary representations, warranties, indemnification and other obligations of the Company and Lonza.

Intellectual Property

Our intellectual property is critical to our business and we strive to protect it, including by obtaining and maintaining patent protection in the United States and internationally for our product candidate. We also rely on the skills, knowledge and experience of our scientific and technical personnel, as well as that of our advisors, consultants and other contractors. To help protect our proprietary know-how that is not patentable, we rely on confidentiality agreements to protect our interests. We require our employees, consultants, scientific advisors and contractors to enter into confidentiality agreements prohibiting the disclosure of confidential information and requiring disclosure and assignment to us of the ideas, developments, discoveries and inventions important to our business.

The main form of commercial exclusivity for our product candidate, ACU193, is expected to come from biologic regulatory exclusivity. We expect that once approved by regulatory agencies, ACU193 will receive the benefit of 12 years of market exclusivity in the U.S. and 10 to 11 years of data and market exclusivity in Europe, in each case, against competitors seeking approval for a biosimilar product.

We have an exclusive license grant from Merck to patents claiming the composition and method of use of our product candidate, ACU193. The license grant arose from our collaboration agreement with Merck to research, discover, and develop technology related to ADDLs. During our collaboration, ACU193, an ADDL antibody, was developed and intellectual property was filed by Merck. In 2011, the collaboration agreement terminated and Merck exclusively licensed to Acumen, Merck's interest in patent rights claiming ADDL antibodies, including ACU193, ADDL Antigens and/or Products to Acumen. In the nine years subsequent to the termination of the collaboration with Merck, Acumen has controlled and directed and continues to control and direct prosecution of the licensed ACU193 patent portfolio. Acumen has also paid for and continues to pay all costs and fees associated with the prosecution and maintenance of the licensed ACU193 patent portfolio.

As of March 25, 2023, Acumen licenses from Merck one issued U.S. patent, 18 issued foreign patents including issued patents in Brazil, China, Canada, Australia, Japan, South Korea, France, Germany and the UK drawn to our product candidate, ACU193. These patents are projected to expire in July of 2031, without taking into account any possible extensions and assuming payment of all appropriate maintenance, renewal, annuity, or other governmental fees.

Throughout the development of our product candidate, we seek to identify additional means of obtaining patent protection that would potentially enhance commercial success, including by protecting inventions related to additional methods of use, processes of making, formulation, and dosing regimens.

Patent Term and Term Extensions

The terms of individual patents are determined based primarily on the date of filing of the patent application or the date of patent issuance and the legal term of patents in the countries in which they are obtained. Generally, utility patents issued for applications filed in the United States are granted a term of 20 years from the earliest effective filing date of a non-provisional patent application. In addition, in certain instances, the term of a U.S. patent can be extended to recapture a portion of the United States Patent and Trademark Office, or USPTO, delay in issuing the patent as well as a portion of the term effectively lost as a result of the FDA regulatory review period. However, as to the FDA component, the restoration period cannot be longer than five years and the restoration period cannot extend the patent term beyond 14 years from FDA approval for the product covered by that patent. In addition, only one patent applicable to an approved drug may receive the extension, and the extension applies only to coverage for the approved drug, methods for using it and methods of manufacturing it, even if the claims cover other products or product candidate. Where one patent covers multiple products or product candidate, it may only receive an extension for one of the covered products; any extension related to a second product or product candidate must be applied to a different patent. The duration of foreign patents varies in accordance with provisions of applicable local law, but typically is also 20 years from the earliest effective filing date of a non-provisional patent application, such as a Patent Cooperation Treaty, or PCT, application. All taxes, annuities or maintenance fees for a patent, as required by the USPTO and various foreign jurisdictions, must be timely paid in order for the patent to remain in force during this period of time.

The actual protection afforded by a patent may vary on a product-by-product basis, from country to country, and can depend upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions and the availability of legal remedies in a particular country and the validity and enforceability of the patent.

Our patents and patent applications may be subject to procedural or legal challenges by others. We may be unable to obtain, maintain and protect the intellectual property rights necessary to conduct our business, and we may be subject to claims that we infringe or otherwise violate the intellectual property rights of others, which could materially harm our business. For more information, see the section titled “Risk Factors—Risks Related to Our Intellectual Property.”

Trademarks and Know-How

In connection with the ongoing development and advancement of our products and services in the United States and various international jurisdictions, we seek to create protection for our marks and enhance their value by pursuing trademarks and service marks where available and when appropriate. We rely upon know-how and continuing technological innovation to develop and maintain our competitive position. We seek to protect our proprietary information, in part, by using confidentiality agreements with our commercial partners, collaborators, employees and consultants, and invention assignment agreements with our 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 by our employees and through relationships with third parties. 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. To the extent that our contractors, commercial partners, 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, see the section titled “Risk Factors-Risks Related to Our Intellectual Property.”

Government Regulation

The FDA and other regulatory authorities at federal, state, and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of biologics such as those we are developing. 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. Biologics Regulation

In the United States, biological products are subject to regulation under the Federal Food, Drug, and Cosmetic Act, or FDCA, the Public Health Service Act, or PHSA, and other federal, state and local statutes and regulations. The process required by the FDA before biologics may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA's Good Laboratory Practice requirements, or GLPs;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before clinical trials may begin and must be updated annually and when certain changes are made;
- approval by an institutional review board, or IRB, or independent ethics committee at each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials in accordance with Good Clinical Practice, or GCP, requirements and other clinical trial-related regulations to establish the safety, purity and potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a biologics license application, or BLA, after completion of all pivotal clinical trials;
- payment of user fees for FDA review of the BLA;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with current Good Manufacturing Practices, or cGMPs, and to assure that the facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with GCPs; and
- FDA review and approval of the BLA to permit commercial marketing of the product for particular indications for use in the United States.

Failure to comply with the applicable regulatory requirements at any time during the product development process or post-approval may subject an applicant to delays in development or approval, as well as administrative and judicial sanctions.

Preclinical and Clinical Trials

Prior to beginning the first clinical trial with a product candidate, the product candidate must undergo rigorous preclinical testing. Preclinical studies include laboratory evaluations of chemistry, formulation and stability, as well as *in vitro* and animal studies to assess safety and in some cases to establish the rationale for therapeutic use. The conduct of preclinical studies is subject to federal and state regulations and requirements, including GLP requirements for safety and toxicology studies. The results of the preclinical studies, together with manufacturing information and analytical data must be submitted to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational new drug to humans. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the proposed clinical trial, including concerns that human research subjects will be exposed to unreasonable health risks. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin.

The FDA may, at any time during the initial 30-day IND review period, or while clinical trials are ongoing, impose a partial or complete clinical hold based on concerns for patient safety and/or noncompliance with regulatory requirements. This order issued by the FDA would delay a proposed clinical study or cause suspension of an ongoing study until all outstanding concerns have been adequately addressed, and the FDA has notified the company that investigations may proceed. Imposition of a clinical hold could cause significant delays or difficulties in completing planned clinical studies in a timely manner. Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the dosing procedures, subject selection and exclusion criteria, and the parameters and criteria to be used in monitoring safety and effectiveness. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any protocol and

subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site, and must monitor the study until completed. In addition, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk, that the trial is unlikely to meet its stated objectives or that the trial is not being conducted in accordance with FDA requirements. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk to subjects or on other grounds, such as lack of efficacy.

Information about applicable clinical trials, including clinical trials results, must be submitted within specific timeframes for publication on the www.clinicaltrials.gov website.

IND sponsors must submit annual reports on the progress of investigations under the IND to FDA and submit IND safety reports when certain serious and unexpected adverse reactions and certain other safety issues occur.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- Phase 1-The investigational product is initially introduced into a limited population of healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dose response, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- Phase 2-The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.
- Phase 3-The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval. Generally, two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of a BLA.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved. These trials are used to gain additional data from the treatment of patients in the intended therapeutic indication and are commonly intended to generate additional safety data regarding use of the product in a clinical setting. These so-called Phase 4 studies may also be made a condition to approval of the BLA.

Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life and to identify appropriate storage conditions for the product candidate.

BLA Submission and Review by the FDA

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety, purity and potency of the investigational biologic, to the satisfaction of the FDA. FDA approval of a BLA must be obtained before a biologic may be marketed in the United States. The submission of a BLA requires payment of a substantial application user fee to the FDA, unless a waiver or exemption applies.

Within 60 days following submission of the application, the FDA reviews a BLA submitted to determine if it is substantially complete before the FDA accepts it for filing. Once a BLA has been accepted for filing, the FDA's goal is to review standard applications within ten months after the filing date, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process may also be extended by FDA requests for additional information or clarification.

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

After the FDA evaluates a BLA 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, or CRL. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A CRL will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the CRL without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the CRL, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy implemented to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling, the development of adequate controls and specifications, or the completion of post-marketing studies or surveillance programs.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. These programs include Fast Track designation, Breakthrough Therapy designation, and priority review.

The Fast Track program is intended to expedite or facilitate the process for reviewing new products that 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. Fast Track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a Fast Track product has opportunities for more frequent interactions with the applicable FDA review team during product development, in addition to the potential for rolling review of the BLA, meaning that the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

A product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for 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 and experienced review staff in a cross-disciplinary review, where appropriate.

Any marketing application for a drug or biologic submitted to the FDA for approval, including a product candidate with a Fast Track designation and/or Breakthrough Therapy designation, may be eligible for priority review. A product candidate is eligible for priority review if it is designed to treat a serious or life-threatening disease or condition, and if approved, would provide a significant improvement in safety or effectiveness compared to available alternatives for such disease or condition. For original BLAs, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (as compared to ten months under standard review).

Fast Track designation, Breakthrough Therapy designation, and priority review 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.

Accelerated approval pathway

The FDA may grant accelerated approval to a product candidate for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based on a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments.

As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. Products receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required post-marketing studies or if such studies fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. The Food and Drug Omnibus Reform Act of 2022, or FDORA, signed by President Biden on December 29, 2022 as part of the Consolidated Appropriations Act, 2023 (H.R. 2617) includes numerous reforms to the accelerated approval process for drugs and biologics and enables FDA to require, as appropriate, that a post-approval study be underway prior to granting accelerated approval. FDORA also expands the expedited withdrawal procedures already available to FDA to allow the agency to use expedited procedures if a sponsor fails to conduct any required post-approval study of the product with due diligence including with respect to "conditions specified by the Secretary [of HHS]." FDORA also adds the failure of a sponsor of a product approved under accelerated approval to conduct with due diligence any required post-approval study with respect to such product or to submit timely reports with respect to such product to the list of prohibited acts in the FDCA.

Orphan Drug Designation and Exclusivity

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

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

Post-approval Requirements

Biologics 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 complying with advertising and promotion requirements, which include restrictions on promoting products for unapproved uses or patient populations (known as "off-label use") and limitations on industry-sponsored scientific and educational activities. The FDA and other agencies actively enforce the laws and regulations applicable to biologics, including those prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability. Promotional materials for approved biologics must be submitted to the FDA in conjunction with their first use or first publication.

After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing, annual program fees for any marketed products. Biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP. 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 cGMP and other aspects of regulatory compliance.

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

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- fines, warning letters, or untitled letters;
- clinical holds on clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license 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; and
- the imposition of civil or criminal penalties.

United States Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the ACA, signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars in the United States. Biosimilarity requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, a reference biological product is granted 12 years of data exclusivity from the time of first licensure of the product, and an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products.

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

Other Healthcare Laws

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business and may constrain the financial arrangements and relationships through which we research, as well as, sell, market and distribute any products for which we obtain marketing approval. Such laws include, without limitation, federal and state anti-kickback, fraud and abuse, false claims, data privacy and security and physician and other health care provider transparency laws and regulations. The laws that will affect our operations include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, individuals or entities from knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind in return for, or to induce, either the referral of an individual, or the purchase, lease, order or arrangement for or recommendation of the purchase, lease, order or arrangement for any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. The term "remuneration" has been broadly interpreted to include anything of value. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly;
- the federal civil and criminal false claims laws, including, without limitation, the federal False Claims Act, or FCA, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the federal government, claims for payment or approval that are false or fraudulent or knowingly making 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 federal False Claims Act;
- the federal civil monetary penalties laws, which impose civil fines for, among other things, the offering or transfer or remuneration 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 to Medicare or a state health program, unless an exception applies;
- the federal Health Insurance Portability and Accountability Act, or HIPAA, which created additional federal criminal statutes which prohibit, among other things, a person from knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors 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 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 and their implementing regulations, also imposes obligations, including mandatory contractual terms, on "covered entities," including certain healthcare providers, health plans, healthcare clearinghouses, and their respective "business associates," that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity as well as their covered subcontractors, with respect to safeguarding the privacy, security and transmission of individually identifiable health information, as well as analogous state

and foreign laws that govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts;

- the federal transparency laws, including the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, medical devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the State Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare and Medicaid Services, or CMS, information related to: (i) payments or other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare professionals (such as physician assistants and nurse practitioners) and teaching hospitals, and (ii) ownership and investment interests held by physicians and their immediate family members; and
- analogous state and foreign laws and regulations; state laws that require manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers, marketing expenditures or drug pricing; 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 that otherwise restrict payments that may be made to healthcare providers; and state and local laws that require the registration of pharmaceutical sales representatives.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. 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 penalties, including, without limitation, civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participating in federal and state funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, contractual damages, diminished profits and future earnings, reputational harm and the curtailment or restructuring of our operations, any of which could harm our business.

Coverage and Reimbursement

In the United States and in other countries, patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Thus, even if a product candidate is approved, sales of the product will 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 (e.g., Medicare, Medicaid, TRICARE), commercial insurance and managed healthcare organizations, and the level of reimbursement for such product by third-party payors.

Third-party payors determine which products and procedures they will cover and establish reimbursement levels. These third-party payors are increasingly reducing reimbursements for medical products, drugs and services. In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products.

Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that a procedure is safe, effective and medically necessary; appropriate for the specific patient; cost-effective; supported by peer-reviewed medical journals; included in clinical practice guidelines; and neither cosmetic, experimental nor investigational. In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales.

Healthcare Reform

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, each as amended, collectively known as the ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the pharmaceutical industry. The ACA contains a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and changes to fraud and abuse laws. For example, the ACA:

- increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1% of the average manufacturer price;
- 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 70 percent point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and
- imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs" to specified federal government programs.

Since its enactment, there have been executive, judicial and Congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future. 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. Prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period from February 15, 2021 through August 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is possible that the ACA will be subject to judicial or Congressional challenges in the future. It is also unclear how other such challenges and the healthcare reform measures of the Biden administration will impact the ACA or our business.

Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers of 2% per year, which began in 2013, and due to subsequent legislative amendments to the statute, will remain in effect through fiscal year 2030, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022 due to the COVID-19 pandemic. Under current legislation the actual reduction in Medicare payments will vary from 1% in 2022 to up to 3% in the final fiscal year of this sequester. Additionally, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024.

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, proposed and enacted legislation and executive orders issued by the prior presidential administration designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Employees and Human Capital Resources

Our human capital objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. The principal purposes of our equity incentive plans are to attract, retain and reward personnel through the granting of stock-based compensation awards.

As of March 1, 2023, we had 40 employees, 39 of which were full time. Of the 40 employees, there were 11 in research and development and six in general and administrative functions. We also utilized consultants in various roles related to research and development and general and administrative functions. We believe our employee relations are good.

Corporate Information

We were incorporated under the laws of the State of Delaware in 1996. Our principal executive offices are located at 427 Park St., Charlottesville, Virginia 22902 and our telephone number is (434) 297-1000.

Available Information

Our website address is *http://www.acumenpharm.com/*. In addition to the information about us contained in this Annual Report on Form 10-K, information about us can be found on our website. Our website and information included in or linked to our website are not part of this Annual Report on Form 10-K.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge through our website as soon as reasonably practicable after they are electronically filed with or furnished to the SEC. Additionally, the SEC maintains an internet site that contains reports, proxy and information statements and other information. The address of the SEC's website is *www.sec.gov*.

Item 1A. Risk Factors.

The following information sets forth risk factors that could cause our actual results to differ materially from those contained in forward-looking statements we have made in this Annual Report on Form 10-K and those we may make from time to time. You should carefully consider the risks described below, in addition to the other information contained in this Annual Report on Form 10-K and our other public filings. Our business, financial condition or results of operations could be harmed by any of these risks. The risks and uncertainties described below are not the only ones we face. Additional risks not presently known to us or other factors not perceived by us to present significant risks to our business at this time also may impair our business operations.

Risks Related to our Financial Position and Capital Needs

We are a clinical stage biopharmaceutical company with a limited operating history.

We are a clinical-stage biopharmaceutical company with a limited operating history focused on pioneering a novel disease-modifying therapeutic approach to treat AD. We were incorporated in 1996 and were party to an exclusive license and research collaboration with Merck in 2003. Although we acquired the exclusive rights to ACU193 from Merck in 2011, following Merck's strategic decision to focus its AD development efforts on a different product candidate, we did not recommence meaningful operations until we completed our first institutional fundraising in 2018. As a result, we have a very limited operating history, which may make it difficult to evaluate the success of our business to date and to assess our future viability. Drug development is a highly uncertain undertaking and involves a substantial degree of risk. We received clearance of our Investigational New Drug application, or IND, for our sole product candidate, ACU193, and initiated our Phase 1 clinical trial in the second quarter of 2021. In October 2021, we announced the initial dosing of the first patient in the INTERCEPT-AD trial and in February 2023 we announced the completion of enrollment. We experienced delays in clinical trial site activation and patient enrollment that we believe were principally related to effects of the COVID-19 pandemic. We cannot assure that we will not experience additional delays in site activation or enrollment. To date, we have not completed a clinical trial, initiated a pivotal trial, obtained marketing approval for any product candidate, manufactured a commercial scale product candidate, arranged for a third party to do so on our behalf or conducted sales or marketing activities necessary for successful product candidate commercialization. Our short operating history makes any assessment of our future success and viability subject to significant uncertainty. We will likely encounter risks and difficulties frequently experienced by early-stage biopharmaceutical companies in rapidly evolving fields, and we have not yet demonstrated an ability to overcome such risks and difficulties successfully. If we do not address these risks and difficulties successfully, our business will suffer.

We have no product candidates approved for commercial sale, we have never generated any revenue from sales and we may never be profitable.

We have no product candidates approved for sale, have never generated any revenue from sales, have never been profitable and do not expect to be profitable in the foreseeable future. We have incurred net losses in each year since our inception. For the years ended December 31, 2022 and 2021, our net losses were $42.9 million and $100.6 million, respectively. As of December 31, 2022, we had an accumulated deficit of $170.4 million.

To date, we have devoted most of our financial resources to research and development of ACU193, including our nonclinical development activities of ACU193, and corporate overhead. We expect that it will be several years, if ever, before we have a product candidate approved and ready for commercialization. We expect to continue to incur losses for the foreseeable future, and we expect these losses to increase as we continue our development of, and seek regulatory approvals for, ACU193 and any other product candidate we may develop in the future, prepare for and begin the commercialization of any approved product candidates and add infrastructure and personnel to support our drug development efforts and operations as a public company. We anticipate that any such losses could be significant for the next several years. These net losses and negative cash flows have had, and will continue to have, an adverse effect on our stockholders' equity and working capital. Further, these net losses may fluctuate significantly from quarter-to-quarter or year-to-year. To become and remain profitable, we must develop and eventually commercialize ACU193 or another drug with significant revenue.

We may never succeed in developing a commercial drug, and, even if we succeed in commercializing one or more product candidates, we may never generate revenues that are large enough to achieve profitability. In addition, we may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown challenges. Because of these numerous risks and uncertainties, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to generate revenues or achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis, and we will continue to incur substantial research and development costs and other expenditures to develop and market additional product candidates.

We will require substantial additional funding to finance our operations, complete the development and commercialization of ACU193 for AD and evaluate future product candidates. If we are unable to raise this funding when needed, we may be forced to delay, reduce or eliminate our drug development programs or other operations.

To date, we have used substantial amounts of cash to fund our operations, and we expect our expenses to increase substantially in the foreseeable future in connection with our ongoing activities, particularly as we continue the research and development, conduct clinical trials of, and seek marketing approval for, ACU193. Developing ACU193 and conducting clinical trials for the treatment of AD and any other product candidates or indications that we may pursue in the future will require substantial amounts of capital. In addition, if we obtain marketing approval for ACU193 or any future product candidates, we expect to incur significant commercialization expenses related to the commercialization of the product, whether we are commercializing alone or with a collaborator. Further, we expect to incur additional significant expenses associated with operating as a public company.

Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. As of December 31, 2022, we had $130.1 million in cash and cash equivalents and $63.3 million in marketable securities. Based on our current operating plan, we believe that our existing cash and cash equivalents and marketable securities will be sufficient to enable us to fund our operating expenses and capital expenditure requirements through 2025. We currently anticipate our next clinical study, pending success in Phase 1, starting as a Phase 2 clinical trial with the potential to expand to a Phase 3 registration trial based in part on an interim expansion analysis. However, completion of a Phase 2 trial, with or without an expansion to Phase 3, will likely require us to raise capital in an amount sufficient to extend our cash runway into the second half of 2026. In addition, changing circumstances may cause us to increase our spending significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. We may need to raise additional funds sooner than anticipated if we choose to expand more rapidly than we presently anticipate.

The amount and timing of our future funding requirements will depend on many factors, some of which are outside of our control, including but not limited to:

- the progress, costs, timing and results of INTERCEPT-AD and other potential clinical trials of ACU193, including for potential additional indications that we may pursue beyond AD;
- the requirements of the U.S. Food and Drug Administration, or the FDA, and comparable foreign regulatory authorities, for clinical trials and nonclinical studies and other work, for review and approval of ACU193 for AD;
- the outcome, costs and timing of seeking and obtaining FDA and any other regulatory approvals;
- the number and characteristics of product candidates that we pursue;
- our ability to obtain sufficient quantities of our product candidates from our third-party manufacturers;

- our need to expand our research and development activities;
- the costs associated with securing and establishing commercialization capabilities if we were to elect to commercialize one or more products on our own;
- the economics and other terms, timing of and success of any collaboration, licensing or other arrangements into which we may enter for the commercialization of our products;
- the costs and other terms, timing and success, of acquiring, in-licensing or investing in businesses, product candidates and technologies;
- our ability to maintain, expand and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with the licensing, filing, prosecution, defense and enforcement of any patents or other intellectual property rights;
- our need and ability to retain management and hire scientific and clinical personnel;
- the effect of competing drugs and product candidates and other market developments; and
- our need to implement additional internal systems and infrastructure, including financial and reporting systems.

Additional funding may not be available to us on acceptable terms or at all. Any such funding may result in dilution to stockholders, imposition of debt covenants and repayment obligations or other restrictions that may affect our business. We also could be required to seek funds through arrangements with collaborative partners or otherwise that may require us to relinquish rights to some of our technologies or product candidates or otherwise agree to terms unfavorable to us. Any funds we raise may not be sufficient to enable us to continue to implement our long-term business strategy. Further, our ability to raise additional capital may be adversely impacted by potential worsening global economic conditions and the recent disruptions to and volatility in the credit and financial markets in the United States and worldwide, including as a result of the ongoing COVID-19 pandemic or conflict between Russia and Ukraine. If we are unable to raise sufficient additional capital on a timely basis, we could be forced to curtail our planned operations and the pursuit of our business strategy, which would have a material adverse effect on the value of our common stock.

Our cash and cash equivalents could be adversely affected if the financial institutions in which we hold our cash and cash equivalents fail.

We regularly maintain cash balances at third-party financial institutions, including Silicon Valley Bank, in excess of the Federal Deposit Insurance Corporation, or FDIC, insurance limit. Silicon Valley Bank's ongoing insolvency and receivership with the FDIC temporarily impacted access to our invested cash or cash equivalents. Although the Department of the Treasury, the Federal Reserve, and the FDIC jointly released a statement that depositors at Silicon Valley Bank and New York Signature Bank would have access to their funds, even those in excess of the standard FDIC insurance limits, under a systemic risk exception, future adverse developments, or similar failures of a depository institution to return such deposits, with respect to specific financial institutions or the broader financial services industry could further impact access to our invested cash or cash equivalents and could adversely impact our operating liquidity and financial performance and may lead to market-wide liquidity shortages, impair the ability of companies to access near-term working capital needs, and create additional market and economic uncertainty.

Risks Related to the Development of our Product Candidates

We are substantially dependent on the success of ACU193, our sole product candidate, which will require significant clinical testing before we can seek regulatory approval and potentially launch commercial sales, and which may not be successful in clinical trials, receive regulatory approval or be successfully commercialized, even if approved.

We are early in our development efforts. To date, we have invested substantially all of our efforts and financial resources in the research and development of ACU193, which is currently our only product candidate. Before seeking marketing approval from regulatory authorities for the sale of ACU193, we must conduct extensive clinical trials to demonstrate the safety and efficacy of the drug in humans. We are not permitted to market or promote any of our product candidates before we receive regulatory approval from the FDA, or comparable foreign regulatory authorities, and we may never receive such regulatory approval. We cannot be certain that ACU193 will be successful in clinical trials. Further, ACU193 may not receive regulatory approval even if it is successful in clinical trials. If we do not receive regulatory approvals for ACU193, we may not be able to continue our operations. Our prospects, including our ability to finance our operations and generate revenue, will depend entirely on the successful development, regulatory approval and commercialization of

ACU193 by us or by one or more of our partners. The clinical and commercial success of ACU193 will depend on a number of factors, including the following:

- successful patient enrollment in INTERCEPT-AD and other clinical trials of ACU193;
- sufficiency of our financial and other resources to complete the necessary clinical trials;
- the results from INTERCEPT-AD and future clinical trials of ACU193;
- the frequency and severity of adverse effects related to ACU193;
- the ability of third-party manufacturers to manufacture supplies of ACU193 and to develop, validate and maintain a commercial-scale manufacturing process that is compliant with current good manufacturing practices, or cGMP;
- our ability to demonstrate ACU193's safety and efficacy to the satisfaction of the FDA and foreign regulatory authorities in order to receive necessary marketing approvals for ACU193;
- whether we are required by the FDA to conduct additional clinical trials prior to the approval to market ACU193 and whether the FDA may disagree with the number, design, size, conduct, implementation or other aspects of our clinical trials;
- whether the FDA may require implementation of a Risk Evaluation and Mitigation Strategy, or REMS, as a condition of approval or post-approval;
- our ability to successfully commercialize ACU193, if approved for marketing and sale by the FDA or foreign regulatory authorities, whether alone or in collaboration with others;
- our success in educating physicians and patients about the benefits, administration and use of ACU193;
- acceptance of ACU193 as safe and effective by patients and the medical community;
- the availability, perceived advantages, relative cost, relative safety and relative efficacy of alternative and competing treatments;
- achieving and maintaining compliance with all regulatory requirements applicable to ACU193, including any required post-marketing approval commitments;
- effectively competing with other AD therapies;
- the effectiveness of our own or any future collaborators' marketing, pricing, coverage and reimbursement, sales and distribution strategies and operations;
- our ability to maintain our existing patents and obtain newly issued patents that cover ACU193 and to enforce such patents and other intellectual property rights in and to ACU193;
- our ability to avoid third-party intellectual property claims;
- the availability of third-party coverage and adequate reimbursement for ACU193 and any other product candidates, once approved; and
- a continued acceptable safety, tolerability and efficacy profile of ACU193 following approval.

Many of these factors are beyond our control. Accordingly, we cannot assure you that we will ever be able to generate revenue through the sale of ACU193. If we are not successful in commercializing ACU193, or are significantly delayed in doing so, our business will be materially harmed.

The FDA granted Fast Track designation for ACU193 for the treatment of early Alzheimer's disease, and we may seek Fast Track designation for other product candidates. Even if received, Fast Track designation may not actually lead to a faster review or approval process and does not increase the likelihood that our product candidates will receive marketing approval.

The FDA granted Fast Track designation for ACU193 for the treatment of early AD in October 2022, and we may in the future seek Fast Track designation for any other product candidates we may develop. If a drug or biologic 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 sponsor may apply for FDA Fast Track designation for a particular indication. There is no assurance that the FDA will grant this status to any of our other product candidates. If granted, Fast Track designation makes a product eligible for more frequent interactions with FDA to discuss the development plan and clinical trial design,

as well as rolling review of the application, which means that the company can submit completed sections of its marketing application for review prior to completion of the entire submission. Marketing applications of product candidates with Fast Track designation may qualify for priority review under the policies and procedures offered by the FDA, but the Fast Track designation does not assure any such qualification or ultimate marketing approval by the FDA. The FDA has broad discretion whether or not to grant Fast Track designation, so even if we believe a particular product candidate is eligible for this designation, there can be no assurance that the FDA would decide to grant it. Even if we do receive Fast Track designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures, and receiving a Fast Track designation does not provide any assurance of ultimate FDA approval. In addition, the FDA may withdraw Fast Track designation at any time if it believes that the designation is no longer supported by data from our clinical development program.

We have concentrated our research and development efforts on the treatment of AD, a field that has to date seen very limited success in drug development.

We have focused our research and development efforts solely on developing effective treatments for AD. Collectively, efforts by pharmaceutical companies in the field of AD have seen limited successes in drug development. There are few approved products available for patients with AD.

Our future success is highly dependent on the successful development of ACU193 for treating AD. The development and, if approved, commercialization of ACU193 subjects us to a number of challenges, including ensuring that we select an effective dose of ACU193, executing appropriate clinical trials to test for safety and efficacy and obtaining regulatory approval from the FDA and other regulatory authorities. We cannot be sure that ACU193, or any other product candidate we develop, will ultimately prove to be safe and effective, scalable or profitable. Moreover, public perception of drug safety issues, including adoption of new therapeutics or novel approaches to treatment, may adversely influence the willingness of subjects to participate in clinical trials, or if approved, of physicians to prescribe novel treatments.

Our approach to the potential treatment of AD is based on a novel therapeutic approach, which exposes us to unforeseen risks.

There is no current scientific or general consensus on the causation of AD or method of action to treat AD. We have discovered and are developing ACU193, a humanized monoclonal antibody that selectively targets amyloid-beta oligomers, or AßOs, to treat AD. Our approach is based on research on AßOs, globular assemblies of the amyloid-beta, or Aß, peptide that are distinct from other forms of amyloid. AßOs have gained scientific acceptance as important toxins involved in the initiation and propagation of AD pathology. Based on the results of our nonclinical studies to date, we believe ACU193 is different from current and prior clinical-stage anti-amyloid drugs and product candidates based on its selectivity for AßOs. We believe that this is a novel mechanism which has the potential to provide more clinically meaningful benefits, with a possible improved safety profile, as compared to approved therapies and product candidates in development. However, we may ultimately discover that ACU193 does not possess properties required for therapeutic effectiveness. We have no evidence regarding the efficacy, safety or tolerability of ACU193 in humans. We may spend substantial funds attempting to develop ACU193 or other product candidates and never succeed in doing so.

The market for any products that we successfully develop, if any, will also depend on the cost of the product. We do not yet have sufficient information to reliably estimate what it would cost to commercially manufacture ACU193, and the actual cost to manufacture ACU193 or any drug we develop in the future could materially and adversely affect the commercial viability of the drug. We may also find that the manufacture of our product candidates is more difficult than anticipated, resulting in an inability to produce a sufficient amount of our product candidates for our clinical trials or, if approved, commercial supply. If we do not successfully develop ACU193, or no other drug we develop with drug product can be reliably and economically manufactured at scale, we will not become profitable, which would materially and adversely affect the value of our common stock.

Nonclinical and clinical drug development involves a lengthy, expensive and uncertain process. The results of nonclinical studies and early clinical trials are not always predictive of future results. ACU193 or any other product candidate that we advance into clinical trials may not achieve favorable results in later clinical trials, if any, or receive marketing approval.

The research and development of product candidates is extremely risky. Only a small percentage of product candidates that enter the development process ever receive marketing approval. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete nonclinical development and then conduct extensive

clinical trials to demonstrate the safety and efficacy of our product candidates in humans. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain.

The results of nonclinical studies and early clinical trials are not necessarily predictive of future results and ACU193, or any other product candidate that we may develop, may not be further developed or have favorable results in later studies or trials. Clinical trial failure may result from a multitude of factors including, but not limited to, flaws in study design, dose selection, placebo effect, patient enrollment criteria and failure to demonstrate favorable safety or efficacy traits. As such, failure in clinical trials can occur at any stage of testing. A number of companies in the pharmaceutical industry have suffered setbacks in the advancement of their product candidates into later-stage clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding results in earlier nonclinical studies or clinical trials. We have enrolled 65 patients with early AD in INTERCEPT-AD. Even if the results of INTERCEPT-AD are positive, such results may not be predictive of the results of outcomes in our later-stage clinical trials. The results of clinical trials in one set of patients or disease indications may not be predictive of those obtained in another. In some instances, there can be significant variability in safety or efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the dosing regimen and other clinical trial protocols and the rate of dropout among clinical trial participants. A number of companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or unacceptable safety issues, notwithstanding promising results in earlier trials. This is particularly true in AD, where failure rates historically are higher than in most other disease areas.

In the event of negative or inconclusive results, we may decide, or regulatory authorities may require us, to conduct additional clinical trials or nonclinical studies. In addition, data obtained from clinical trials and nonclinical studies is susceptible to varying interpretations, and regulatory authorities may not interpret our data as favorably as we do, which may further delay, limit or prevent development efforts, clinical trials or marketing approval. Further, as more competing product candidates within a particular class of drugs proceed through clinical development to regulatory review and approval, the amount and type of clinical data that may be required by regulatory authorities may increase or change.

If we are unable to complete nonclinical studies or clinical trials of ACU193 or future product candidates, due to safety concerns or otherwise, or if the results of these trials are not sufficient to convince regulatory authorities of their safety or efficacy, we will not be able to obtain marketing approval for commercialization on a timely basis or at all. Even if we are able to obtain marketing approval for ACU193 or any future product candidates, those approvals may be for indications or dose levels that deviate from our desired approach or may contain other limitations that would adversely affect our ability to generate revenue from sales of those product candidates. Moreover, if we are not able to differentiate our product candidate against other approved product candidates within the same class of drugs, or if any of the other circumstances described above occur, our business would be harmed and our ability to generate revenue from that class of drugs would be severely impaired.

Clinical failure can occur at any stage of clinical development and we have never completed a clinical trial or submitted a biologics license application, or BLA, or other marketing authorization application.

We are early in our development efforts for ACU193, and will need to successfully complete our ongoing and planned clinical trials, including pivotal clinical trials, in order to obtain FDA approval to market ACU193 or any other product candidate we seek to develop. Carrying out clinical trials and the submission of a successful BLA is a complicated process. Although members of the Acumen team have significant experience in clinical development of drugs through regulatory approval, as an organization, Acumen recently began conducting its first clinical trial, has no experience in conducting any clinical trials, has limited experience in preparing regulatory submissions and has not previously submitted a BLA for any product candidate.

In addition, we have had limited interactions with the FDA and cannot be certain how many clinical trials of ACU193 will be required or how such trials should be designed. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to BLA submission and approval of ACU193 or any other product candidate. We may require more time and incur greater costs than our competitors and we may not succeed in obtaining regulatory approvals of product candidates that we develop. Failure to commence or complete, or delays in, our planned clinical trials, could prevent us from or delay us in commercializing ACU193 or any future product candidates we may develop, and failure to successfully complete any of these activities in a timely manner could have a material adverse impact on our business and financial performance.

We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

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

- regulatory authorities, Institutional Review Boards, or IRBs, or Ethics Committees, or ECs, may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site or we may fail to reach a consensus with regulatory authorities on trial design; for example, our initial submission of the IND for ACU193 was placed on clinical hold by the FDA until we were able to address the FDA's initial concerns regarding potential off-target binding of ACU193 with an additional nonclinical tissue cross reactivity study, after which the FDA permitted us to initiate the Phase 1 clinical trial of ACU193 in the second quarter of 2021;
- regulatory authorities in jurisdictions in which we seek to conduct clinical trials may differ from each other on our trial design, and it may be difficult or impossible to satisfy all such authorities with one approach;
- we may have delays in reaching or fail to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different contract research organizations, or CROs, and trial sites;
- we may be unable to add or be delayed in adding a sufficient number of clinical trial sites and obtaining IRB or independent EC approval at each clinical trial site;
- clinical trials of our product candidates may fail to show safety or efficacy or otherwise produce negative or inconclusive results, and we may decide, or regulatory authorities may require us, to conduct additional clinical trials or abandon drug development programs;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate;
- enrollment in our clinical trials may be slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;
- difficulties in having subjects complete a clinical trial or returning for post-treatment follow-up;
- changes to clinical trial protocols;
- our third-party contractors, including clinical investigators, contract manufacturers and vendors may fail to comply with applicable regulatory requirements, lose their licenses or permits, or otherwise fail, or lose the ability to, meet their contractual obligations to us in a timely manner, or at all;
- we might have to suspend or terminate clinical trials of our product candidates for various reasons, including a finding that the participants are being exposed to unacceptable health risks;
- regulatory authorities or IRBs may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics, or that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of our product candidates may be greater than we anticipate, and we may lack adequate funding to continue one or more clinical trials;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate;
- clinical trial sites may deviate from clinical trial protocol or drop out of a clinical trial; and
- occurrence of serious adverse events in trials of the same class of agents conducted by other companies.

Adverse side effects, properties or other safety risks associated with ACU193 or any future product candidates could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon further development, limit the commercial profile of an approved label or result in significant negative consequences following marketing approval, if any.

As is the case with pharmaceuticals generally, it is possible that there may be side effects and adverse events associated with the use of ACU193 or any future product candidates we may develop. Results of INTERCEPT-AD, or future clinical trials, could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics as the

clinical trials progress to greater exposures and a larger number of patients. Undesirable side effects caused by, or unexpected or unacceptable characteristics associated with, ACU193 or any future product candidates we may develop, could result in the delay, suspension or termination of clinical trials by us, the FDA or other regulatory authorities, or IRBs for a number of reasons. We may also elect to limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective, which may limit the commercial expectations for such product candidate, if approved. If we elect or are required to further delay, suspend or terminate any clinical trial of any product candidates we may develop, the commercial prospects of such product candidates will be harmed and our ability to generate drug revenues from any such product candidates will be delayed or eliminated.

It is possible that, as we test ACU193 in INTERCEPT-AD or future trials, or as the use of ACU193 becomes more widespread if it receives regulatory approval, we may identify additional adverse events that were not identified or not considered significant in our earlier trials. If such side effects become later known in development or upon approval, if any, such findings may harm our business, financial condition, results of operations and prospects significantly. If we or others later identify undesirable side effects, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw, suspend or limit approval of ACU193 or any future product candidates;
- we may be required to recall a drug or change the way such drug is administered to patients;
- regulatory authorities may require additional warnings or statements in the labeling, such as a boxed warning or a contraindication or issue safety alerts, press releases or other communications containing warnings or other safety information about the product candidate, for example, field alerts to physicians and pharmacies;
- regulatory authorities may require us to implement a REMS to ensure that the benefits of the drug outweigh its risks, which could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools;
- we may be required to change the way a drug is distributed or administered, conduct additional clinical trials or be required to conduct additional post-marketing studies or surveillance;
- we may be subject to regulatory investigations and government enforcement actions;
- we may decide to remove such product candidates from the market;
- we could be sued and held liable for harm caused to patients;
- sales of the drug may decrease significantly or ACU193 or any future drug could become less competitive; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of ACU193 or any future product candidates, if approved, and could significantly harm our business, financial condition, results of operations and prospects.

We have experienced and may continue to experience delays or difficulties in the enrollment and retention of patients in clinical trials, which could delay or prevent our receipt of necessary regulatory approvals.

Successful and timely completion of clinical trials will require that we enroll a sufficient number of patients. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors, including the size and nature of the patient population and competition for patients eligible for our clinical trials with competitors which may have ongoing clinical trials for product candidates that are under development to treat the same indications as one or more of our product candidates or approved products for the conditions for which we are developing our product candidates.

Trials may be subject to delays as a result of patient enrollment taking longer than anticipated or patient withdrawal. We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or foreign regulatory authorities. We cannot predict how successful we will be at enrolling subjects in future clinical trials. Throughout 2022, we experienced delays in clinical site initiation and patient enrollment that we believe were principally related to the effects of the COVID-19 pandemic. Although those enrollment delays were resolved, including through the addition of new clinical trial sites, we may experience other enrollment delays in the future. Subject enrollment is affected by other factors including:

- the severity and difficulty of diagnosing the disease under investigation;

- the eligibility and exclusion criteria for the trial in question;
- the size of the patient population and process for identifying patients;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- the design of the trial protocol;
- the perceived risks and benefits of the product candidate in the trial, including relating to cell therapy approaches;
- the availability of competing commercially available therapies and other competing therapeutic candidates' clinical trials for the disease or condition under investigation;
- the willingness of patients to be enrolled in our clinical trials;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment; and
- the proximity and availability of clinical trial sites for prospective patients.

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. The enrollment delays we experienced in our INTERCEPT-AD clinical trial resulted in increased development costs for the trial, including costs related to initiating additional trial sites, and any future enrollment delays we may experience in clinical trials of ACU193 or any other product candidates we may develop may result in increased development costs for our product candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing.

Further, we expect to rely on CROs and clinical trial sites to ensure the proper and timely conduct of our clinical trials and we will have limited influence over their performance. Additionally, even if we are able to enroll a sufficient number of patients for our clinical trials, we may have difficulty maintaining enrollment of such patients in our clinical trials.

Interim, "topline" and preliminary results from our clinical trials that we announce or publish from time to time may change as more data become available and is subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publish interim, topline or preliminary results from our clinical trials. Interim results from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Preliminary or topline results also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, interim and preliminary data should be viewed with caution until the final data are reported. Differences between preliminary, topline or interim data and final data could significantly harm our business prospects and may cause the trading price of our common stock to fluctuate significantly. 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 topline results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated.

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 development 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 the material or otherwise appropriate information to include in our disclosure. Any information we determine not to disclose may ultimately be deemed meaningful by you or others 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, product candidates may be harmed, which could significantly harm our business prospects.

We cannot be certain that ACU193 or any of our future product candidates will receive regulatory approval, and without regulatory approval we will not be able to market our product candidates.

We currently have no product candidates approved for sale and we cannot guarantee that we will ever have marketable product candidates. ACU193 is our sole product candidate designed for the treatment of AD. Our ability to generate revenue related to sales of ACU193, if ever, will depend on the successful development and regulatory approval of ACU193 for the treatment of AD and, potentially, other indications.

The development of a product candidate and its approval and commercialization, including its design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, distribution, import and export are subject to extensive regulation by the FDA and regulatory authorities in other countries, with regulations differing from country to country. We are not permitted to market our product candidates in the United States until we receive approval of a BLA from the FDA. We have not submitted any marketing applications for ACU193.

BLAs must include extensive nonclinical and clinical data and supporting information to establish the product candidate's safety and effectiveness for each desired indication. BLAs must also include significant information regarding the chemistry, manufacturing and controls for the drug. Obtaining approval of a BLA is a lengthy, expensive and uncertain process, and we may not be successful in obtaining approval. The FDA review process can take years to complete and approval is never guaranteed. If we submit a BLA to the FDA, the FDA must decide whether to accept or reject the submission for filing. We cannot be certain that any submissions will be accepted for filing and review by the FDA. Regulators of other jurisdictions, such as the EMA, have their own procedures for approval of product candidates.

Even if a drug is approved, the FDA may limit the indications for which the drug may be marketed, require extensive warnings on the drug labeling or require expensive and time-consuming clinical trials or reporting as conditions of approval. Regulatory authorities in countries outside of the United States also have requirements for approval of product candidates with which we must comply prior with marketing in those countries. Obtaining regulatory approval for marketing of a product candidate in one country does not ensure that we will be able to obtain regulatory approval in any other country. In addition, delays in approvals or rejections of marketing applications in the United States or other countries may be based upon many factors, including regulatory requests for additional analyses, reports, data, nonclinical studies and clinical trials, regulatory questions regarding different interpretations of data and results, changes in regulatory policy during the period of drug development and the emergence of new information regarding ACU193 or other product candidates we may develop in the future. Also, regulatory approval for any of our product candidates may be withdrawn.

We are currently conducting the INTERCEPT-AD Phase 1 trial in patients with AD. Before we submit a BLA to the FDA for ACU193 for the treatment of patients with AD, we will be required to successfully complete our Phase 1 clinical trial and at least one pivotal clinical trial. The FDA generally expects two pivotal clinical trials to support approval, although a single pivotal trial may be allowed in certain circumstances. In addition, we must scale up manufacturing and complete other standard nonclinical and clinical studies. We cannot predict whether our current or future trials will be successful or whether regulators will agree with our plans or conclusions regarding the nonclinical studies and the clinical trials we conduct.

We may in the future conduct clinical trials for our product candidates outside the United States, and the FDA and other foreign regulatory authorities may not accept data from such trials.

We may in the future choose to conduct one or more of our clinical trials outside the United States, including in Europe. The acceptance of study data from clinical trials conducted outside the United States or another jurisdiction by the FDA or applicable foreign regulatory authorities may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the United States population and United States medical practice; and (ii) the trials were performed by clinical investigators of recognized competence and pursuant to current good clinical practice, or cGCP, regulations. Additionally, the FDA's clinical trial requirements, including sufficient size of patient populations and statistical powering, must be met. Many foreign regulatory bodies have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any other foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. If the FDA or any applicable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in our product candidates not receiving approval or clearance for commercialization in the applicable jurisdiction.

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

Our sole product candidate is ACU193. We may not be able to identify and successfully develop new product candidates in addition to ACU193. Even if we are successful in building our product pipeline, the potential product candidates that we identify may not be suitable for clinical development or, if deemed suitable for clinical development, successful in any clinical trials. For example, product candidates may be shown to have harmful side effects or other characteristics that indicate that they are unlikely to be successfully developed, much less receive marketing approval and achieve market acceptance. If we do not successfully develop and commercialize product candidates, we will not be able to obtain product revenue in future periods, which would result in significant harm to our financial position and adversely affect our stock price.

If we do not achieve our projected development goals in the time frames we announce and expect, the commercialization of our products may be delayed.

From time to time, we may estimate the timing of the accomplishment of various scientific, clinical, regulatory, manufacturing and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of nonclinical studies and clinical trials and the submission of regulatory filings, including BLA submissions. From time to time, we may publicly announce the expected timing of some of these milestones. All of these milestones are, and will be, based on a variety of assumptions. The actual timing of these milestones can vary significantly compared to our estimates, in some cases for reasons beyond our control. We may experience numerous unforeseen events during, or as a result of, any future clinical trials that we conduct that could delay or prevent our ability to receive marketing approval or commercialize our product candidates.

Our business and operations have been and may continue to be adversely affected by the evolving and ongoing COVID-19 global pandemic.

Our business and operations have been and may continue to be adversely affected by the effects of the evolving COVID-19 pandemic. Any future government orders or other restrictions on the conduct of business operations related to the COVID-19 pandemic may negatively impact productivity and may disrupt our ongoing research and development activities and our clinical programs and timelines, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course. Further, such orders also may impact the availability or cost of materials, which would disrupt our supply chain and manufacturing efforts and could affect our ability to conduct ongoing and planned clinical trials and preparatory activities.

Our Phase 1 clinical trial has been and may continue to be affected by the COVID-19 pandemic. We have experienced delays in clinical site activation and patient enrollment in INTERCEPT-AD, which we believe resulted from the COVID-19 pandemic, which delayed the expected timeline of INTERCEPT-AD. We believe that the COVID-19 pandemic negatively impacted our ability to activate clinical trial sites as planned, especially in certain geographies within the United States that have been experiencing relatively higher rates of COVID-19, requiring more time to implement site activation requirements and impeding enrollment efforts by lower-than-expected willingness of potential patients to visit active sites for screening. We may experience further related disruptions in the future that could severely impact our clinical trials.

The COVID-19 pandemic continues to rapidly evolve. The extent to which the COVID-19 pandemic impacts our business and operations, including our clinical development and regulatory efforts, will depend on future developments that are highly uncertain and cannot be predicted with confidence at this time. Accordingly, we do not yet know the full extent of delays or impacts on our business, our clinical and regulatory activities, healthcare systems or the global economy as a whole. However, these impacts have adversely affected and continue to adversely affect our business, financial condition, results of operations and growth prospects.

We may develop ACU193 and future product candidates for use in combination with other therapies, which could expose us to additional regulatory risks.

We may develop ACU193 and future product candidates for use in combination with one or more other approved therapies for AD. Even if any product candidate we develop were to receive marketing approval or be commercialized for use in combination with other existing therapies, we would continue to be subject to the risk that the FDA or comparable foreign regulatory authorities could revoke approval of the therapy used in combination with our product candidate or that safety, efficacy, manufacturing or supply issues could arise with these existing therapies. This could result in our own products being removed from the market or being less successful commercially.

Further, we will not be able to market and sell any product candidate we develop in combination with an unapproved AD therapy for a combination indication if that unapproved therapy does not ultimately obtain marketing approval either alone or in combination with our product. In addition, unapproved AD therapies face the same risks described with respect to our product candidates currently in development and clinical trials, including the potential for serious adverse effects, delay in their clinical trials and lack of FDA approval.

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

As product candidates proceed through nonclinical studies to late-stage clinical trials toward potential approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize processes and product characteristics. For example, through our CMOs we plan to implement a larger scale ACU193 manufacturing process with increased yields and at larger scale production levels. We are also developing a lyophilized drug product form and refrigeration-stable formulation as well.

Such changes carry the risk that they will not achieve our intended objectives. Any such changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the materials manufactured using altered processes. Such changes may also require additional testing, FDA notification or FDA approval. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commence sales and generate revenue. In addition, we may be required to make significant changes to our upstream and downstream processes across our pipeline, which could delay the development of our future product candidates.

Risks Related to the Commercialization of our Product Candidates

Even if ACU193 or any other product candidate we develop receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success.

If ACU193 or any other product candidate we develop receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant revenue and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the clinical indications for which our product candidates are licensed;
- the efficacy, safety and potential advantages compared to alternative treatments;
- our ability to demonstrate the advantages of our product candidates over other medicines;
- our ability to offer our products for sale at competitive prices;
- the convenience and ease of administration compared to alternative treatments;
- product labeling or product insert requirements of the FDA or other foreign regulatory authorities, including any limitations or warnings contained in a product's approved labeling, including any black box warning or REMS;
- the willingness of the target patient population to try new treatments and of physicians to prescribe these treatments;
- our ability to commercialize the product either in collaboration with a third party or on our own;
- the timing of market introduction of our product candidates as well as competitive products;
- the strength of marketing and distribution support;
- the availability of third-party coverage and adequate reimbursement for ACU193 and any other product candidates, once approved;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our products together with other medications.

If we are unable to enter into a commercial collaboration or, alternatively, establish internal sales, marketing and distribution capabilities for ACU193 or any other product candidate that may receive regulatory approval, we may not be successful in commercializing those product candidates if and when they are approved.

We do not have sales or marketing infrastructure. To achieve commercial success for ACU193 or any other product candidate for which we may obtain marketing approval, we will either need to establish a commercial collaboration with a pharmaceutical company that has a sales and marketing organization or we will be required to develop these capabilities internally. There are risks and limitations associated with entering into a commercial collaboration. For example, 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. Even if we are able to enter into a collaboration, our revenue and profitability, if any, are likely to be significantly lower than if we were able to successfully commercialize a product ourselves. In addition, we likely would have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively.

At the same time, there are significant risks associated with establishing our own sales, marketing and distribution capabilities. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This would be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to market our products 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 in order to educate physicians about our product candidates, once approved;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

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

The affected populations for ACU193 or any other product candidate we may develop may be smaller than we or third parties currently project, which may affect the addressable markets for our product candidates.

Our projections of the number of people who have AD, as well as the subset of people with AD who have the potential to benefit from treatment with ACU193, are estimates based on our knowledge and understanding of the disease. These estimates may prove to be incorrect and new studies may further reduce the estimated incidence or prevalence of the disease or narrow the universe of patients who would be understood to potentially benefit for treatment with ACU193, if approved. The number of patients in the United States, the European Union and elsewhere may turn out to be lower than expected, may not be otherwise amenable to treatment with our product candidates or patients may become increasingly difficult to identify and access, all of which would adversely affect our business, financial condition, results of operations and prospects. Further, even if we obtain approval for ACU193, the FDA or other regulators may limit their approved indications to more narrow uses or subpopulations within the populations for which we are targeting development of ACU193.

The total addressable market opportunity for our product candidates will ultimately depend upon a number of factors, including the diagnosis and treatment criteria included in the final label, if approved for sale in specified indications, acceptance by the medical community, patient access and product pricing and reimbursement. Incidence and prevalence estimates are frequently based on information and assumptions that are not exact and may not be appropriate, and the methodology is forward-looking and speculative.

The estimated incidence and prevalence ranges included in this Annual Report on Form 10-K have been derived from data from multiple sources, including scientific literature, surveys of clinics, patient foundations or market research, and may prove to be incorrect. Accordingly, the incidence and prevalence estimates included in this Annual Report on Form 10-K should be viewed with caution. Further, the data and statistical information used in this Annual Report on Form 10-K,

including estimates derived from them, may differ from information and estimates made by our competitors or from current or future studies conducted by independent sources.

Off-label use or misuse of our products may harm our reputation in the marketplace, result in injuries that lead to costly product liability suits, and subject us to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with any product.

If ACU193 or any other product candidate we develop is approved by the FDA, we may only promote or market our product candidate for its specifically approved indications and consistent with its approved labeling. We or any third-party collaborator responsible for commercialization of our products will train the marketing and sales forces responsible for our products against promoting them for uses outside of their approved indications for use, known as "off-label uses." However, neither we nor any future commercial partner of ours will be able to prevent a physician from using our products off-label, when in the physician's independent professional medical judgment, he or she deems it appropriate. Further, the use of our products for indications other than those approved by the FDA may not effectively treat such conditions. Any such off-label use of our product candidates could harm our reputation in the marketplace among physicians and patients. There may also be an increased risk of injury to patients if physicians attempt to use our products for these uses for which they are not approved, which could lead to product liability suits that that might require significant financial and management resources and that could harm our reputation.

Advertising and promotion of any product candidate that obtains approval in the United States will be heavily scrutinized by the FDA, the U.S. Federal Trade Commission, the Department of Justice, or DOJ, the Office of Inspector General of the U.S. Department of Health and Human Services, or HHS, state attorneys general, members of the U.S. Congress and the public. Additionally, advertising and promotion of any product candidate that obtains approval outside of the United States will be heavily scrutinized by comparable foreign entities and stakeholders. Violations, including actual or alleged promotion of our products for unapproved or off-label uses, are subject to enforcement or warning letters, mandates to issue corrective information to healthcare practitioners, inquiries, investigations, injunctions and civil and criminal sanctions by the FDA, DOJ or comparable foreign bodies. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and as enjoined several companies from engaging in an off-label promotion.

We may pursue Breakthrough Therapy designation by the FDA. This designation may not actually lead to a faster development or regulatory review or approval process, and it does not assure FDA approval of any product candidates we may develop.

The FDA's Breakthrough Therapy designation program is intended to expedite the development of certain qualifying products intended for the treatment of serious diseases and conditions. While we may seek Breakthrough Therapy designation, there is no guarantee that we will be successful in obtaining this designation. Even if we do obtain Breakthrough Therapy designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. Breakthrough Therapy designation alone does not guarantee qualification for the FDA's priority review procedures. A Breakthrough Therapy designation does not ensure that the product candidate will receive marketing approval or that approval will be granted within any particular timeframe. In addition, the FDA may withdraw Breakthrough Therapy designation if it believes that the designation is no longer supported by data from our clinical development program.

We face significant competition in an environment of rapid technological and scientific change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more effective than ours.

The development and commercialization of new drugs is highly competitive. Moreover, the AD field is characterized by strong competition and a strong emphasis on intellectual property. We may face competition with respect to any product candidates that we seek to develop or commercialize in the future from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide.

Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

If approved, ACU193 will compete with therapies currently approved for the treatment of AD, which have primarily been developed to treat the symptoms of AD rather than the underlying cause of the disease, such as memantine and cholinesterase inhibitors. ACU193 may also compete with one or more potentially disease-modifying therapeutics that target Aß or amyloid plaques, the most advanced of which is Biogen Inc.'s Aduhelm (aducanumab), which the FDA approved in June 2021, and Eisai's Leqembi (lecanemab), which was given accelerated approval by the FDA in January 2023. The FDA issued a complete response letter to Eli Lilly and Company in January 2023 for the accelerated approval submission of donanemab. Eisai filed for full approval of Leqembi in January 2023; however, Biogen has not filed for full approval of Aduhelm. Centers for Medicare and Medicaid Services (CMS) have stated they would not reimburse for a drug given an accelerated approval by FDA for Alzheimer's disease outside of a clinical trial. Roche Holding AG (gantenerumab) announced negative results from their Phase 3 study in November 2022, and Eli Lilly and Company (donenamab) is anticipated to complete its Phase 3 study in 2023.

Other companies known to be developing therapies with Aß-, AßO- amyloid plaque-related targets include AltPep Corporation, Alzheon, Inc., Alzinova AB, Chugai Pharmaceutical Co. Ltd., Cognition Therapeutics, Inc., Eisai Co., Ltd., Eli Lilly and Company, Grifols, S.A., KalGene Pharmaceuticals, Inc., Neurimmune AG, Novartis AG, ProMIS Neurosciences, Inc., Prothena Biosciences, Inc., Roche Holding AG (including Genentech, its wholly owned subsidiary) Vaxxinity, Inc., Vivoryon Therapeutics N.V. and Wren Therapeutics, Inc. Additionally, ACU193, if approved, may also compete with other potential therapies intended to address underlying causes of AD that are being developed by several companies, including AbbVie Inc., AC Immune SA, Alector, Inc., Anavex Life Sciences Corp., Annovis Bio, Inc., Athira Pharma, Inc., Biohaven Pharmaceuticals, Inc., Cassava Sciences, Inc., Cortexyme, Inc., Denali Therapeutics, Inc., Johnson & Johnson (including Janssen, its wholly-owned subsidiary) and Takeda Pharmaceutical Co. Ltd.

Many of our current or potential competitors, either alone or with their strategic partners, have significantly greater financial resources and expertise in research and development, manufacturing, nonclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved product candidates than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize product candidates 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. Further, currently approved product candidates could be discovered to have application for treatment of AD, which could give such product candidates significant regulatory and market timing advantages over any of our product candidates. Our competitors also may obtain FDA or other regulatory approval for their product candidates more rapidly than we may obtain approval for ours from the FDA, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, product candidates or technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing any product candidates we may develop against competitors.

If our competitors market product candidates that are more effective, safer or less expensive than our product candidates, if approved, or that reach the market sooner than our product candidates, we may not achieve commercial success. In addition, the pharmaceutical industry is characterized by rapid technological change. If we fail to stay at the forefront of technological change, we may be unable to compete effectively. Technological advances or product candidates developed by our competitors may render our technologies or product candidates obsolete, less competitive or not economical.

Any product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.

If we are successful in achieving regulatory approval to commercialize any biologic product candidate that we develop, such biologic product candidate may face competition from biosimilar products. In the United States, ACU193 is, and we expect that any other product candidate we may seek to develop likely will be, regulated by the FDA as a biologic product subject to approval under the BLA pathway. The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the ACA, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or the BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four (4) years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12

years from the date on which the reference product was first licensed by the FDA. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own nonclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product.

There is a risk that any of our product candidates approved as a biological product under a BLA would not qualify for the 12-year period of exclusivity or that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider our product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products will depend on a number of marketplace and regulatory factors that are still developing. If competitors are able to obtain marketing approval for biosimilars referencing our candidates, if approved, our products may become subject to competition from such biosimilars, with the attendant competitive pressure and potential adverse consequences.

The success of our product candidates will depend significantly on coverage and adequate reimbursement or the willingness of patients to pay for these therapies.

We believe our success depends on obtaining and maintaining coverage and adequate reimbursement from third-party payors for ACU193 and any other product candidate we successfully develop, and the extent to which patients will be willing to pay out-of-pocket for such products, in the absence of reimbursement for all or part of the cost. In the United States and in other countries, patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. The availability of coverage and adequacy of reimbursement for our products by third-party payors, including government health care programs (e.g., Medicare, Medicaid, TRICARE), managed care providers, private health insurers, health maintenance organizations, and other organizations is essential for most patients to be able to afford medical services and pharmaceutical products such as our product candidates. 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 are made on a payor-by-payor basis. One payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage, and adequate reimbursement. The principal decisions about reimbursement for new medicines are typically made by the Centers for Medicare & Medicaid Services, or CMS, an agency within the HHS. CMS decides whether and to what extent products will be covered and reimbursed under Medicare and private payors tend to follow CMS to a substantial degree.

Third-party payors determine which products and procedures they will cover and establish reimbursement levels. Even if a third-party payor covers a particular product or procedure, the resulting reimbursement payment rates may not be adequate. Patients who are treated in-office for a medical condition generally rely on third-party payors to reimburse all or part of the costs associated with the procedure, including costs associated with products used during the procedure, and may be unwilling to undergo such procedures in the absence of such coverage and adequate reimbursement. Physicians may be unlikely to offer procedures for such treatment if they are not covered by insurance and may be unlikely to purchase and use our product candidates, if approved, for our stated indications unless coverage is provided and reimbursement is adequate. In addition, for products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs.

Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that a procedure is safe, effective and medically necessary; appropriate for the specific patient; cost-effective; supported by peer-reviewed medical journals; included in clinical practice guidelines; and neither cosmetic, experimental nor investigational. Further, increasing efforts by third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates. In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA or comparable regulatory approvals. Additionally, we may also need to provide discounts to purchasers, private health plans or government healthcare programs. Our product candidates may nonetheless not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit. We expect to experience pricing pressures from third-party payors in connection with the potential sale of any of our product candidates.

Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales.

Foreign governments also have their own healthcare reimbursement systems, which vary significantly by country and region, and we cannot be sure that coverage and adequate reimbursement will be made available with respect to the treatments in which our products are used under any foreign reimbursement system.

There can be no assurance that ACU193 or any other product candidate, if approved for sale in the United States or in other countries, will be considered medically reasonable and necessary, that it will be considered cost-effective by third-party payors, that coverage or an adequate level of reimbursement will be available or that reimbursement policies and practices in the United States and in foreign countries where our products are sold will not adversely affect our ability to sell our product candidates profitably, if they are approved for sale.

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

- decreased demand for any product candidates or drugs that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards paid to trial participants or patients;
- loss of revenue;
- reduced resources of our management to pursue our business strategy; and
- the inability to commercialize any products that we may develop.

Although we maintain product liability insurance coverage, such insurance may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we expand our clinical trials or if we commence commercialization of our product candidates. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

We are subject to a variety of privacy and data security laws, and our failure to comply with them could harm our business.

We maintain a large quantity of sensitive information, including confidential business and personal information in connection with the conduct of our clinical trials and related to our employees, and 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, 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, which may affect our business and is expected to increase our compliance costs and exposure to liability. In the United States, numerous federal and state laws and regulations could apply to our operations or the operations of our partners, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws and regulations (e.g., Section 5 of the Federal Trade Commission Act), that govern the collection, use, disclosure and protection of health-related and other personal information. 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 the Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and 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.

In Europe, the General Data Protection Regulation, or GDPR, took effect in May 2018. The GDPR governs the collection, use, disclosure, transfer or other processing of personal data of individuals within the European Economic Area, or EEA, including clinical trial data. Among other things, the GDPR imposes requirements regarding the security of personal data and notification of data processing obligations to the competent national data processing authorities, requires having lawful bases on which personal data can be processed, requires changes to informed consent practices, and more detailed notices for clinical trial subjects and investigators. In addition, the GDPR increases the scrutiny of transfers of personal data from the EEA to the United States and other jurisdictions that the European Commission, or EU Commission, does not recognize as having "adequate" data protection laws. In July 2020, the Court of Justice of the European Union limited how organizations could lawfully transfer personal data from the EEA to the United States by invalidating the EU-U.S. Privacy Shield and imposing further restrictions on use of the standard contractual clauses, which could increase our costs and our ability to efficiently process personal data from the EEA. The GDPR imposes substantial fines for breaches and violations (up to the greater of €20 million or four percent (4%) of our consolidated annual worldwide gross revenue) and confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies and obtain compensation for damages resulting from violations of the GDPR. Relatedly, following the withdrawal of the United Kingdom, or U.K., from the EEA and the European Union, and the expiry of the transition period, which ended on January 1, 2021, companies have to comply with both the GDPR and the GDPR as incorporated into U.K. national law, the latter regime having the ability to separately fine up to the greater of £17.5 million or four percent (4%) of global turnover. On January 1, 2021, the U.K. became a third country for purposes of the GDPR.

The relationship between the U.K. and the European Union in relation to certain aspects of data protection law remains unclear. For example, it is unclear how data can lawfully be transferred between each jurisdiction, which exposes us to further compliance risk. Pursuant to the EU-U.K. Trade and Cooperation Agreement of December 24, 2020, transfers of personal data from the European Union to the U.K. may continue to take place without a need for additional safeguards during a further transition period, to expire on (1) the date on which an adequacy decision with respect to the U.K. is adopted by the EU Commission; or (2) the expiry of four (4) months, which shall be extended by a further two (2) months unless either the European Union or the U.K. objects. It remains unclear whether the EU Commission will adopt an adequacy decision with respect to the U.K. In the absence of such decision after the expiry of the additional transition period, we may need to put in place additional safeguards for transfers of personal data from the European Union to the U.K., such as standard contractual clauses approved by the EU Commission.

Compliance with these and any other applicable privacy and data security laws and regulations is a rigorous and time-intensive process, and we may be required to put in place additional mechanisms ensuring compliance with the new data protection rules. If we fail to comply with any such laws or regulations, we may face significant fines and penalties that could adversely affect our business, financial condition and results of operations. Further, 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. For example, California enacted the California Consumer Privacy Act, or CCPA, which took effect on January 1, 2020, became enforceable by the California Attorney General on July 1, 2020, and has been dubbed the first "GDPR-like" law in the United States. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, receive detailed information about how their personal information is used by requiring covered companies to provide new disclosures to California consumers (as that term is broadly defined) and provide such consumers new ways to opt-out of certain sales of personal information. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. Further, the California Privacy Rights Act, or CPRA, recently passed in California. The CPRA will impose additional data protection obligations on companies doing business in California, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data and opt outs for certain uses of sensitive data. It will also create a new California data protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. The majority of the provisions will go into effect on January 1, 2023, and additional compliance investment and potential business process changes may be required. Although the CCPA currently exempts certain health-related information, including clinical trial data, the CCPA and the CPRA may increase our compliance costs and potential liability. Similar laws have been proposed in other states and at the federal level, and, if passed, such laws may have potentially conflicting requirements that would make compliance challenging.

If we or any contract manufacturers and suppliers we engage fail to comply with environmental, health, and safety laws and regulations, we could become subject to fines or penalties or incur costs that could seriously harm our business.

We and any contract manufacturers and suppliers we engage are subject to numerous federal, state and local environmental, health, and safety laws, regulations and permitting requirements, including those governing laboratory

procedures; the generation, handling, use, storage, treatment and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air and water; and employee health and safety. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. We also could incur significant costs associated with civil or criminal fines and penalties.

Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our research, product development and manufacturing efforts. In addition, we cannot entirely eliminate the risk of accidental injury or contamination from these materials or wastes. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not carry specific biological or hazardous waste insurance coverage, and our property, casualty, and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended, which could seriously harm our business.

Risks Related to Our Dependence on Third Parties

We currently rely on CMOs to supply components of and manufacture ACU193. The loss of any of these CMOs or the failure of any of them to meet their obligations to us could affect our ability to develop ACU193 in a timely manner.

We do not own or operate manufacturing facilities and rely on a limited number of CMOs to manufacture our product candidates. We have entered into agreements with third-party CMOs to manufacture ACU193 and supply the Phase 1 clinical trial material, in compliance with applicable regulatory and quality standards. We intend to continue to rely on third-party CMOs to manufacture our clinical supply for the foreseeable future. Any replacement of a third-party CMO could require significant effort and expertise because there may be a limited number of qualified replacements. Any delays in obtaining adequate clinical supply that meets the necessary quality standards may delay our development or commercialization.

Our reliance on CMOs for manufacturing activities will reduce our control over these activities but will not relieve us of our responsibility to ensure compliance with all required regulations. Under certain circumstances, these CMOs may be entitled to terminate their engagements with us. If a CMO terminates its engagement with us, or does not successfully carry out its contractual duties, meet expected deadlines or manufacture ACU193 or any other product candidate that we develop in accordance with regulatory requirements, or if there are disagreements between us and a CMO, we may not be able to complete, or may be delayed in completing, the nonclinical studies required to support clinical trials required for approval of ACU193 or any other product candidate. In such instance, we may need to enter into an appropriate replacement third-party relationship, which may not be readily available or available on acceptable terms, which would cause additional delay or increased expense prior to the approval of ACU193 or any future product candidate and would thereby have a negative impact on our business, financial condition, results of operations and prospects.

We may rely on additional third parties to manufacture ingredients of our product candidates in the future and to perform quality testing. Reliance on CMOs and other third-party service providers entails risks to which we would not be subject if we manufactured the product candidates ourselves, including:

- reduced control for certain aspects of manufacturing activities;
- termination or nonrenewal of the applicable manufacturing and service agreements in a manner or at a time that is costly or damaging to us;
- the possible breach by our third-party manufacturers and service providers of our agreements with them;
- the failure of our third-party manufacturers and service providers to comply with applicable regulatory requirements;

- disruptions to the operations of our third-party manufacturers and service providers caused by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or service provider; and
- the possible misappropriation of our proprietary information, including our trade secrets and know-how.

Any of these events could lead to clinical trial delays or failure to obtain regulatory approval, impact our ability to successfully commercialize any of our product candidates or otherwise harm our business, financial condition, results of operations, stock price and prospects. Some of these events could be the basis for FDA or other regulatory authority action, including injunction, recall, seizure or total or partial suspension of product manufacture.

We intend to rely on CROs and other third parties to conduct, supervise and monitor a significant portion of our research and nonclinical testing and clinical trials for ACU193 or any future product candidates, and if those third parties do not successfully carry out their contractual duties, comply with regulatory requirements or otherwise perform satisfactorily, we may not be able to obtain regulatory approval or commercialize product candidates, or such approval or commercialization may be delayed, and our business may be substantially harmed.

We intend to engage CROs and other third parties to conduct our planned nonclinical studies or clinical trials, including INTERCEPT-AD and future clinical trials of ACU193, and to monitor and manage data. We expect to continue to rely on third parties, including clinical data management organizations, medical institutions and clinical investigators, in the future. Any of these third parties may terminate their engagements with us in accordance with the applicable contract, whether in the event of an uncured material breach or at any time for convenience. If any of our relationships with these third parties terminate, we may not be able to timely enter into arrangements with alternative third parties or to do so on commercially reasonable terms, if at all. Switching or adding CROs involves substantial cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we intend to carefully manage our relationships with our CROs, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

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

We rely on these parties for execution of our nonclinical studies and clinical trials and generally do not control their activities. 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, the FDA requires us to comply with GCPs, which are standards 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. If we or any of our CROs or other third parties, including trial sites, fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP conditions. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process, or may result in fines, adverse publicity and civil and criminal sanctions.

We also are required to register certain ongoing clinical trials and post the results of certain completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

In addition, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to

report some of these relationships to the FDA. The FDA may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the trial. The FDA may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA and may ultimately lead to the denial of marketing approval for ACU193 or any other product candidate we develop.

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

If any of our third-party manufacturers encounter difficulties in production of ACU193 or any future product candidate we develop, or fail to meet rigorously enforced regulatory standards, our ability to provide supply of our product candidates for clinical trials or, if approved, for commercial sale could be delayed or stopped, or we may be unable to maintain a commercially viable cost structure.

The processes involved in manufacturing ACU193 and any other product candidate we may develop are highly regulated and subject to multiple risks. As product candidates are developed through nonclinical studies to late-stage clinical trials towards approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods, are altered along the way in an effort to optimize processes and results. Such changes carry the risk that they will not achieve these intended objectives, and any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials. When changes are made to the manufacturing process, we may be required to provide preclinical and clinical data showing the comparable identity, strength, quality, purity or potency of the products before and after such changes. If microbial, viral or other contaminations are discovered at the facilities of our third-party manufacturers, such facilities may need to be closed for an extended period of time to investigate and remedy the contamination, which could delay clinical trials and adversely harm our business.

In order to conduct clinical trials of our product candidates, or supply commercial product candidates, if approved, we will need to manufacture them in both small and large quantities. We currently rely on third parties to manufacture ACU193 for clinical trial purposes, and our manufacturing partners will have to modify and scale-up the manufacturing process when we transition to commercialization of our product candidates. Our manufacturing partners may be unable to successfully modify or scale-up 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. If our manufacturing partners are unable to successfully scale-up the manufacture of our product candidates in sufficient quality and quantity, the development, testing and clinical trials of that product candidate may be delayed or become infeasible, and regulatory approval or commercial launch of any resulting product may be delayed or not obtained, which could significantly harm our business. The same risks would apply to our internal manufacturing facilities, should we in the future decide to build internal manufacturing capacity. In addition, building internal manufacturing capacity would carry significant risks in terms of being able to plan, design and execute on a complex project to build manufacturing facilities in a timely and cost-efficient manner.

In addition, the manufacturing process for any product candidates that we may develop is subject to FDA and foreign regulatory requirements and continuous oversight, and we will need to contract with manufacturers who can meet all applicable FDA and foreign regulatory authority requirements, including complying cGMPs on an ongoing basis. If we or our third-party manufacturers are unable to reliably produce product candidates in accordance with the requirements of the FDA or other regulatory authorities, we may not obtain or maintain the approvals we need to commercialize such product candidates. Even if we obtain regulatory approval for any of our product candidates, there is no assurance that either we or our third-party contract manufacturers will be able to manufacture the approved product in accordance with the requirements of the FDA or other regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential launch of the product, or to meet potential future demand. Any of these challenges could delay completion of clinical trials, require bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidate, impair commercialization efforts, increase our cost of goods and have an adverse effect on our business, financial condition, results of operations and growth prospects. Significant non-compliance could also result in the imposition of sanctions, including warning or untitled letters, fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approvals for our product candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of products, operating restrictions and criminal prosecutions, any of which could damage our reputation and our business.

We will likely seek collaborations with third parties for the development and commercialization of ACU193 or any future product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of those product candidates, including ACU193.

We will likely seek third-party collaborators for the development and commercialization of ACU193 and any of our future product candidates in the United States and may enter into collaboration agreements for the development and commercialization of any of our product candidates outside the United States. In the United States, commercialization partners are likely to include large biotechnology or pharmaceutical companies. Our likely collaborators outside the United States would most likely include regional and national pharmaceutical companies and biotechnology companies. If we enter into such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenue from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates would pose the following risks to us:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- we could grant exclusive rights to our collaborators that would prevent us from collaborating with others;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or drugs, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such products;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or termination of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our or their intellectual property rights or may use our or their proprietary information in such a way as to invite litigation that could jeopardize or invalidate such intellectual property or proprietary information or expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and
- collaborations may be terminated for the convenience of the collaborator and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. If any future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for any collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate. Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

We may not be able to negotiate additional collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of such product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate revenue.

We may be exposed to a variety of international risks that could materially adversely affect our business.

We may enter into agreements with third parties for the development and commercialization of product candidates in international markets. International business relationships will subject us to additional risks that may materially adversely affect our ability to attain or sustain profitable operations, including:

- differing regulatory requirements for product approvals internationally;
- potentially reduced protection for intellectual property rights;
- potential third-party patent rights in countries outside of the United States;
- the potential for so-called "parallel importing," which is what occurs when a local seller, faced with relatively high local prices, opts to import goods from another jurisdiction with relatively low prices, rather than buying them locally;
- pricing pressure and differing reimbursement regimes:
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, or political instability, particularly in non-U.S. economies and markets, including several countries in Europe;
- compliance with tax, employment, immigration and labor laws for employees traveling abroad;
- taxes in other countries;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in 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, or natural disasters, including earthquakes, volcanoes, typhoons, pandemics, epidemics, floods, hurricanes and fires.

If we engage in acquisitions, we will incur a variety of costs and we may never realize the anticipated benefits of such acquisitions.

Although we currently have no plans to do so, we may attempt to acquire businesses, technologies or drug candidates that we believe are a strategic fit with our business. If we do undertake any acquisitions, the process of integrating an acquired business, technology or drug candidates into our business may result in unforeseen operating difficulties and expenditures, including diversion of resources and management's attention from our core business. In addition, we may fail to retain key executives and employees of the companies we acquire, which may reduce the value of the acquisition or give rise to additional integration costs. Future acquisitions could result in additional issuances of equity securities that would dilute the ownership of existing stockholders.

Future acquisitions could also result in the incurrence of debt, contingent liabilities or the amortization of expenses related to other intangible assets, any of which could adversely affect our operating results. In addition, we may fail to realize the anticipated benefits or synergies of any acquisition.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain sufficient intellectual property protection for our product candidate, and any other proprietary technologies we develop, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our product candidate, and other proprietary technologies if approved, may be adversely affected.

Our commercial success will depend in part on our ability to obtain and maintain a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidate, and other proprietary technologies we may develop. If we are unable to obtain or maintain patent protection with respect to our product candidate, and any other proprietary technologies we may develop, our business, financial condition, results of operations and prospects could be materially harmed.

The patent position of biotechnology and pharmaceutical companies is highly uncertain and involves complex legal, scientific and factual questions and has been the subject of frequent litigation in recent years. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our patent applications may not result in patents being issued that protect our product candidate and other proprietary technologies we may develop or that effectively prevent others from commercializing competitive technologies and products. Further, no consistent policy regarding the breadth of claims allowed in pharmaceutical patents has emerged to date in the United States or in many jurisdictions outside of the United States. Changes in either the patent laws or interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be enforced in the patents that may be issued from the applications we may own or license from third parties. Further, if any patents we obtain or license are deemed invalid and unenforceable, our ability to commercialize or license our technology could be adversely affected.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or any of our actual or potential future collaborators will be successful in protecting our product candidate and other proprietary technologies and their uses by obtaining, defending and enforcing patents. These risks and uncertainties include the following:

- the United States Patent and Trademark Office, or USPTO, and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process, the noncompliance with which can result in abandonment or lapse of a patent or patent application, and partial or complete loss of patent rights in the relevant jurisdiction;
- patent applications may not result in any patents being issued;
- issued patents may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable, or may otherwise not provide any competitive advantage;
- our competitors, many of whom have substantially greater resources than we do and many of whom have made significant investments in competing technologies, may seek or may have already obtained patents that will limit, interfere with, or eliminate our ability to make, use and sell our product candidate;
- other parties may have designed around our claims or developed technologies that may be related or competitive to ours, may have filed or may file patent applications and may have received or may receive patents that overlap or conflict with our patent applications and/or patents, either by claiming the same

composition of matter, methods or formulations or by claiming subject matter that could dominate our patent position;

- any successful opposition to any patents owned by or licensed to us could deprive us of rights necessary for the practice of our technologies or the successful commercialization of any product candidate that we may develop;
- because patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we or our licensors were the first to file any patent application related to our product candidate and other proprietary technologies and their uses;
- an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of any application with an effective filing date before March 16, 2013;
- there may be significant pressure on the U.S. government and international governmental bodies to limit the scope of patent protection both inside and outside the United States for disease treatments that prove successful, as a matter of public policy regarding worldwide health concerns; and
- countries other than the United States may have patent laws less favorable to patentees than those upheld by U.S. courts, allowing foreign competitors a better opportunity to create, develop, and market competing product candidate in those countries.

The patent prosecution process is expensive, time-consuming and complex, and we may not be able to file, prosecute or maintain all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties, any of these parties may breach such agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection for such output. In addition, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our inventions and the prior art allow our inventions to be patentable over the prior art. Further, 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.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. If we do not adequately protect our intellectual property and proprietary technology, competitors may be able to use our product candidate and other proprietary technologies and erode or negate any competitive advantage we may have, which could have a material adverse effect on our financial condition and results of operations. For example:

- others may be able to make compounds that are similar to our product candidate but that are not covered by the claims of our patents;
- we might not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies;
- any patents that we obtain may not provide us with any competitive advantages;
- we may not develop additional proprietary technologies that are patentable;
- our competitors might conduct research and development activities in countries where we do not have patent rights or where patent protection is weak and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we cannot ensure that we will be able to successfully commercialize our product candidate on a substantial scale, if approved, before the relevant patents that we own or license expire; or
- the patents of others may have an adverse effect on our business.

Others have filed, and in the future are likely to file, patent applications covering products and technologies that are similar, identical or competitive to ours or important to our business. We cannot be certain that any patent application owned by a

third party will not have priority over patent applications filed or in-licensed by us, or that we or our licensors will not be involved in interference, opposition or invalidity proceedings before U.S. or non-U.S. patent offices.

We cannot be certain that claims in an issued patent covering our product candidate will be considered patentable by the USPTO, courts in the United States, or by patent offices and courts in foreign countries. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property internationally.

The strength of patents in the biotechnology and pharmaceutical fields involves complex legal and scientific questions and can be uncertain. Patent applications that we file or in-license may fail to result in issued patents with claims that cover our product candidate in the United States or in foreign countries. Even if such patents do successfully issue, third parties may challenge the ownership, validity, enforceability, or scope thereof, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful opposition to our patents could deprive us of exclusive rights necessary for the successful commercialization of our product candidate. Further, even if they are unchallenged, our patents may not adequately protect our intellectual property, provide exclusivity for our product candidate or prevent others from designing around our claims. If the breadth or strength of protection provided by our patents with respect to our product candidate is threatened, it could dissuade companies from collaborating with us to develop, or threaten our ability to commercialize, our product candidate.

For U.S. patent applications in which claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our participation in an interference proceeding may fail and, even if successful, may result in substantial costs and distract our management and other employees.

For U.S. patent applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law. In September 2011, the Leahy-Smith America Invents Act, or America Invents Act, was signed into law. The America Invents Act includes a number of significant changes to U.S. patent law, including provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. The USPTO is developing regulations and procedures to govern the administration of the America Invents Act, and many of the substantive changes to patent law associated with the America Invents Act, and in particular, the “first to file” provisions, were enacted on March 16, 2013. This will require us to be cognizant going forward of the time from invention to filing of a patent application and be diligent in filing patent applications, but circumstances could prevent us from promptly filing patent applications on our inventions. It remains unclear what impact the America Invents Act will have on the operation of our business.

As such, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

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

The term of any individual patent depends on applicable law in the country where the patent is granted. In the United States, provided all maintenance fees are timely paid, a patent generally has a term of 20 years from its application filing date or earliest claimed non-provisional filing date. Extensions may be available under certain circumstances, but the life of a patent and, correspondingly, the protection it affords is limited. When the terms of all patents covering our product candidate expire, our business may become subject to competition from competitive products, including biosimilar version of our products.

Our product candidate is protected by patents covering the composition of matter and methods of using ACU193. The patents in this portfolio are predicted to expire in 2031 without taking into account any possible extensions and assuming payment of all appropriate maintenance, renewal, annuity, or other governmental fees. We cannot be certain that we will file and, if filed, obtain patent protection for our product candidate beyond our rights in the current ACU193 patent portfolio. If we are unable to obtain additional patent protection on ACU193, our primary protection from biosimilar market entry will be limited to regulatory biologic exclusivity.

If we do not obtain patent term extension for our product candidate our business may be materially harmed.

Depending upon the timing, duration, and specifics of any FDA marketing approval of our product candidate, one or more patents issuing from U.S. patent applications that we file or license may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984, or Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent extension term, or PTE, 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. Similar patent term restoration provisions to compensate for commercialization delay caused by regulatory review are also available in certain foreign jurisdictions, such as in Europe under Supplemental Protection Certificate, or SPC. If we encounter delays in our development efforts, including our future clinical trials, the period of time during which we could market our product candidate under patent protection would be reduced. Additionally, we may not receive an extension if we fail to apply within applicable deadlines, fail to apply prior to expiration of relevant patents, or otherwise fail 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 restoration, or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration, and our revenue could be reduced.

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

Licensing of intellectual property rights is of critical importance to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property rights subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property rights of the licensor that are not subject to the license agreement;
- our right to sublicense intellectual property rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidate, and what activities satisfy those diligence obligations; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

If disputes over intellectual property rights that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms and/or to secure our rights to the licensed intellectual property, our business, results of operations, financial condition, and prospects may be adversely affected. We may enter into additional licenses in the future and, if we fail to comply with obligations under those agreements, we could suffer adverse consequences.

We were a party to a collaboration agreement with Merck to research, discover and develop certain technology related to amyloid beta-derived diffusible ligands, or ADDLs. This collaboration was initiated in 2003 and was later terminated by Merck in 2011. During the collaboration, ACU193, an ADDL-binding antibody, was developed and intellectual property was filed by Merck. Under the surviving provisions of the collaboration agreement, Merck exclusively licensed Merck's interest in patent rights claiming ADDL antibodies, ADDL antigens and/or products to Acumen. If a dispute were to arise in the future as to our rights to the intellectual property under the agreement, our ability to commercialize ACU193 may be jeopardized.

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

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent process. Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on any issued patents and/or applications are due to be paid to the

USPTO and foreign patent agencies in several stages over the lifetime of the patents and/or applications. We have systems in place to remind us to pay these fees, and we employ outside counsel to pay these fees due to foreign patent agencies. While an inadvertent lapse may sometimes be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market with similar or identical products or technology earlier than should otherwise have been the case, which would have a material adverse effect on our business, financial condition, results of operations and prospects.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect our product candidate.

As is the case with other biotechnology and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly on obtaining and enforcing patents. Our patent rights may be affected by developments or uncertainty in U.S. or foreign patent statutes, patent case law, USPTO rules and regulations or the rules and regulations of foreign patent offices. Obtaining and enforcing patents in the biotechnology and pharmaceutical industry involve both technological and legal complexity, and are therefore costly, time-consuming and inherently uncertain. In addition, the United States may, at any time, enact changes to U.S. patent law and regulations, including by legislation, by regulatory rule-making, or by judicial precedent, that adversely affect the scope of patent protection available and weaken the rights of patent owners to obtain patents, enforce patent infringement and obtain injunctions and/or damages. For example, the scope of patentable subject matter under 35 U.S.C. 101 has evolved significantly over the past several years as the Court of Appeals for the Federal Circuit and the Supreme Court issued various opinions, and the USPTO modified its guidance for practitioners on multiple occasions. Other countries may likewise enact changes to their patent laws in ways that adversely diminish the scope of patent protection and weaken the rights of patent owners to obtain patents, enforce patent infringement and obtain injunctions and/or damages.

Further, the United States and other governments may, at any time, enact changes to law and regulation that create new avenues for challenging the validity of issued patents. For example, the America Invents Act created new administrative post-grant proceedings, including post-grant review, inter partes review, and derivation proceedings that allow third parties to challenge the validity of issued patents. This applies to all of our U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

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

Patents are of national or regional effect. Filing, prosecuting and defending patents on our product candidate, and other proprietary technologies we develop in all countries throughout the world would be prohibitively expensive. In addition, the laws of some foreign countries do not protect intellectual property rights in the same manner and to the same extent as laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement of such patent protection is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

The requirements for patentability may differ in certain countries. For example, unlike other countries, China has a heightened requirement for patentability, and specifically requires a detailed description of medical uses of claimed drug. In India, unlike the United States, there is no link between regulatory approval for a drug and its patent status. In addition to India, certain countries in Europe and developing countries, including China, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, some countries limit the enforceability of patents against government agencies or government contractors.

In those countries, we may have limited remedies if patents are infringed or if we are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities.

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

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 or pharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally.

Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, and 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.

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

We may be subject to claims that former employees (including former employees of our licensors), collaborators or other third parties have an interest in our patents rights, trade secrets, or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. For example, we may have inventorship disputes arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing our product candidate or as a result of questions regarding co-ownership of potential joint inventions. Litigation may be necessary to resolve these and other claims challenging inventorship and/or ownership. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business, financial condition, results of operations and prospects. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We may not be successful in obtaining or maintaining necessary rights to product components and processes for our development pipeline through in-licenses.

Presently we have intellectual property rights to our product candidate through a license from Merck. We also have an intellectual property license through a license with Northwestern University, or Northwestern, and, if this agreement remains in place, we could be required to pay low single digit royalties to Northwestern in the future. We entered into a single product license agreement with Lonza Sales AG on November 2, 2022, for non-exclusive access to Lonza's glutamine synthetase gene expression system known as the GS System®, to use, develop and manufacture ACU193. Because our program may require the use of additional proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, our product candidate may require specific formulations to work effectively and efficiently and these rights may be held by others. We may be unable to acquire or in-license, on reasonable terms, proprietary rights related to any compositions, formulations, methods of use, processes or other intellectual property rights from third parties that we identify as being necessary for our product candidate. Even if we are able to obtain a license to such proprietary rights, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

Where we obtain licenses from or collaborate with third parties, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain or enforce the patents, covering technology that we license from third parties, or such activities, if controlled by us, may require the input of such third parties. If any of our licensors or collaboration partners fail to prosecute, maintain and enforce such patents and patent applications in a manner consistent with the best interests of our business, including by payment of all applicable fees for patents covering our product candidate, we could lose our rights to the intellectual property or our exclusivity with respect to those rights, our ability to develop and commercialize our product candidate may be adversely affected and we may not be able to prevent

competitors from making, using and selling competing products. In addition, even where we have the right to control patent prosecution of patents and patent applications we have licensed from third parties, we may still be adversely affected or prejudiced by actions or inactions of our licensors and their counsel that took place prior to the date upon which we assumed control over patent prosecution. We may also require the cooperation of our licensors and collaborators to enforce any licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business, or in compliance with applicable laws and regulations, which may affect the validity and enforceability of such patents or any patents that may issue from such application.

Moreover, we will likely have obligations under our current or future licenses, including making royalty and milestone payments, and any failure to satisfy those obligations could give our licensor the right to terminate the license. Termination of a necessary license, or expiration of licensed patents or patent applications, could have a material adverse impact on our business. Our business would suffer if any such licenses terminate, if the licensors fail to abide by the terms of the license, if the licensors fail to enforce licensed patents against infringing third parties, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms. Further, if any licenses terminate, or if the underlying patents fail to provide the intended exclusivity, competitors or other third parties may gain the freedom to seek regulatory approval of, and to market, products identical or similar to ours. Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights. In addition, while we cannot currently determine the amount of the royalty obligations we would be required to pay on sales of future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

The licensing and acquisition of third-party proprietary rights is a competitive area, and other companies, which may be more established or have greater resources than we do, may also be pursuing strategies to license or acquire third-party proprietary rights that we may consider necessary or attractive in order to commercialize our product candidate. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

For example, we have collaborated and may in the future collaborate with U.S. and foreign academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate an exclusive license to any of the institution's proprietary rights in technology resulting from the collaboration. Regardless of such option to negotiate a license, we may be unable to negotiate a license within the specified time frame or under terms that are acceptable to us. If we are unable to do so, the institution may offer, on an exclusive basis, their proprietary rights to other parties, potentially blocking our ability to pursue our program. In addition, disputes may arise under our existing or future license agreements with these institutions or with other counterparties which may, among other things, lead to the termination or renegotiation of these agreements, or otherwise require us to incur significant financial obligations.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us, either on reasonable terms, or at all. 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 on commercially reasonable terms, our ability to commercialize our products, and our business, financial condition, and prospects for growth, could suffer.

Third-party claims alleging intellectual property infringement may prevent or delay our drug discovery and development efforts.

Our success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation, both within and outside the United States, involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including inter partes review, interference and reexamination proceedings before the USPTO, or oppositions and other comparable proceedings in foreign jurisdictions. The America Invents Act introduced new procedures including inter partes review and post grant review. The implementation of these procedures brings uncertainty to the possibility of challenges to our patents in the future and the outcome of such challenges. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product

candidate. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our activities related to our product candidate may give rise to claims of infringement of the patent rights of others.

The pharmaceutical and biotechnology industries have produced a proliferation of patents, and it is not always clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. We cannot assure you that any of our current or future product candidates will not infringe existing or future patents. We may not be aware of patents that have already issued that a third party might assert are infringed by one of our current or future product candidates.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents of which we are currently unaware with claims to materials, compositions, formulations, methods of manufacture or methods for treatment related to our product candidate, or the use or manufacture of our product candidate. Because patent applications can take many years to issue and may be confidential for 18 months or more after filing, there may be currently pending third-party patent applications which may later result in issued patents that our product candidate, and other proprietary technologies may infringe, or which such third parties claim are infringed by the use of our technologies. Parties making claims against us for infringement or misappropriation of their intellectual property rights may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidate. Defense of these claims, regardless of their merit, could involve substantial expenses and could be a substantial diversion of management and other employee resources from our business.

If we collaborate with third parties in the development of technology in the future, our collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to litigation or potential liability. Further, collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability. In the future, we may agree to indemnify our commercial collaborators against certain intellectual property infringement claims brought by third parties.

Responding to any claims of patent infringement asserted by third parties would be time-consuming and could:

- result in costly litigation;
- divert the time and attention of our technical personnel and management;
- cause development delays;
- prevent us from commercializing our product candidate until the asserted patent expires or is finally held invalid, unenforceable, or not infringed in a court of law;
- require us to develop non-infringing technology, which may not be possible on a cost-effective basis;
- require us to pay damages to the party whose intellectual property rights we may be found to be infringing, which may include treble damages if we are found to have been willfully infringing such intellectual property;
- require us to pay the attorney’s fees and costs of litigation to the party whose intellectual property rights we may be found to be willfully infringing; and/or
- require us to enter into royalty or license agreements, which may not be available on commercially reasonable terms, or at all.

If we are sued for patent infringement, we would need to demonstrate that our products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do either. Proving invalidity or unenforceability is difficult. For example, in the United States, proving invalidity before federal courts requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and divert management’s time and attention in pursuing these proceedings, which could have a material adverse effect on us. If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, which may not be available, defend an infringement action or challenge the validity or enforceability of the patents in court. Patent litigation is costly and time-consuming. We may not have sufficient resources to bring these actions to a successful conclusion. In addition, if we do not obtain a license, develop or obtain non-infringing technology, fail to defend an infringement action successfully or have infringed patents declared invalid or unenforceable, we may incur substantial monetary damages, encounter significant delays in bringing our product candidate to market and be precluded from developing, manufacturing or selling our product candidate.

We do not always conduct independent reviews of pending patent applications of and patents issued to third parties. We cannot be certain that any of our or our licensors' patent searches or analyses, including but not limited to the identification of relevant patents, analysis of the scope of relevant patent claims or determination of the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States, Europe and elsewhere that is relevant to or necessary for the commercialization of our product candidate in any jurisdiction, because:

- some patent applications in the United States may be maintained in secrecy until the patents are issued;
- patent applications in the United States and elsewhere can be pending for many years before issuance, or unintentionally abandoned patents or applications can be revived;
- pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our technologies, our product candidate or their uses;
- identification of third-party patent rights that may be relevant to our technology is difficult because patent searching is imperfect due to differences in terminology among patents, incomplete databases and the difficulty in assessing the meaning of patent claims;
- patent applications in the United States are typically not published until 18 months after the priority date; and
- publications in the scientific literature often lag behind actual discoveries.

Further, the scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history and can involve other factors such as expert opinion. Our interpretation of the relevance or the scope of claims in a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. Further, we may incorrectly determine that our technologies or product candidate are not covered by a third party patent or may incorrectly predict whether a third party's pending patent application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or internationally that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our products or product candidate.

Our competitors may have filed, and may in the future file, patent applications covering technology similar to ours, and others may have or obtain patents or proprietary rights that could limit our ability to make, use, sell, offer for sale or import our product candidate or future products or impair our competitive position. Numerous third-party U.S. and foreign issued patents and pending patent applications exist in the fields in which we are developing our product candidate. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidate. Any such patent application may have priority over one of our patent applications, which could further require us to obtain rights to issued patents covering such technologies. If another party has filed a U.S. patent application on inventions similar to ours, we may have to participate in an interference proceeding declared by the USPTO to determine priority of invention in the United States. The costs of these proceedings could be substantial, and it is possible that such efforts would be unsuccessful if, unbeknownst to us, the other party had independently arrived at the same or similar invention prior to our own invention, resulting in a loss of our U.S. patent position with respect to such inventions. Other countries have similar laws that permit secrecy of patent applications and may be entitled to priority over our applications in such jurisdictions.

Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations.

If a third party prevails in a patent infringement lawsuit against us, we may have to stop making and selling the infringing product, pay substantial damages, including treble damages and attorneys' fees if we are found to be willfully infringing a third party's patents, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure.

We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Further, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidate. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidate, which could harm our business significantly. Even if we were able to obtain a license, the rights may be nonexclusive, which may give our competitors access to the same intellectual property.

We may be subject to claims that we have wrongfully hired an employee from a competitor or that we or our employees have wrongfully used or disclosed alleged confidential information or trade secrets of their former employers.

As is common in the biotechnology and pharmaceutical industries, in addition to our employees, we engage the services of consultants to assist us in the development of our product candidate, and other proprietary technologies. Many of these consultants, and many of our employees, were previously employed at, or may have previously provided or may be currently providing consulting services to, other pharmaceutical companies including our competitors or potential competitors. We may become subject to claims that we, our employees or a consultant inadvertently or otherwise used or disclosed trade secrets or other information proprietary to their former employers or their former or current clients. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could adversely affect our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to our management team and other employees.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming, and unsuccessful. Further, our issued patents could be found invalid or unenforceable if challenged in court, and we may incur substantial costs as a result of litigation or other proceedings relating to patent and other intellectual property rights.

Third parties including competitors may infringe, misappropriate or otherwise violate our patents, patents that may issue to us in the future, or the patents of our licensors that are licensed to us. To counter infringement or unauthorized use, we may need to or choose to file infringement claims, which can be expensive and time-consuming. We may not be able to prevent, alone or with our licensors, infringement, misappropriation, or other violation of our intellectual property, particularly in countries where the laws may not protect those rights as fully as in the United States, or if we require, but do not receive, the consent or cooperation of our licensors to enforce such intellectual property.

If we choose to go to court to stop another party from using the inventions claimed in our patents, that individual or company has the right to ask the court to rule that such patents are invalid, unenforceable, or should not be enforced against that third party for any number of reasons. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge include an alleged failure to meet any of several statutory requirements for patentability, including lack of novelty, obviousness, lack of written description, indefiniteness or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution, i.e., committed inequitable conduct. Third parties may also raise similar claims before the USPTO, even outside the context of litigation. Similar mechanisms for challenging the validity and enforceability of a patent exist in foreign patent offices and courts and may result in the revocation, cancellation, or amendment of any foreign patents we or our licensors hold now or in the future. The outcome following legal assertions of invalidity and unenforceability is unpredictable, and prior art could render our patents or those of our licensors invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on such product candidate. Such a loss of patent protection would have a material adverse impact on our business.

Interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms or at all, or if a non-exclusive license is offered and our competitors gain access to the same technology. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise the funds necessary to conduct our future clinical trials, continue our research programs, license necessary technology from third parties, or enter into development or manufacturing partnerships that would help us bring our product candidate to market.

We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace. Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments and if securities analysts

or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. Further, 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.

Our ability to enforce our patent rights depends on our ability to establish standing in a court of competent jurisdiction. Whether a patent holder or licensee of a patent has standing can be uncertain and the considerations complex. However, if a licensor is required to be joined, and they are unwilling to do so, we may be unable to proceed with an infringement action.

Our ability to enforce our patent rights depends on our ability to detect infringement. It may be difficult to detect infringers who do not advertise the components or methods that are used in connection with their products and services. Moreover, it may be difficult or impossible to obtain evidence of infringement in a competitor's or potential competitor's product or service. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded if we were to prevail may not be commercially meaningful.

Because of the expense and uncertainty of litigation, we may not be in a position to enforce our intellectual property rights against third parties.

Because of the expense and uncertainty of litigation, we may conclude that even if a third party is infringing our issued patent or patents that may issue from patent applications or other intellectual property rights, the risk-adjusted cost of bringing and enforcing such a claim or action may be too high or not in the best interest of our company or our stockholders. In such cases, we may decide that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

We rely on trade secrets to protect our proprietary technologies, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. We rely in part on confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers, and/or other advisors, and inventions agreements with employees, consultants, and advisors, to protect our trade secrets and other proprietary information. In addition to contractual measures, we try to protect the confidential nature of our proprietary information using commonly accepted physical and technological security measures. Despite these efforts, we cannot provide any assurances that all such agreements have been duly executed, and these agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover our trade secrets and proprietary information. For example, the FDA, as part of its Transparency Initiative, is currently considering whether to make additional information publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA's disclosure policies may change in the future, if at all. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

In addition, such security measures may not provide adequate protection for our proprietary information, for example, in the case of misappropriation of a trade secret by an employee, consultant, customer, or third party with authorized access. Our security measures may not prevent an employee, consultant or customer from misappropriating our trade secrets and providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. Unauthorized parties may also attempt to copy or reverse engineer certain aspects of our products that we consider proprietary. Even though we use commonly accepted security measures, the criteria for protection of trade secrets can vary among different jurisdictions.

Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. Moreover, third parties may still obtain this information or may come upon this or similar information independently, and we would have no right to prevent them from using that technology or information

to compete with us. Trade secrets will over time be disseminated within the industry through independent development, the publication of journal articles, and the movement of personnel skilled in the art from company to company or academic to industry scientific positions. Though our agreements with third parties typically restrict the ability of our advisors, employees, collaborators, licensors, suppliers, third-party contractors, and/or consultants to publish data potentially relating to our trade secrets, our agreements may contain certain limited publication rights. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Because from time to time we expect to rely on third parties in the development, manufacture, and distribution of our products and provision of our services, we must, at times, share trade secrets with them. Despite employing the contractual and other security precautions described above, the need to share trade secrets increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. If any of these events occurs or if we otherwise lose protection for our trade secrets, the value of this information may be greatly reduced and our competitive position would be harmed. If we do not apply for patent protection prior to such publication or if we cannot otherwise maintain the confidentiality of our proprietary technology and other confidential information, then our ability to obtain patent protection or to protect our trade secret information may be jeopardized.

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

Our trademarks or trade names, once registered, may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. We may license our trademarks and trade names to third parties, such as distributors. Though these license agreements may provide guidelines for how our trademarks and trade names may be used, a breach of these agreements or misuse of our trademarks and tradenames by our licensees may jeopardize our rights in or diminish the goodwill associated with our trademarks and trade names. Our efforts to enforce or protect our proprietary rights related to trademarks, trade names, trade secrets, domain names, copyrights, or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our financial condition or results of operations.

Moreover, any names we may propose to use with our 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 potential for confusion with other product names. If the FDA (or an equivalent administrative body in a foreign jurisdiction) objects to any of our proposed proprietary product names, it may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties, and be acceptable to the FDA. Similar requirements exist in Europe. Further, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. 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.

Any collaboration arrangements that we may enter into in the future may not be successful, which could adversely affect our ability to develop and commercialize our future products.

Any future collaborations that we enter into may not be successful. The success of our collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Collaborations are subject to numerous risks, which may include that:

- collaborators have significant discretion in determining the efforts and resources that they will apply to collaborations;
- collaborators may not pursue development and commercialization of our products or may elect not to continue or renew development or commercialization programs based on trial or test results, changes in their strategic focus due to the acquisition of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidate;
- a collaborator with marketing, manufacturing and distribution rights to one or more products may not commit sufficient resources to or otherwise not perform satisfactorily in carrying out these activities;
- we could grant exclusive rights to our collaborators that would prevent us from collaborating with others;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that causes the delay or termination of the research, development, or commercialization of our current or future products or that results in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated, and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable current or future products;
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we would not have the exclusive right to develop or commercialize such intellectual property; and
- a collaborator's sales and marketing activities or other operations may not be in compliance with applicable laws resulting in civil or criminal proceedings.

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

Some of our patents may have been generated through the use of U.S. government funding, and we may acquire or license in the future intellectual property rights that have been generated through the use of U.S. government funding or grants. Pursuant to the Bayh-Dole Act of 1980, the U.S. government has certain rights in inventions developed with government funding. These U.S. government rights include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right, under certain limited circumstances, to require us to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (1) adequate steps have not been taken to commercialize the invention; (2) government action is necessary to meet public health or safety needs; or (3) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). If the U.S. government exercised its march-in rights in our existing or future intellectual property rights that are generated through the use of U.S. government funding or grants, we could be forced to license or sublicense intellectual property developed by us or that we license on terms unfavorable to us, and there can be no assurance that we would receive compensation from the U.S. government for the exercise of such rights. The U.S. government also has the right to take title to these inventions if the grant recipient fails to disclose the invention to the government or fails to file an application to register the intellectual property within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us to expend substantial resources. In addition, the U.S. government requires that any products embodying any of these inventions or produced through the use of any of these inventions be manufactured substantially in the United States. This preference for U.S. industry may be waived by the federal agency that provided the funding if the owner or assignee of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. industry may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property.

Risks Related to Legal and Regulatory Compliance Matters

Our relationships with customers, healthcare providers, including physicians, and third-party payors are subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, and other healthcare laws and regulations. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

Healthcare providers, including 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 marketing approval. Our current and future arrangements with healthcare professionals, principal investigators, consultants, customers and third-party payors subject us to various federal and state fraud and abuse laws and other healthcare laws, including, without limitation, the federal Anti-Kickback Statute, the federal civil and criminal false claims laws and the law commonly referred to as the Physician Payments Sunshine Act and regulations promulgated under such laws. These laws will impact, among other things, our clinical research, proposed sales, marketing and educational programs, and other interactions with healthcare professionals. In addition, we may be subject to patient privacy laws by both the federal government and the states in which we conduct or may conduct our business. The laws that will affect our operations include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, individuals or entities from knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind in return for, or to induce, either the referral of an individual, or the purchase, lease, order or arrangement for or recommendation of the purchase, lease, order or arrangement for any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. The term “remuneration” has been broadly interpreted to include anything of value. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly. Practices that involve remuneration that may be alleged to be intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor. A person does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation;
- the federal civil and criminal false claims laws, including, without limitation, the federal False Claims Act, which can be enforced by private citizens through civil whistleblower or qui tam actions, and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from the federal government, including Medicare, Medicaid and other government payors, that are false or fraudulent or knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim or to avoid, decrease or conceal an obligation to pay money to the federal government. A claim includes “any request or demand” for money or property presented to the U.S. federal government. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of products for unapproved, and thus non-reimbursable, uses. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act;
- HIPAA, which created additional federal criminal statutes that prohibit, among other things, a person from knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors 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 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 and their implementing regulations, also imposes obligations, including mandatory contractual terms, on “covered entities,” including certain healthcare providers, health plans, healthcare clearinghouses, and their respective “business associates,” that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity as well as their covered subcontractors, with respect to safeguarding the privacy, security and transmission of individually identifiable health information, as well as analogous state and foreign laws that govern the privacy and security of health information in some circumstances, many of

which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts;

- the federal transparency laws, including the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, medical devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the State Children's Health Insurance Program, with specific exceptions, to report annually to CMS information related to: (i) payments or other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare professionals (such as physician assistants and nurse practitioners) and teaching hospitals, and (ii) ownership and investment interests held by physicians and their immediate family members; and
- analogous state and foreign laws and regulations; state laws that require manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers, marketing expenditures or drug pricing; 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 that otherwise restrict payments that may be made to healthcare providers; and state and local laws that require the registration of pharmaceutical sales representatives.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations 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 penalties, including, without limitation, civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participating in federal and state funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, contractual damages, diminished profits and future earnings, reputational harm and the curtailment or restructuring of our operations, any of which could harm our business.

The risk of our being found in violation of these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

Even if we obtain regulatory approval for ACU193 or any future product candidates, they will remain subject to ongoing regulatory oversight, which may result in significant additional expense.

Even if we obtain any regulatory approval for ACU193 or any future product candidates, such product candidates will be subject to ongoing regulatory requirements applicable to research, development, testing, manufacturing, labeling, packaging, storage, advertising, promoting, sampling, record-keeping and submission of safety and other post-market information, among other things. Any regulatory approvals that we receive for ACU193 or any future product candidates may also be subject to REMS, limitations on the approved indicated uses for which the drug may be marketed or to the conditions of approval or requirements that we conduct potentially costly post-marketing testing and surveillance studies, including Phase 4 trials and surveillance to monitor the quality, safety and efficacy of the drug. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of marketing approval. We will further be required to immediately report any serious and unexpected adverse events and certain quality or production problems with our products to regulatory authorities along with other periodic reports. Any new legislation addressing drug safety issues could result in delays in product development or commercialization, or increased costs to assure compliance. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

In addition, drug manufacturers are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements and adherence to commitments made in the BLA or foreign marketing application. If we, or a regulatory authority, discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured or if a regulatory authority disagrees with the promotion, marketing or labeling of that drug, a regulatory authority may impose restrictions relative to that drug, the manufacturing facility or us, including requesting a recall or requiring withdrawal of the drug from the market or suspension of manufacturing.

If we fail to comply with applicable regulatory requirements following approval of ACU193 or any future product candidates, a regulatory authority may:

- issue an untitled letter or warning letter asserting that we are in violation of the law;
- seek an injunction or impose administrative, civil or criminal penalties or monetary fines;
- issue a safety alert, Dear Healthcare Provider letter, press release or other communication containing warnings or safety information about the product;
- mandate corrections to promotional materials and labeling or issuance of corrective information;
- suspend or withdraw regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve a pending marketing application or supplement to an approved application or comparable foreign marketing application (or any supplements thereto) submitted by us or our strategic partners;
- restrict the marketing or manufacturing of the drug;
- seize or detain the drug or otherwise require the withdrawal of the drug from the market;
- refuse to permit the import or export of products or product candidates; or
- refuse to allow us to enter into supply contracts, including government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our ability to commercialize ACU193 or any future product candidates and harm our business, financial condition, results of operations and prospects.

Even if we obtain FDA approval any of our product candidates in the United States, we may never obtain approval for or commercialize any of them in any other jurisdiction, which would limit our ability to realize their full market potential.

In order to market any products in any particular jurisdiction, we must establish and comply with numerous and varying regulatory requirements on a country-by-country basis regarding safety and efficacy.

Approval by the FDA in the United States does not ensure approval by regulatory authorities in other countries or jurisdictions. However, the failure to obtain approval in one jurisdiction may negatively impact our ability to obtain approval elsewhere. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country.

Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

Seeking foreign regulatory approval could result in difficulties and increased costs for us and require additional nonclinical studies or clinical trials which could be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our products in those countries. We do not have any product candidates approved for sale in any jurisdiction, including in international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, our

target market will be reduced and our ability to realize the full market potential of any product we develop will be unrealized.

Healthcare legislative or regulatory reform measures may have a negative impact on our business and results of operations.

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect our ability to profitably sell any product candidates for which we obtain marketing approval.

Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. For example, in March 2010, the ACA was passed, which substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things: (i) established an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs; (ii) expanded the entities eligible for discounts under the 340B drug pricing program; (iii) increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP; (iv) expanded the eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new eligibility categories for individuals with income at or below 133% (as calculated, it constitutes 138%) of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability; (v) addressed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for certain drugs and biologics that are inhaled, infused, instilled, implanted or injected; (vi) introduced a new Medicare Part D coverage gap discount program in which manufacturers must now agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D (increased from 50%, effective January 1, 2019, pursuant to the Bipartisan Budget Act of 2018); (vii) 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 (viii) established the Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug.

There have been executive, judicial and congressional challenges to certain aspects of the ACA. While Congress has not passed comprehensive repeal legislation, several bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or the Tax Act, included a provision that repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." 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. Prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period from February 15, 2021 through May 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. Further, on August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (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 through a newly established manufacturer discount program. It is possible that the ACA will be subject to judicial or congressional challenges in the future. It is also unclear how any additional healthcare reform measures of the Biden administration will impact the ACA or our business.

Other legislative changes have been proposed and adopted since the ACA was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year pursuant to the Budget Control Act of 2011, which

began in 2013, and due to subsequent legislative amendments to the statute, including the Bipartisan Budget Act of 2018 and the Infrastructure Investment and Jobs Act, will remain in effect through 2031, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022, unless additional congressional action is taken. Under current legislation the actual reduction in Medicare payments will vary from 1% in 2022 to up to 4% in the final fiscal year of this sequester. The American Taxpayer Relief Act of 2012, among other things, further reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These laws may result in additional reductions in Medicare and other healthcare funding, which could have an adverse effect on customers for our product candidates, if approved, and, accordingly, our financial operations. Additionally, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024.

Additionally, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. For example, in July 2021, the Biden administration released an executive order, "Promoting Competition in the American Economy," with multiple provisions aimed at prescription drugs. In response to President Biden's executive order, on September 9, 2021, the U.S. Department of Health and Human Services (HHS) released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform and sets out a variety of potential legislative policies that Congress could pursue as well as potential administrative actions HHS can take to advance these principles. In addition, the IRA, among other things, (1) directs HHS to negotiate the price of certain single-source drugs and biologics covered under Medicare and (2) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. These provisions will take effect progressively starting in fiscal year 2023, although they may be subject to legal challenges. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry. Further, the Biden administration released an additional executive order on October 14, 2022, directing HHS to submit a report within ninety (90) days on how the Center for Medicare and Medicaid Innovation can be further leveraged to test new models for lowering drug costs for Medicare and Medicaid beneficiaries. It is unclear whether this executive order or similar policy initiatives will be implemented in the future. It is unclear whether these or similar policy initiatives will be implemented in the future.

We expect that these and other healthcare reform measures that may be adopted in the future may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved drug. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our drugs.

In addition, FDA regulations and guidance may be revised or reinterpreted by the FDA in ways that may significantly affect our business and our products. Any new regulations or guidance, or revisions or reinterpretations of existing regulations or guidance, may impose additional costs or lengthen FDA review times for ACU193 or any other product candidate we may develop. We cannot determine how changes in regulations, statutes, policies or interpretations, when and if issued, enacted or adopted, may affect our business in the future. Such changes could, among other things, require:

- additional clinical trials to be conducted prior to obtaining approval;
- changes to manufacturing methods;
- recalls, replacements, or discontinuance of one or more of our products, and
- additional recordkeeping.

Such changes would likely require substantial time and impose significant costs, or could reduce the potential commercial value of ACU193 or other product candidates, and could materially harm our business and our financial results. In addition, delays in receipt of or failure to receive regulatory clearances or approvals for any other products would harm our business, financial condition and results of operations.

Our business activities may be subject to the U.S. Foreign Corrupt Practices Act of 1977, or FCPA, and similar anti-bribery and anti-corruption laws.

Our business activities may be subject to the FCPA, U.S. domestic bribery statutes, and similar anti-bribery or anti-corruption laws, regulations or rules of other countries in which we may operate, including the U.K. Bribery Act of 2010. The FCPA generally prohibits offering, promising, giving, or authorizing others to give anything of value, either directly or indirectly, to a non-U.S. government official in order to influence official action, or otherwise obtain or retain business. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the transactions of the corporation and to devise and maintain an adequate system of internal accounting controls. Our business is heavily regulated and therefore involves significant interaction with public officials, including officials of non-U.S. governments. Additionally, in many other countries, hospitals are owned and operated by the government, and doctors and other hospital employees would be considered foreign officials under the FCPA. There is no certainty that all of our employees, agents, contractors or those of our affiliates, will comply with all applicable laws and regulations, particularly given the high level of complexity of these laws. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers, or our employees, the closing down of our facilities, implementation of compliance programs and prohibitions on the conduct of our business. Any such violations could include prohibitions on our ability to offer our product candidates in one or more countries and could materially damage our reputation, our brand, our international expansion efforts, our ability to attract and retain employees, and our business, prospects, operating results and financial condition.

Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements and insider trading, which could significantly harm our business.

We are exposed to the risk of fraud or other misconduct by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional failures to comply with the regulations of the FDA and non-U.S. regulators, provide accurate information to the FDA and non-U.S. regulators, comply with health care fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the health care industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

Our insurance policies are expensive and only protect us from some business risks, which will leave us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter. Some of the policies we currently maintain include general liability, products liability and directors' and officers' insurance. We do not know, however, if we will be able to maintain insurance with adequate levels of coverage. Our inability to obtain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of ACU193 or any other product candidate. Any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our financial position and results of operations.

Risks Related to Employee Matters and Managing our Growth

We will need to expand our operations and increase the size of our company, and we may experience difficulties in managing growth.

As we advance ACU193 through clinical development, and potentially expand the number of our drug development programs, we will need to increase our drug development, scientific and administrative headcount to manage these programs. In addition, to meet our obligations as a public company, we will need to increase our general and administrative capabilities. Our management, personnel and systems currently in place may not be adequate to support this future growth. Our need to effectively manage our operations, growth and various projects requires that we:

- successfully attract and recruit new employees or consultants with the expertise and experience we will require;

- manage our clinical programs effectively, which we anticipate being conducted at numerous clinical sites;
- develop a marketing and sales infrastructure; and
- continue to improve our operational, financial and management controls, reporting systems and procedures.

If we are unable to successfully manage this growth and increased complexity of operations, our business may be adversely affected.

We may not be able to manage our business effectively if we are unable to attract and retain key personnel and consultants.

We may not be able to attract or retain qualified management, finance, scientific and clinical personnel and consultants due to the intense competition for qualified personnel and consultants among biotechnology, pharmaceutical and other businesses. If we are not able to attract and retain necessary personnel and consultants to accomplish our business objectives, we may experience constraints that will significantly impede the achievement of our development objectives, our ability to raise additional capital and our ability to implement our business strategy.

Our industry has experienced a high rate of turnover of management personnel in recent years. We are highly dependent on the research and development, clinical, regulatory and business development expertise of Daniel O'Connell, our President and Chief Executive Officer, Matthew Zuga, our Chief Financial Officer and Chief Business Officer, Eric Siemers, M.D., our Chief Medical Officer, and Russell Barton, our Chief Operating Officer. If we lose the services of any of these individuals, our ability to implement our business strategy successfully could be seriously harmed. Any of our executive officers or key employees or consultants may terminate their employment at any time. Replacing executive officers, key employees and consultants may be difficult and may take an extended period because of the limited number of individuals in our industry with the breadth of skills and experience required to develop, gain regulatory approval of and commercialize product candidates successfully. Competition to hire and retain employees and consultants from this limited pool is intense, and we may be unable to hire, train, retain or motivate these additional key personnel and consultants. Our failure to retain key personnel or consultants could materially harm our business.

We have scientific and clinical advisors and consultants who assist us in formulating our research, development and clinical strategies. These advisors are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us. Non-compete agreements are not permissible or are limited by law in certain jurisdictions and, even where they are permitted, these individuals typically will not enter into non-compete agreements with us. If a conflict of interest arises between their work for us and their work for another entity, we may lose their services. In addition, our advisors may have arrangements with other companies to assist those companies in developing product candidates or technologies that may compete with ours.

If we fail to build our finance infrastructure and improve our accounting systems and controls, we may be unable to comply with the financial reporting and internal controls requirements for publicly traded companies.

As a public company, we operate in an increasingly demanding regulatory environment, which requires us to comply with the reporting requirements of the Securities Exchange Act of 1934, or the Exchange Act, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, the rules and regulations of Nasdaq Global Select Market, or Nasdaq, the rules and regulations of the SEC, expanded disclosure requirements, accelerated reporting requirements and more complex accounting rules. Company responsibilities required by the Sarbanes-Oxley Act include establishing corporate oversight and adequate internal control over financial reporting and disclosure controls and procedures. Effective internal controls are necessary for us to produce reliable financial reports and are important to help prevent financial fraud. We must perform system and process evaluation and testing of our internal controls over financial reporting to allow management to report on the effectiveness of our internal controls over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. Further, as an emerging growth company, our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal controls over financial reporting pursuant to Section 404 until the date we are no longer an emerging growth company and are an accelerated filer. At such time, our independent registered public accounting firm may issue a report that is adverse in the event that it is not satisfied with the level at which the controls of we have documented, designed or under which we operate.

The process of building our accounting and financial functions and systems has required and will continue to require significant additional professional fees, internal costs and management efforts. For example, we currently do not have an internal audit group, and we may need to hire additional accounting and financial staff to maintain effective internal control

over financial reporting. We currently rely on consultants or external service providers to assist with our financial reporting and certain technical aspects thereof, and to provide services related to our finance function to supplement our internal staff, including with respect to our accounts payable, account reconciliations, and the evaluation and documentation of our system of internal controls functions. We are implementing internal systems that will ultimately enable us to combine and streamline the management of our financial, accounting and other functions. However, such systems will likely require us to complete many processes and procedures in order to be used effectively in running our business, which may result in substantial costs before implementation is complete. Any disruptions or difficulties in maintaining or expanding our internal financial staff or the services provided by outside consultants or financial service providers, or in implementing or using our accounting and financial functions and infrastructure, could adversely affect our system of internal controls and harm our business. Moreover, such disruption or difficulties could result in unanticipated costs and diversion of management attention. In addition, we may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

We cannot be certain that the measures we have taken to date, and actions we may take in the future, will prevent or avoid potential future material weaknesses. If we are unable to successfully remediate any future material weaknesses in our internal control over financial reporting, if we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls, we may not be able to produce timely and accurate financial statements and we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports. If we cannot provide reliable financial reports or prevent fraud, our business and results of operations could be harmed, investors could lose confidence in our reported financial information and our stock price could decline as a result, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities.

Risks Related to Ownership of our Common Stock and our Status as a Public Company

An active trading market for our common stock may not continue to be developed or sustained.

Prior to our initial public offering, there was no public market for our common stock. Although our common stock is listed on The Nasdaq Global Select Market, an active trading market for our shares may never develop or be sustained. If an active market for our common stock does not develop or is not sustained, it may be difficult for you to sell shares of our common stock at an attractive price or at all.

The trading price of the shares of our common stock may be volatile, and purchasers of our common stock could incur substantial losses.

Our stock price may be volatile. From July 1, 2021, the date our stock began trading on Nasdaq, through March 22, 2023, our stock price fluctuated from a low of $3.02 to a high of $26.98. 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 common stock at or above the price paid for the shares. The market price for our common stock may be influenced by many factors, including:

- the commencement, enrollment or results of our clinical trials, including INTERCEPT-AD and any future clinical trials we may conduct, or changes in the development status of our product candidates;
- any delay in our regulatory filings for ACU193 or any other product candidate we may develop, and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- delays in, or termination of, clinical trials;
- adverse regulatory decisions, including failure to receive regulatory approval of our product candidates;
- unanticipated serious safety concerns related to the use of ACU193 or any other product candidate we develop;
- changes in financial estimates by us or by any equity research analysts who might cover our stock;

- conditions or trends in our industry;
- changes in the market valuations of similar companies;
- announcements by our competitors of new product candidates or technologies, or the results of clinical trials or regulatory decisions;
- stock market price and volume fluctuations of comparable companies and, in particular, those that operate in the biopharmaceutical industry;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- announcements by us or our competitors of significant acquisitions, strategic partnerships or divestitures;
- our relationships with our collaborators;
- announcements of investigations or regulatory scrutiny of our operations or lawsuits filed against us;
- investors' general perception of our company and our business;
- recruitment or departure of key personnel;
- overall performance of the equity markets;
- trading volume of our common stock;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- changes in the structure of healthcare payment systems;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

The stock market in general, and Nasdaq and biotechnology companies listed on Nasdaq in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies, including very recently in connection with the COVID-19 pandemic and conflict between Russia and Ukraine, which have resulted in decreased stock prices for many companies notwithstanding the lack of a fundamental change in their underlying business models or prospects. Broad market and industry factors, including potentially worsening economic conditions and other adverse effects or developments relating to the COVID-19 pandemic and conflict between Russia and Ukraine may negatively affect the market price of our common stock, regardless of our actual operating performance. The realization of any of the above risks or any of a broad range of other risks, including those described in this section, could have a significant and material adverse impact on the market price of our common stock.

In addition, in the past, stockholders have initiated class action lawsuits against pharmaceutical and biotechnology companies following periods of volatility in the market prices of these companies' stock. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources from our business.

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

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

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of March 22, 2023, we had 41,025,062 shares of common stock outstanding. All of the shares of common stock sold during the initial public offering are currently freely tradable, except for any shares held by our affiliates as defined in Rule 144 under the Securities Act of 1933.

Additionally, the holders of approximately 22.9 million shares of common stock, or their transferees, have rights, subject to some conditions, with respect to registration of such shares under the Securities Act pursuant to an investor rights agreement between such holders and us. If such holders, by exercising their registration rights, sell a large number of shares, they could adversely affect the market price for our common stock. If we file a registration statement for the purpose of selling additional shares to raise capital, we may be required to offer these holders the right to participate in the offering and, if we are required to include shares held by these holders pursuant to the exercise of their registration rights, our ability to raise capital may be impaired.

We have filed registration statements on Form S-8 under the Securities Act registering approximately 9,852,721 shares of common stock subject to options or other equity awards issued or reserved for future issuance under our equity incentive plans and plan to file additional registration statements on Form S-8 for additional shares of common stock issuable under our equity incentive plans. Shares registered under these registration statements on Form S-8 can be freely sold in the public market upon issuance, subject to the vesting of the equity awards, other restrictions provided under the terms of the applicable plan or equity award and the restrictions of Rule 144 in the case of our affiliates.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management and hinder efforts to acquire a controlling interest in us, and the market price of our common stock may be lower as a result.

There are provisions in our certificate of incorporation and bylaws that may make it difficult for a third party to acquire, or attempt to acquire, control of our company, even if a change of control was considered favorable by you and other stockholders. For example, our board of directors has the authority to issue up to 10,000,000 shares of preferred stock. The board of directors can fix the price, rights, preferences, privileges and restrictions of the preferred stock without any further vote or action by our stockholders. The issuance of shares of preferred stock may delay or prevent a change of control transaction. As a result, the market price of our common stock and the voting and other rights of our stockholders may be adversely affected. An issuance of shares of preferred stock may result in the loss of voting control to other stockholders.

Our charter documents also contain other provisions that could have an anti-takeover effect, including:

- only one of our three classes of directors will be elected each year;
- stockholders will not be entitled to remove directors other than by a 66 2/3% vote and only for cause;
- stockholders will not be permitted to take actions by written consent;
- stockholders cannot call a special meeting of stockholders; and
- stockholders must give advance notice to nominate directors or submit proposals for consideration at stockholder meetings.

In addition, we are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law, or DGCL, which regulates corporate acquisitions by prohibiting Delaware corporations from engaging in specified business combinations with particular stockholders of those companies. These provisions could discourage potential acquisition proposals and could delay or prevent a change of 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.

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.

Our directors, executive officers and beneficial owners of greater than 5% of our outstanding stock and their respective affiliates beneficially own, in the aggregate, a majority 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, sale of all or substantially all of our assets or other significant corporate transactions.

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 public offering price 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.

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

We are an "emerging growth company" as defined in the JOBS Act, and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

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

We cannot predict if investors will find our common stock less attractive because we will 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. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of the last day of the fiscal year (i) following the fifth anniversary of the closing of our initial public offering, or July 6, 2026, (ii) in which we have total annual gross revenue of at least $1.235 billion or (iii) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th, and the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to take advantage of the extended transition period to comply with new or revised accounting standards and to adopt certain of the reduced disclosure requirements available to emerging growth companies. As a result of the accounting standards election, we will not be subject to the same implementation timing for new or revised accounting standards as other public companies that are not emerging growth companies, which may make comparison of our financials to those of other public companies more difficult. As a result of these elections, the information that we provide in this Annual Report on Form 10-K may be different than the information you may receive from other public companies in which you hold equity interests. In addition, it is possible that some investors will find our common stock less attractive as a result of these elections, which may result in a less active trading market for our common stock and higher volatility in our share price.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting common stock held by non-affiliates is more than $250 million measured on the last business day of our second fiscal quarter, or our annual revenues are more than $100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is more than $700 million measured on the last business day of our second fiscal quarter.

Our management team may use our cash and cash equivalents, including the net proceeds from our initial public offering, in ways in which you may not agree or in ways which may not yield a return.

Our management has broad discretion over the use of our cash and cash equivalents, including the net proceeds from our initial public offering. You will not have the opportunity to influence our decisions on how to use our cash and cash equivalents and will need to rely on our judgment with respect to the use of our cash and cash equivalents. The failure by our management to apply our cash and cash equivalents effectively could adversely affect our ability to continue maintaining and expanding our business.

We have never paid dividends on our capital stock and we do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.

We have never declared or paid any dividends on our common stock and do not intend to pay any dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the operation of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

Our failure to meet Nasdaq's continued listing requirements could result in a delisting of our common stock.

If we fail to satisfy Nasdaq's continued listing requirements, such as the corporate governance requirements or the minimum closing bid price requirement, Nasdaq may take steps to delist our common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with Nasdaq's listing requirements.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the U.S. federal district courts will be the exclusive forums for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers 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 the following types of actions or proceedings under Delaware statutory or common law:

- any derivative claim or cause of action brought on our behalf;
- any claim or cause of action asserting a breach of fiduciary duty;
- any claim or cause of action against us arising under DGCL;
- any claim or cause of action arising under or seeking to interpret our amended and restated certificate of incorporation or our amended and restated bylaws; and
- any claim or cause of action against us that is governed by the internal affairs doctrine.

Further, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation will further provide that the U.S. federal district courts will be the exclusive forum for resolving any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

While the Delaware courts have determined that such choice of forum provisions are facially valid and several state trial courts have enforced such provisions and required that suits asserting Securities Act claims be filed in federal court, there is no guarantee that courts of appeal will affirm the enforceability of such provisions and, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other

jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with litigating Securities Act claims in state court, or both state and federal court, which could seriously harm our business, financial condition, results of operations, and prospects.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

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

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

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

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

General Risk Factors

We incur increased costs and demands upon management as a result of being a public company.

As a public company listed in the United States, we incur significant additional legal, accounting and other costs. These additional costs could negatively affect our financial results. In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by the SEC and Nasdaq, may increase legal and financial compliance costs and make some activities more time-consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies.

We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If notwithstanding our efforts to comply with new laws, regulations and standards, we fail to comply, regulatory authorities may initiate legal proceedings against us and our business may be harmed.

Failure to comply with these rules might also make it more difficult for us to obtain some types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on committees of our board of directors or as members of senior management.

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

We have generated net operating loss, or NOL, carryforwards during our history, we expect to continue to generate significant NOL carryforwards for the foreseeable future, and we may not achieve profitability prior to the time that certain of our NOL carryforwards expire. As of December 31, 2022, we had federal and state NOL carryforwards of $6.4 million and $61.3 million, respectively, that will begin expiring in the year 2028 for both federal and state NOLs if not utilized. We also have $46.2 million of federal NOL carryforwards as of December 31, 2022 that do not expire due to the enactment of the Tax Act in 2017, although are limited to eighty percent of taxable income annually. Our NOL carryforwards are subject to review and possible adjustment by U.S. and state tax authorities. Our NOL carryforwards could expire unused or be unavailable to offset future income tax liabilities because of their limited duration or because of restrictions under U.S. tax law. Federal NOL carryforwards generated in tax years ending on or prior to December 31, 2017 may only be carried forward for 20 taxable years under applicable U.S. federal tax law. Federal NOL carryforwards generated in tax years ending after December 31, 2017 may be carried forward indefinitely, but the deductibility of such federal NOL carryforwards is limited to 80% of current year taxable income. Similar rules may apply under state tax laws.

We may also qualify for business tax credits, such as research and development tax credits, which generally may be carried forward 20 years to offset a portion of future taxable income, if any, subject to expiration of such credit carryforwards. We have not determined the amount of credit carryforward due to the cost versus no current benefit of claiming the credit.
Additionally, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an “ownership change” (generally defined as a cumulative change in our ownership by “5-percent shareholders” that exceeds 50 percentage points over a rolling three-year period), the corporation’s ability to use its pre-change NOL carryforwards and certain other pre-change tax attributes (such as research and development tax credits) to offset its post-change income and taxes may be limited or eliminated. Similar rules may apply under state tax laws. The completion of our recent initial public offering, together with private placements and other transactions that have occurred since our inception, may have triggered such an ownership change pursuant to Section 382/383. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside our control. We have not conducted any studies to determine annual limitations, if any, that could result from such changes in the ownership. Our ability to utilize those NOL and credit carryforwards could be limited or eliminated by an “ownership change” as described above and consequently, we may not be able to utilize a material portion of our NOL carryforwards and certain other tax attributes, which could have an adverse effect on our cash flows and results of operations.

Changes in U.S. tax law could adversely affect our financial condition and results of operations.

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

Our business and operations would suffer in the event of computer system failures, cyberattacks or a deficiency in our cybersecurity or a natural disaster.

Despite the implementation of security measures, our internal computer systems, and those of third parties on which we rely, are vulnerable to damage from computer viruses, malware, natural disasters, terrorism, war, telecommunication and electrical failures, cyberattacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to systems inside our organization. The risk of a security breach or disruption, particularly through cyberattacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our product development programs. For example, the loss of clinical trial data from completed, ongoing or planned clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or

reproduce the data. To the extent that any disruption or security breach was to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur material legal claims and liability and damage to our reputation, and the further development of our product candidates could be delayed.

Disruptions at the FDA, the Commission and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

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

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs or biologics to be reviewed and approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including most recently from December 22, 2018 to January 25, 2019, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC and other government employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

If a prolonged government shutdown occurs, or if global health concerns prevent the FDA or other regulatory authorities from conducting business as usual or conducting inspections, reviews or other regulatory activities, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

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

Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. Portions of our future clinical trials may be conducted outside of the United States and unfavorable economic conditions resulting in the weakening of the U.S. dollar would make those clinical trials more costly to operate. Further, a severe or prolonged economic downturn, including a recession or depression resulting from the national or international events or political disruption, such as the ongoing conflict between Russia and Ukraine, could result in a variety of risks to our business, including weakened demand for our product candidates or any future product candidates, if approved, and our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy or political disruption, including any international trade disputes, could also strain our manufacturers or suppliers, possibly resulting in supply disruption, or cause our customers to delay making payments for our potential products. Any of the foregoing could seriously harm our business, and we cannot anticipate all of the ways in which the political or economic climate and financial market conditions could seriously harm our business.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our corporate headquarters are currently located in Charlottesville, Virginia, where we lease two office spaces in the same building pursuant to lease agreements that both expire in December 2023. We also lease 8,573 square feet of office space in Carmel, Indiana pursuant to a lease agreement that expires in August 2023. We believe that these 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.

From time to time, we may be involved in various claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Market Information for Common Stock

Our common stock is listed on The Nasdaq Global Select Market under the symbol "ABOS."

Holders of Record

As of March 22, 2023, we had 73 holders of record of our common stock, which excludes stockholders whose shares were held in nominee or street name by brokers. The actual number of common stockholders is greater than the 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 holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never paid cash dividends on any of our capital stock and currently intend to retain our future earnings, if any, to fund the development and growth of our business.

Equity Compensation Plans

The information required by this item will be set forth in our 2023 Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

Unregistered Sales of Equity Securities

None.

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

Overview

We are a clinical-stage biopharmaceutical company developing a novel disease-modifying approach to target what we believe to be a key underlying cause of AD. Alzheimer's disease is a progressive neurodegenerative disease of the brain that leads to loss of memory and cognitive functions and ultimately results in death. Our scientific founders pioneered research on soluble AßOs, which are globular assemblies of the Aß peptide that are distinct from Aß monomers and amyloid plaques. Based on decades of research and supporting evidence, AßOs have gained increasing scientific acceptance as a primary toxin involved in the initiation and propagation of AD pathology. We are currently focused on advancing a targeted immunotherapy drug candidate, ACU193, through clinical proof of mechanism trials in early AD patients. ACU193 is a recombinant humanized IgG2 mAb that was designed to selectively target AßOs, has demonstrated functional and protective effects in in vitro assays, and has demonstrated in vivo safety and pharmacologic activity in multiple animal species, including transgenic models for AD.

We initiated a Phase 1 clinical trial of ACU193 in the second quarter of 2021, which we named "INTERCEPT-AD." This trial enrolled 65 patients with mild dementia or MCI due to AD, conditions referred to as "early AD." INTERCEPT-AD is a U.S.-based, multi-center, randomized, double-blind, placebo-controlled clinical trial with overlapping SAD and MAD cohorts involving patients with early AD. The overall objective of the trial is to evaluate the safety and tolerability of ACU193 and to establish clinical proof of mechanism of ACU193 administered intravenously. The primary trial endpoints are focused on safety and immunogenicity. An important safety measure will be the use of MRI to assess the presence or absence of ARIA. Secondary endpoints include pharmacokinetics in plasma and CSF and target engagement as evidenced by detection of ACU193 bound to AßOs in CSF. Clinical scales typically used in AD trials as well as computerized cognitive testing and arterial spin labelling with MRI scans are included as exploratory measures. In October 2021, we announced the initial dosing of the first patient in the INTERCEPT-AD trial and the subsequent successful sentinel safety review of the first two patients.

We were incorporated in 1996 and were party to an exclusive license and research collaboration with Merck in 2003. Although we acquired the exclusive rights to ACU193 from Merck in 2011 following Merck's strategic decision to focus its AD development efforts on a different product candidate, we did not recommence meaningful operations until we completed our first institutional fundraising in 2018. Since 2018, we have devoted substantially all of our efforts to organizing and staffing our company, business planning, raising capital, conducting discovery, research and development activities, and providing general and administrative support for these operations. We do not have any products approved for sale and have not generated any revenue from product sales. We have funded our operations primarily through the sale of our convertible preferred stock and common stock, the issuance of notes, grant revenue and during our collaboration with Merck, certain payments received under our collaboration agreement.

Prior to our IPO, which closed on July 6, 2021, we raised an aggregate of $99.4 million of gross proceeds through the issuance of convertible preferred stock, as well as sales of common stock and issuance of notes that were converted to preferred stock, with the vast majority of this capital being raised since our Series A-1 convertible preferred stock, or Series A-1, financing in 2018. In 2020, we conducted a Series B convertible preferred stock, or Series B, financing, with the funding to occur in two tranches. We closed the first tranche of the Series B financing in November 2020, selling 11,862,043 shares of Series B at $3.80 per share for gross proceeds of $45.1 million. On June 9, 2021, our board of directors and the holders of more than 67% of the outstanding shares of Series B preferred stock elected to waive the achievement of the milestone event. On June 17, 2021, we closed the second tranche of our Series B preferred stock financing, pursuant to which certain of our investors funded an additional $30.0 million in exchange for 7,908,027 shares of Series B preferred stock.

On July 6, 2021, we issued 9,999,999 shares of our common stock in the IPO, and on July 8, 2021, we issued an additional 1,499,999 shares of our common stock that were purchased by the underwriters pursuant to the underwriters' option to

purchase additional shares at the public offering price less underwriting discounts and commissions. The price to the public for each share was $16.00. The aggregate net proceeds from the IPO, after underwriting discounts and commissions and other offering expenses of $15.4 million, were $168.6 million.

We have incurred net losses and negative cash flows from operations since our inception. Our net losses were $42.9 million and $100.6 million for the years ended December 31, 2022 and 2021, respectively. Approximately $32.4 million, or 76%, of the net loss for the year ended December 31, 2022 was due to research and development spending. As of December 31, 2022, we had an accumulated deficit of $170.4 million. Our net losses and cash flows from operations may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of nonclinical studies, clinical trials and our expenditures on other research and development activities. Our net losses and cash flows from operations may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of nonclinical studies, clinical trials and our expenditures on other research and development activities. We expect our expenses and operating losses will increase substantially for the foreseeable future as we advance ACU193 in clinical trials, seek to expand our product candidate portfolio through developing additional product candidates, grow our clinical, regulatory and quality capabilities, and incur additional costs associated with operating as a public company. It is likely that we will seek third-party collaborators for the future commercialization of ACU193 or any other product candidate that is approved for marketing. However, we may seek to commercialize our products at our own expense, which would require us to incur significant additional expenses for marketing, sales, manufacturing and distribution.

We will not generate revenue from product sales unless and until we successfully complete clinical development and obtain regulatory approval for our product candidates. In addition, if we obtain regulatory approval for our product candidates and do not enter into a third-party commercialization partnership, we expect to incur significant expenses related to developing our commercialization capability to support product sales, marketing, manufacturing and distribution activities.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of public or private equity offerings and debt financings or other sources, such as potential collaboration agreements, strategic alliances and licensing arrangements. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on acceptable terms, or at all. Our failure to raise capital or enter into such agreements as, and when needed, could have a material adverse effect on our business, results of operations and financial condition.

As of December 31, 2022, we had cash and cash equivalents of $130.1 million and $63.3 million in marketable securities. Based on our current operating plan, we expect that our existing cash and cash equivalents and marketable securities will be sufficient to enable us to fund our operating expenses and capital expenditure requirements at least through 2025. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See “Liquidity and Capital Resources.”

Components of Results of Operations

Operating Expenses

Our operating expenses consist of research and development expenses and general and administrative expenses.

Research and Development Expenses

Research and development costs primarily consist of direct costs associated with consultants and materials, biologic storage, third party, contract research organizations, or CRO, costs and contract manufacturing organization, or CMO, expenses, salaries and other personnel-related expenses. Research and development costs are expensed as incurred. More specifically, these costs include:

- costs of funding research performed by third parties that conduct research and development and nonclinical and clinical activities on our behalf;
- costs of manufacturing drug supply and drug product;
- costs of conducting nonclinical studies and clinical trials of our product candidates;
- consulting and professional fees related to research and development activities, including equity-based compensation to non-employees;

- costs related to compliance with clinical regulatory requirements; and
- employee-related expenses, including salaries, benefits and stock-based compensation expense for our research and development personnel.

As we currently only have one product candidate, ACU193, in development, we do not separately track expenses by program. Further, we have historically relied primarily on consultants for research and development activities, and as such, our internal research and development costs for the years ended December 31, 2022 and 2021 represent 20% or less of our total research and development expenses. Our research and development expenses increased substantially in the year ended December 31, 2022 in connection with initiating the clinical trial for our ACU193 program in 2021.

General and Administrative Expenses

General and administrative expenses consist primarily of employee-related expenses, including stock-based compensation costs, as well as business insurance, management and business consultants and other related costs. General and administrative expenses also include professional fees for legal, consulting, accounting, auditing, tax and patent services, investor and public relations, board of directors' expenses, franchise taxes and rent.

We expect that our general and administrative expenses will increase as our organization and headcount needed in the future grows to support continued research and development activities and potential commercialization of our product candidates. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, attorneys and accountants, among other expenses. Additionally, we expect to continue to incur increased expenses associated with being a public company, including costs of additional personnel, accounting, audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance costs, and investor and public relations costs.

Other Income (Expense)

Other income (expense) primarily includes interest income, net and other income, net. Following our IPO, we made investments in marketable securities and the interest income earned, as well as amortization and accretion of premiums and discounts, are recorded in interest income, net. Other income (expense), net generally consists of sublease income offset by fees incurred on our investments in marketable securities.

Prior to our IPO on July 6, 2021, changes in the fair values of the Series A-1 warrant liability and the Series B tranche rights were recognized as a component of other income (expense). The Series A-1 warrant liability and the Series B tranche rights were initially recorded at fair value as liabilities on our balance sheet. Each was subsequently re-measured at fair value at the end of each reporting period and also upon the exercise of the warrant on June 22, 2021, and upon settlement of the tranche rights with the milestone closing for the Series B on June 17, 2021.

Results of Operations

Comparison of the Years Ended December 31, 2022 and 2021

The following table summarizes our results of operations for the years ended December 31, 2022 and 2021 (in thousands):

	Year Ended December 31,		Change	
	2022	2021	$	%
Costs and operating expenses				
Research and development	$ 32,361	$ 12,305	$ 20,056	163 %
General and administrative	12,876	7,279	5,597	77 %
Total operating expenses	45,237	19,584	25,653	131 %
Loss from operations	(45,237)	(19,584)	(25,653)	131 %
Other income (expense)				
Interest income, net	2,392	84	2,308	*
Other income, net	(11)	51	(62)	(122)%
Change in fair value of preferred stock tranche rights liability and preferred stock warrant liability	—	(81,157)	81,157	*
Total other income (expense)	2,381	(81,022)	83,403	*
Net loss	$ (42,856)	$ (100,606)	$ 57,750	(57)%

* Not meaningful

Research and Development Expenses

Research and development expenses were $32.4 million and $12.3 million for the years ended December 31, 2022 and 2021, respectively. The $20.1 million increase was primarily due to increases in expenses of $7.2 million for CRO costs, $5.0 million for consulting costs, $3.3 million for personnel-related expenses, $2.9 million for drug safety testing and $1.3 million for materials; all related to our ongoing clinical trial which was initiated in 2021 and nonclinical research and development activity.

General and Administrative Expenses

General and administrative expenses were $12.9 million and $7.3 million for the years ended December 31, 2022 and 2021, respectively. The $5.6 million increase was primarily due to increased expenses as a public company, as well as additions to its financial and administrative infrastructure and included increases of $3.4 million for personnel expenses, including stock compensation costs, $1.1 million for insurance expenses, $0.5 million for marketing costs, including investor relations, $0.2 million for legal expenses, $0.2 million for recruiting costs and $0.2 million for travel and entertainment.

Other Income (Expense)

Other income was $2.4 million for the year ended December 31, 2022, which was due to net interest income on our portfolio of marketable securities. Other expense was $81.0 million for the year ended December 31, 2021, primarily due to increases in the fair values of the Series B tranche liability and Series A-1 warrant liability of $76.2 million and $5.0 million, respectively, offset by $0.1 million of net interest income from our portfolio of marketable securities and $0.1 million of other income, net, which was primarily related to sublease income.

Liquidity and Capital Resources

We have incurred net losses since inception. We have not generated any revenue from product sales or any other sources and have incurred significant operating losses. We have not yet commercialized any products and we do not expect to generate revenue from sales of any drug candidates for at least several years, if ever.

Our operations have been financed primarily by net proceeds from the sale and issuance of our common stock and convertible preferred stock, net proceeds from our IPO, the issuance of notes, grant revenue and, during our collaboration with Merck, certain payments received under our collaboration agreement.

On July 1, 2022, we filed a shelf registration statement on Form S-3, or the Registration Statement. Pursuant to the Registration Statement, we may offer and sell securities having an aggregate public offering price of up to $200.0 million. In connection with the filing of the Registration Statement, we also entered into a sales agreement with BofA Securities, Inc. and Stifel, Nicolaus & Company, Incorporated, or the Sales Agents, pursuant to which we may issue and sell shares of our common stock for an aggregate offering price of up to $50.0 million under an at-the-market offering program, or ATM, which is included in the $200.0 million of securities that may be offered pursuant to the Registration Statement. Pursuant to the ATM, we will pay the Sales Agents a commission rate of up to 3.0% of the gross proceeds from the sale of any shares of our common stock. We are not obligated to make any sales of shares of our common stock under the ATM.

In October 2022, the Company issued 422,160 shares of common stock under the ATM for net proceeds of $3.8 million, at a weighted average price of $10.06 per share.

As of December 31, 2022, our cash and cash equivalents totaled $130.1 million. Additionally, we had $63.3 million of available-for-sale marketable securities as of December 31, 2022, which mature over the next two years. Based on our current operating plan, we expect that our existing cash and cash equivalents and marketable securities will be sufficient to enable us to fund our operating expenses and capital expenditure requirements at least through 2025. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect.

We enter into contracts in the normal course of business with CROs and CMOs for clinical trials, nonclinical research studies and testing, manufacturing and other services and products for operating purposes. These contracts do not contain any minimum purchase commitments and are generally cancellable by us after giving a certain amount notice. Payments due upon cancellation consist only of payments for services provided and expenses incurred up to the date of cancellation.

Cash Flows

The following table summarizes our sources and uses of cash (in thousands):

	Year Ended December 31,	
	2022	2021
Net cash used in operating activities	$ (35,153)	$ (17,961)
Net cash provided by (used in) investing activities	39,185	(104,120)
Net cash provided by financing activities	3,907	200,466
Net change in cash and cash equivalents	$ 7,939	$ 78,385

Operating Activities

Net cash used in operating activities was $35.2 million for the year ended December 31, 2022, which primarily consisted of net loss of $42.9 million, which was reduced by non-cash adjustments of $3.1 million for stock-based compensation expense and $0.5 million for amortization of premiums and accretion of discounts on marketable securities, net, plus cash provided of $2.6 million from accrued clinical trial expenses and $1.7 million from prepaid expenses mainly associated with research and development. Cash used in operating activities during the year ended December 31, 2022, was mainly the result of our ongoing research and development activities as we continued our clinical trial, which we initiated in 2021.

Net cash used in operating activities was $18.0 million for the year ended December 31, 2021, which primarily consisted of net loss of $100.6 million, which was reduced by non-cash adjustments of $81.2 million related to the change in the fair values of the Series B tranche liability and the Series A-1 warrant liability and $0.9 million for stock-based compensation expenses, plus cash provided of $3.5 million from accrued expenses and other current liabilities mainly related to research and development expenses and employee-related accruals and $0.6 million of cash provided by accounts payable; partially offset by $3.9 million of cash used for prepaid expenses mainly associated with research and development activities and insurance. Cash used in operating activities during the year ended December 31, 2021, was the result of our research and development activities as we commenced our clinical trial, as well as costs associated with the transition from a private to a public company.

Investing Activities

Net cash provided by investing activities for the year ended December 31, 2022 was $39.2 million and was predominantly related to the maturities and sales of marketable securities of $80.9 million, partially offset by $41.5 million in purchases of marketable securities and $0.2 million for purchases of computer hardware and furniture.

Net cash used in investing activities for the year ended December 31, 2021 was $104.1 million and was predominantly related to the purchase of marketable securities, but also included less than $0.1 million for purchases of computer hardware.

Financing Activities

Net cash provided by financing activities for the year ended December 31, 2022 was $3.9 million primarily due to $3.8 million in proceeds from the issuance of common stock, net of issuance costs, and $0.1 million from the exercise of stock options.

Net cash provided by financing activities during the year ended December 31, 2021 was primarily due to our IPO for net proceeds of $168.6 million, the closing of the second tranche of our Series B convertible preferred stock for gross proceeds of $30.0 million, plus a total of $1.9 million received from the exercise of the Series A-1 preferred warrant, as well as proceeds from exercises of common stock warrants.

Funding Requirements

We expect our expenses to increase in connection with our ongoing activities, particularly as we continue our research and development, conduct clinical trials, and seek marketing approval for our current and any of our future product candidates. Furthermore, we have incurred and expect to incur additional costs associated with operating as a public company following our July 2021 IPO. It is likely that we will seek third-party collaborators for the future commercialization of ACU193 or any other product candidate that is approved for marketing. However, we may seek to commercialize our products at our own expense, which would require us to incur significant additional expenses for marketing, sales, manufacturing and distribution, which costs we may seek to offset through entry into collaboration agreements with third parties. As a result, we expect that we will need to obtain substantial additional funding in connection with our future operations. If we are unable to raise capital when needed or on acceptable terms, we could be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

Based on our current operating plan, we expect that our existing cash and cash equivalents and marketable securities will be sufficient to enable us to fund our operating expenses and capital expenditure requirements through 2025. We have based this estimate on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including:

- the scope, progress, results and costs of discovery, nonclinical development, laboratory testing and clinical trials for other potential product candidates we may develop, if any;
- the costs, timing and outcome of regulatory review of ACU193 or any future product candidates;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the achievement of milestones or occurrence of other developments that trigger payments under any collaboration agreements we might have at such time;
- the costs and timing of future commercialization activities, including product sales, marketing, manufacturing and distribution, for ACU193 or any future product candidates for which we receive marketing approval;
- the amount of revenue, if any, received from commercial sales of ACU193 or any future product candidates, should any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, obtaining, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our headcount growth and associated costs as we expand our business operations and our research and development activities; and
- the costs of operating as a public company.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our longer-term cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, ownership interests may be diluted, and the terms of these securities may include liquidation or other preferences that could adversely affect the rights of our common stockholders. Any debt financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, that could adversely impact our ability to conduct our business.

If we raise funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or 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 product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Critical Accounting Policies, Significant Judgments and Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles, or U.S. GAAP, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses incurred during the reporting periods. Our estimates and assumptions are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources.

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 judgments and estimates.

While our significant accounting policies are described in the notes to our financial statements included elsewhere in this Annual Report for Form 10-K, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

Stock-Based Compensation Expense

We recognize stock-based compensation expense for all stock-based awards. Stock-based compensation costs are estimated at the grant date based on the fair value of the equity and recognized as expense, net of actual forfeitures when they occur, on a straight-line basis over the requisite service period.

We calculate the fair value of options using the Black-Scholes option-pricing model, which requires the use of various highly subjective assumptions as follows:

- *Fair Value of Common Stock*—See the subsection titled "*Common Stock Valuations*" below.
- *Expected Term*—We have opted to use the "simplified method" for estimating the expected term of options, whereby the expected term equals the arithmetic average of the mid-point between the vesting date and the end of contractual term of the option (generally ten years).
- *Expected Volatility*—Due to our limited operating history and a lack of sufficient company-specific historical and implied volatility data, we have based our estimate of expected volatility on the historical volatility of a group of industry peers that are publicly traded. We will continue to utilize a group of publicly traded peers to estimate volatility until a sufficient amount of historical information regarding the volatility of our own stock becomes available.
- *Risk-Free Interest Rate*—The risk-free rate assumption is based on the U.S. Treasury yield in effect at the time of the grant with maturities consistent with the expected term of our options.
- *Expected Dividend Yield*—We have not issued any dividends in our history and do not expect to pay dividends on our common stock over the life of the options and therefore have estimated the dividend yield to be zero.

We will continue to use judgment in evaluating the expected volatility, expected terms and interest rates utilized for our stock-based compensation expense calculations on a prospective basis.

For the years ended December 31, 2022 and 2021, stock-based compensation expense was $3.1 million and $0.9 million, respectively. As of December 31, 2022, we had approximately $8.9 million of total unrecognized stock-based compensation costs, which we expect to recognize over an estimated weighted-average period of 2.6 years. We expect to continue to grant options and other stock-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will likely increase.

Common Stock Valuations

Given the absence of a public trading market for our common stock prior to the IPO, and in accordance with the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately Held Company Equity Securities Issued as Compensation*, or the Practice Aid, our board of directors exercised reasonable judgment and considered numerous and subjective factors to determine the best estimate of fair value of our common stock prior to the IPO, including, but not limited to:

- relevant precedent transactions involving our capital stock;
- contemporaneous valuations of our common stock performed by third-party specialists;
- rights, preferences, and privileges of our redeemable convertible preferred stock relative to those of our common stock;
- our business, financial condition and results of operations, including related industry trends affecting our operations;
- likelihood of achieving a liquidity event, such as an initial public offering or a sale of our business;
- the lack of marketability of our common stock, and the illiquidity of stock-based awards involving securities in a private company;
- market multiples of comparable publicly-traded companies; and
- U.S. and global capital and macroeconomic conditions.

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, or OPM.* Under the OPM, 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. This method is appropriate to use when the range of possible future outcomes is so difficult to predict that estimates would be highly speculative, and dissolution or liquidation is not imminent.
- *Probability-Weighted Expected Return Method, or PWERM.* The PWERM 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.

For valuations performed during fiscal years 2018 through 2020 we used the OPM. For valuations performed beginning in 2021, prior to the IPO, in accordance with the Practice Aid, we used a hybrid approach of the OPM and the PWERM methods to determine the estimated fair value of our common stock as a result of the increasing likelihood of the occurrence of certain discrete events, such as a potential IPO, improving market conditions and receptivity of the market to initial public offerings. The enterprise value determined under the OPM and PWERM methods was weighted according to our board of directors' estimate of the probability of the occurrence of a certain discrete event as of the valuation date. The resulting equity value for the common stock was then divided by the number of shares of common stock outstanding at the date of the valuation to derive a per share value on a non-marketable basis. In order to determine the fair value of our common stock on a marketable basis, we then applied a discount for lack of marketability which we derived based on inputs including a company-specific volatility rate, a term equal to the expected time to a future liquidity event and a risk-free rate equal to the yield on treasuries of similar duration.

Application of these approaches involves the use of estimates, judgment and assumptions that are highly complex and subjective, such as those regarding our expected future revenue, expenses, cash flows, discount rates, market multiples, the selection of comparable companies and the probability of future events. Changes in any or all of these estimates and assumptions, or the relationships between those assumptions, impact our valuations as of each valuation date and may have a material impact on the valuation of common stock. The assumptions underlying these valuations represent our management's best estimate, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different.

Following the closing of the initial public offering, the fair value of our common stock has been determined based on the quoted market price of our common stock.

Accrued Research and Development Expenses

As part of the process of preparing our financial statements, we are required to estimate our accrued expenses as of each balance sheet date. This process involves reviewing open contracts and purchase orders, identifying services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our accrued expenses as of each balance sheet date based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. The significant estimates in our accrued research and development expenses include the costs incurred for services performed by our vendors in connection with research and development activities for which we have not yet been invoiced. Since our inception, we have not experienced any material differences between accrued or prepaid costs and actual costs.

We base our expenses related to research and development activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the research and development expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid expense accordingly. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Clinical trial costs are a significant component of accrued research and development expenses and include costs associated with third-party contractors. We accrue and expense costs for clinical trial activities performed by third parties based upon the work completed to date for each clinical trial in accordance with established agreements. Management determines costs through discussions with internal clinical stakeholders and outside service providers as to the progress or stage of completion of clinical trials or services and the contracted fee to be paid for such services. In the event advance payments are made to an outside service provider, the payments are recorded within prepaid expenses and other current assets on the Balance Sheet and subsequently recognized as research and development expense in the Statement of Operations when the associated services have been performed. As actual costs become known, we adjust our estimates, liabilities and assets. Inputs used in the determination of estimates discussed above may vary from actual, which will result in adjustments to research and development expense in future periods.

Accrued research and development expenses, including accrued clinical trial expenses, increased to $3.9 million as of December 31, 2022, compared with $2.6 million as of December 31, 2021, and prepaid research and development expenses decreased to $1.1 million as of December 31, 2022, compared with $2.6 million as of December 31, 2021.

Emerging Growth Company and Smaller Reporting Company Status

In April 2012, the Jumpstart Our Business Startups Act of 2012, or JOBS Act, was enacted. Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We elected the extended transition period for complying with new or revised accounting standards, which delays the adoption of these accounting standards until they would apply to private companies.

In addition, as an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- an exception from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements and registration statements;
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements; and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor's report on financial statements.

We may take advantage of these provisions until we no longer qualify as an emerging growth company. We will cease to qualify as an emerging growth company on the date that is the earliest of: (i) December 31, 2025, (ii) the last day of the fiscal year in which we have more than $1.235 billion in total annual gross revenues, (iii) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th, or (iv) the date on which we have issued more than $1.0 billion of non-convertible debt over the prior three-year period. We may choose to take advantage of some but not all of these reduced reporting burdens. We have taken advantage of certain reduced reporting requirements in this Annual Report on Form 10-K and our other filings with the SEC. Accordingly, the information contained herein may be different than you might obtain from other public companies in which you hold equity interests.

We are also a "smaller reporting company," meaning that the market value of our shares held by non-affiliates is less than $700 million and our annual revenue was less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our shares held by non-affiliates is less than $250 million or (ii) our annual revenue was less than $100 million during the most recently completed fiscal year and the market value of our shares held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company, we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

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

Not applicable to a smaller reporting company.

Item 8. Financial Statements and Supplementary Data.

ACUMEN PHARMACEUTICALS, INC.
INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Acumen Pharmaceuticals, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Acumen Pharmaceuticals, Inc. (the Company) as of December 31, 2022 and 2021, the related statements of operations and comprehensive loss, changes in convertible preferred stock and stockholders' equity (deficit) and cash flows for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

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

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

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

/s/ Ernst & Young LLP

We have served as the Company's auditors since 2021.

Tysons, Virginia
March 27, 2023

ACUMEN PHARMACEUTICALS, INC.
BALANCE SHEETS
(in thousands, except share and per share data)

	December 31,	
	2022	2021
ASSETS		
Current assets		
Cash and cash equivalents	$ 130,101	$ 122,162
Marketable securities, short-term	47,504	72,075
Prepaid expenses and other current assets	2,724	4,424
Total current assets	180,329	198,661
Marketable securities, long-term	15,837	31,619
Property and equipment, net	165	36
Right-of-use asset	105	—
Other assets	151	14
Total assets	$ 196,587	$ 230,330
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	$ 1,640	$ 1,088
Accrued clinical trial expenses	2,717	147
Accrued expenses and other current liabilities	3,350	3,912
Operating lease liability, current portion	105	—
Total current liabilities	7,812	5,147
Total liabilities	7,812	5,147
Commitments and contingencies (Note 11)		
Stockholders' equity		
Preferred stock, $0.0001 par value; 10,000,000 shares authorized and no shares issued and outstanding as of December 31, 2022 and 2021	—	—
Common stock, $0.0001 par value; 300,000,000 shares authorized and 41,025,062 and 40,473,270 shares issued and outstanding as of December 31, 2022 and 2021, respectively	4	4
Additional paid-in capital	359,949	352,981
Accumulated deficit	(170,427)	(127,571)
Accumulated other comprehensive loss	(751)	(231)
Total stockholders' equity	188,775	225,183
Total liabilities and stockholders' equity	$ 196,587	$ 230,330

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

ACUMEN PHARMACEUTICALS, INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share data)

	Year Ended December 31,	
	2022	2021
Operating expenses		
Research and development	$ 32,361	$ 12,305
General and administrative	12,876	7,279
Total operating expenses	45,237	19,584
Loss from operations	(45,237)	(19,584)
Other income (expense)		
Interest income, net	2,392	84
Other income (expense), net	(11)	51
Change in fair value of preferred stock tranche rights liability and preferred stock warrant liability	—	(81,157)
Total other income (expense)	2,381	(81,022)
Net loss	(42,856)	(100,606)
Other comprehensive loss		
Unrealized loss on marketable securities	(520)	(231)
Comprehensive loss	$ (43,376)	$ (100,837)
Net loss per common share, basic and diluted	$ (1.06)	$ (5.02)
Weighted-average shares outstanding, basic and diluted	40,601,936	20,057,534

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

ACUMEN PHARMACEUTICALS, INC.
STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share data)

	Series A Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance as of January 1, 2021	477,297	$ 1,067	7,537,879	$ 16,333	11,862,043	$ 39,253	419,124	$ —	$ 8,374	$ (26,965)	$ —	$ (18,591)
Issuance of milestone shares for cash, net of issuance costs of $16	—	—	—	—	7,908,027	30,031	—	—	—	—	—	—
Exercise of preferred stock warrant	—	—	447,426	1,250	—	—	—	—	—	—	—	—
Reclassification of preferred stock tranche rights liability upon issuance of milestone shares	—	—	—	—	—	81,190	—	—	—	—	—	—
Reclassification of warrant liability upon exercise of preferred stock warrant	—	—	—	5,380	—	—	—	—	—	—	—	—
Exercise of common stock warrants	—	—	—	—	—	—	137,446	—	614	—	—	614
Conversion of convertible preferred stock into common stock upon initial public offering	(477,297)	(1,067)	(7,985,305)	(22,963)	(19,770,070)	(150,474)	28,232,672	3	174,501	—	—	174,504
Issuance of common stock for cash, net of issuance costs of $15,445	—	—	—	—	—	—	11,499,998	1	168,555	—	—	168,556
Cashless exercise of common stock warrants	—	—	—	—	—	—	178,847	—	—	—	—	—
Stock options exercised	—	—	—	—	—	—	5,183	—	15	—	—	15
Unrealized loss on marketable securities	—	—	—	—	—	—	—	—	—	—	(231)	(231)
Stock-based compensation	—	—	—	—	—	—	—	—	922	—	—	922
Net loss	—	—	—	—	—	—	—	—	—	(100,606)	—	(100,606)
Balance as of December 31, 2021	—	—	—	—	—	—	40,473,270	4	352,981	(127,571)	(231)	225,183
Issuance of common stock for cash, net of issuance costs of $412	—	—	—	—	—	—	422,160	—	3,792	—	—	3,792
Unrealized loss on marketable securities	—	—	—	—	—	—	—	—	—	—	(520)	(520)
Stock options exercised	—	—	—	—	—	—	124,886	—	115	—	—	115
Cashless exercise of stock options	—	—	—	—	—	—	4,746	—	—	—	—	—
Stock-based compensation	—	—	—	—	—	—	—	—	3,061	—	—	3,061
Net loss	—	—	—	—	—	—	—	—	—	(42,856)	—	(42,856)
Balance as of December 31, 2022	—	$ —	—	$ —	—	$ —	41,025,062	$ 4	$ 359,949	$ (170,427)	$ (751)	$ 188,775

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

ACUMEN PHARMACEUTICALS, INC.
STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,	
	2022	2021
Cash flows from operating activities		
Net loss	$ (42,856)	$ (100,606)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	32	4
Change in fair value of preferred stock tranche rights liability and preferred stock warrant liability	—	81,157
Stock-based compensation expense	3,061	922
Amortization of premiums and accretion of discounts on marketable securities, net	487	155
Amortization of right-of-use asset	137	—
Other non-cash expense	—	109
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	1,700	(3,881)
Other assets	(137)	(14)
Accounts payable	552	557
Accrued clinical trial expenses	2,570	147
Operating lease liability	(137)	—
Accrued expenses and other current liabilities	(562)	3,489
Net cash used in operating activities	(35,153)	(17,961)
Cash flows from investing activities		
Purchases of marketable securities	(41,514)	(104,080)
Proceeds from maturities and sales of marketable securities	80,860	—
Purchases of property and equipment	(161)	(40)
Net cash provided by (used in) investing activities	39,185	(104,120)
Cash flows from financing activities		
Proceeds from issuance of common stock, net of issuance costs	3,792	168,556
Proceeds from exercise of stock options	115	15
Proceeds from issuance of Series B milestone shares, net of issuance costs	—	30,031
Proceeds from exercise of Series A-1 warrant	—	1,250
Proceeds from exercise of common stock warrants	—	614
Net cash provided by financing activities	3,907	200,466
Net change in cash and cash equivalents	7,939	78,385
Cash and cash equivalents at the beginning of the period	122,162	43,777
Cash and cash equivalents at the end of the period	$ 130,101	$ 122,162
Supplemental disclosure of cash flow information		
Cash paid for income taxes	$ —	$ —
Cash paid for interest	$ —	$ —
Supplemental disclosure of noncash financing activities		
Right-of-use assets obtained in exchange for operating lease liabilities	$ 242	$ —
Conversion of convertible preferred stock into common stock upon IPO	$ —	$ 174,504
Reclassification of preferred stock tranche rights liability upon share issuance	$ —	$ 81,190
Reclassification of warrant liability upon exercise of preferred stock warrant	$ —	$ 5,380

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

ACUMEN PHARMACEUTICALS, INC.
NOTES TO FINANCIAL STATEMENTS

NOTE 1. DESCRIPTION OF ORGANIZATION AND BUSINESS OPERATIONS

Acumen Pharmaceuticals, Inc. ("Acumen" or the "Company") was incorporated in 1996 in the state of Delaware. Acumen is a clinical-stage biopharmaceutical company developing a novel disease-modifying approach to target what the Company believes to be a key underlying cause of Alzheimer's disease ("AD"). Alzheimer's disease is a progressive neurodegenerative disease of the brain that leads to loss of memory and cognitive functions and ultimately results in death. The Company's scientific founders pioneered research on soluble amyloid-beta oligomers ("AßOs"), which are globular assemblies of the amyloid-beta ("Aß") peptide that are distinct from Aß monomers and amyloid plaques. Based on decades of research and supporting evidence, AßOs have gained increasing scientific acceptance as a primary toxin involved in the initiation and propagation of AD pathology. The Company is currently focused on advancing a targeted immunotherapy drug candidate, ACU193, through clinical proof of mechanism trials in early AD patients. ACU193 is a recombinant humanized immunoglobin gamma 2 ("IgG2") monoclonal antibody ("mAb") that was designed to selectively target AßOs, has demonstrated functional and protective effects in in vitro assays, and has demonstrated in vivo safety and pharmacologic activity in multiple animal species, including transgenic models for AD.

The Company is subject to the uncertainty of whether its intellectual property will develop into successful commercial products.

June 2021 Reverse Stock Split

The Company's Board of Directors ("Board") approved a reverse split of shares of the Company's common stock and convertible preferred stock on a 1-for-1.49 basis (the "June 2021 Reverse Stock Split"), which was effected on June 23, 2021. The par value and the number of authorized shares of the convertible preferred stock and common stock were not adjusted in connection with the June 2021 Reverse Stock Split. All references to common stock, convertible preferred stock, warrants to purchase common stock, warrants to purchase convertible preferred stock, options to purchase common stock, share data, per share data and related information contained in the financial statements have been retrospectively adjusted to reflect the effect of the June 2021 Reverse Stock Split for all periods presented. No fractional shares of the Company's common stock were issued in connection with the June 2021 Reverse Stock Split. Any fractional share resulting from the June 2021 Reverse Stock Split was rounded down to the nearest whole share, and any stockholder entitled to a fractional share as a result of the June 2021 Reverse Stock Split received a cash payment in lieu of receiving fractional shares.

Initial Public Offering

On July 6, 2021, the Company issued 9,999,999 shares of common stock in an initial public offering ("IPO"), and on July 8, 2021, the Company issued an additional 1,499,999 shares of common stock that were purchased by the underwriters pursuant to the underwriters' option to purchase additional shares at the public offering price less underwriting discounts and commissions. The price to the public for each share was $16.00. The aggregate net proceeds from the Company's IPO, after underwriting discounts and commissions and other offering expenses of $15.4 million, were $168.6 million.

On July 6, 2021, in connection with the closing of the IPO, 477,297 shares of Series A, 7,985,305 shares of Series A-1, and 19,770,070 shares of Series B convertible preferred stock, respectively, automatically converted into an equal number of shares of common stock. Warrants to purchase shares of common stock were automatically net exercised for the purchase of an aggregate of 178,847 shares of common stock.

As a result of the IPO, the underwriters' exercise of their option, the conversions of the Series A, A-1 and B convertible preferred stock, and the exercise of the warrants, the Company's total number of outstanding common shares increased by 39,911,517 immediately following the closing of the IPO.

Liquidity and Capital Resources

The Company has incurred operating losses since inception and expects to continue to incur significant operating losses for the foreseeable future and may never become profitable. As of December 31, 2022 and 2021, the Company had an accumulated deficit of $170.4 million and $127.6 million, respectively, and working capital of $172.5 million and $193.5 million, respectively. Management believes that the Company has sufficient cash to continue operating activities for beyond 12 months from issuance of these financial statements.

In October 2022, the Company issued 422,160 shares of common stock for net proceeds of $3.8 million, at a weighted average price of $10.06 per share. See additional discussion in Note 8.

Future capital requirements will depend upon many factors, including the timing and extent of spending on research and development and market acceptance of the Company's products. The Company may need to obtain additional financing to complete clinical trials and launch and commercialize any product candidates for which it receives regulatory approval. Until such time, if ever, the Company can generate revenue sufficient to achieve profitability, the Company expects to finance its operations through a combination of equity offerings, debt financings, collaborations, strategic alliances and licensing arrangements. There can be no assurance that such financing will be available on terms acceptable to the Company, or at all. To the extent that the Company raises additional capital through the sale of equity or convertible debt securities, the ownership interest of its stockholders will be diluted, and the terms of these securities may include liquidation of other preferences that adversely affect the rights of common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting the Company's ability to take specific actions, such as incurring additional debt, making acquisitions or capital expenditures or declaring dividends. If the Company is unable to maintain sufficient financial resources, its business, financial condition and results of operations will be materially and adversely affected. The Company may be required to delay, limit, reduce or terminate its product discovery and development activities or future commercialization efforts.

The Company initiated a Phase 1 clinical trial of ACU193 in the second quarter of 2021, which the Company named "INTERCEPT-AD." This trial enrolled patients with mild dementia or mild cognitive impairment ("MCI"), due to AD, conditions referred to as "early AD." INTERCEPT-AD is a U.S.-based, multi-center, randomized, double-blind, placebo-controlled clinical trial with overlapping single ascending dose and multiple ascending dose cohorts involving a total of approximately 65 patients with early AD.

NOTE 2. BASIS OF PRESENTATION, SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND RECENT ACCOUNTING PRONOUNCEMENTS

Basis of Presentation

The accompanying financial statements of the Company have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and pursuant to the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). In the opinion of management, all adjustments (consisting of normal recurring adjustments) have been made that are necessary to present fairly the Company's financial position, and the results of its operations and its cash flows.

Emerging Growth Company

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB"), or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed, the impact of recently issued standards that are not yet effective will not have a material impact on the Company's financial statements upon adoption. Under the Jumpstart Our Business Startups Act of 2012, as amended, the Company meets the definition of an emerging growth company and has elected the extended transition period for complying with new or revised accounting standards, which delays the adoption of these accounting standards until they would apply to private companies.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of expenses during the reporting periods. These estimates and assumptions are based on the Company's historical experience, and on various other factors that management believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities and the recording of expenses that are not readily apparent from other sources.

Actual results may differ from these estimates under different assumptions or conditions. To the extent there are material differences between the estimates and actual results, the Company's future results of operations will be affected.

Reclassifications

Certain prior year amounts have been reclassified for consistency with the current period presentation. Accrued clinical trial expenses are presented as a separate line on the balance sheets and statements of cash flows, whereas these accrued expenses were previously included in accrued expenses and other current liabilities. These reclassifications had no effect on the reported results of operations.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less at the date of purchase to be cash equivalents. The Company's cash equivalents consist of funds held in several money market accounts. The Company had $129.1 million and $121.2 million in cash equivalents as of December 31, 2022 and 2021, respectively.

Marketable Securities

The Company's marketable securities portfolio consists primarily of investments in money market funds, commercial paper, asset-backed securities, U.S. treasury securities and short-term highly liquid, high credit quality corporate debt securities. The Company considers its marketable securities to be available-for-sale. Available-for-sale securities are classified as cash equivalents, or as short-term or long-term marketable securities based on the maturity date at time of purchase and their availability to meet current operating requirements. Available-for-sale securities that mature in three months or less from the date of purchase are classified as cash equivalents. Available-for-sale securities, excluding cash equivalents, that mature in one year or less are classified as short-term marketable securities and those that mature in more than one year are classified as long-term.

Securities that are classified as available-for-sale are measured at fair value; see "*Fair Value of Financial Instruments*" below. Any premium arising at purchase is amortized to the earliest call date and any discount arising at purchase is accreted to maturity. Amortization and accretion of premiums and discounts are recorded along with interest income on investments in interest income, net in the statements of operations and comprehensive loss. Unrealized gains and losses are excluded from earnings and are reported as a component of other comprehensive income. The Company periodically evaluates whether declines in fair values of its available-for-sale securities below their book value are other-than-temporary. This evaluation consists of several qualitative and quantitative factors regarding the severity and duration of the unrealized loss, as well as the Company's ability and intent to hold the available-for-sale security until a forecasted recovery occurs. The Company does not generally intend to sell its available-for-sale securities; however, the Company assesses whether it is more likely than not that it will be required to sell any security before recovery of its amortized cost basis. Realized gains and losses and declines in fair value judged to be other-than-temporary on available-for-sale securities will be included in other expense, net. The cost of investments sold will be calculated using the specific-identification method. The Company did not record any other-than-temporary impairments related to available-for-sale securities for the years ended December 31, 2022 or 2021.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to significant concentration of credit risk consist primarily of cash, cash equivalents and marketable securities. The Company maintains deposits in financial institutions in excess of government insured limits. Management believes that the Company is not exposed to significant credit risk as the Company's cash and cash equivalents are held at financial institutions that management believes to be of high credit quality. The Company has not experienced any losses due to credit risk on such accounts during any of the periods presented.

Fair Value of Financial Instruments

The Company's financial assets and liabilities are accounted for in accordance with Accounting Standards Codification ("ASC") 820, *Fair Value Measurements and Disclosures*, which defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset

or liability in an orderly transaction between market participants on the measurement date. The fair value hierarchy requires an entity to maximize the use of observable inputs when measuring fair value and classifies those inputs into three levels:

Level 1 — Observable inputs, such as quoted prices in active markets for identical assets or liabilities.

Level 2 — Inputs other than Level 1 inputs that are either directly or indirectly observable, 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 instrument's anticipated life.

Level 3 — Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

To the extent the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair values requires more judgement. Accordingly, the degree of judgement exercised by management in determining fair value is greatest for instruments categorized as Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The carrying values reported in the Company's balance sheets for cash (excluding cash equivalents which are recorded at fair value on a recurring basis), accounts payable and accrued expenses are reasonable estimates of their fair values due to the short-term nature of these items.

Property and Equipment

Property and equipment consists primarily of computer equipment and furniture and fixtures and is stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets, which is generally three years for computer-related assets and five years for furniture.

Leases

Effective as of January 1, 2022, the Company accounts for its leases under ASC 842, *Leases*. Under this guidance, arrangements meeting the definition of a lease are classified as operating or financing leases and are recorded on the balance sheet as both a right-of-use asset and a lease liability, calculated by discounting fixed lease payments over the lease term at the rate implicit in the lease or the Company's incremental borrowing rate. Lease liabilities are increased by interest and reduced by payments each period, and right-of-use assets are amortized over the lease term. For operating leases, interest on the lease liability and the amortization of the right-of-use asset results in straight-line rent expense over the lease term. Variable lease expenses are recorded when incurred and not included in the measurement of right-of-use assets and lease liabilities.

ASC 842 provides practical expedients for an entity's ongoing accounting. In calculating right-of-use assets and lease liabilities, the Company has elected to combine lease and non-lease components. Additionally, the Company has elected to apply the practical expedient related to short-term leases (i.e., leases having initial terms of 12 months or less at commencement date) as an accounting policy election. For short-term leases, the Company will not recognize a right-of-use asset or lease liability, but instead will recognize lease payments as an expense on a straight-line basis over the lease term.

Prior to the adoption of ASC 842 on January 1, 2022, the Company accounted for its leases under ASC 840, *Leases.*

Convertible Preferred Stock

The Company recorded shares of convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. The Company applied the guidance in ASC 480-10-S99-3A, *SEC Staff Announcement: Classification and Measurement of Redeemable Securities*, and therefore classified the Series A, Series A-1 and Series B convertible preferred stock as mezzanine equity. The convertible preferred stock was recorded outside of stockholders' deficit because, in the event of certain deemed liquidation events considered not solely within the Company's control, such as a merger, acquisition and sale of all or substantially all of the Company's assets, the convertible preferred stock would have become redeemable at the option of the holders. In the event of a change of control of the Company, proceeds received from the

sale of such shares would have been distributed in accordance with the corresponding liquidation preferences. The Company did not adjust the carrying values of the convertible preferred stock to the deemed liquidation values of such shares since a liquidation event was not probable at any of the reporting dates.

As mentioned above in Note 1, in connection with the closing of the IPO, all of the outstanding shares of Series A, Series A-1 and Series B convertible preferred stock automatically converted into an equal number of shares of common stock on July 6, 2021.

Preferred Stock Tranche Rights Liability

The Company determined that its obligation to issue, and the Company's investors' right to purchase, additional shares of Series B convertible preferred stock pursuant to a subsequent closing, (deemed the "Milestone Closing" in Note 7) represented a freestanding financial instrument (the "tranche liability"), as it was legally detachable and separately exercisable from the initial closing of the Series B convertible preferred stock. The tranche liability was initially recorded at fair value. The proceeds from the sale of the convertible preferred stock were first allocated to the fair value of the tranche liability with the remaining proceeds from the sale of the convertible preferred stock allocated to the Series B convertible preferred stock. The tranche liability was remeasured at each reporting period and upon the exercise of the obligation, with gains and losses arising from subsequent changes in its fair value recognized in other income and expense in the statements of operations and comprehensive loss. The Milestone Closing occurred on June 17, 2021, and as a result, the remaining value of the tranche liability was reclassified to convertible preferred stock on the balance sheet.

Preferred Stock Warrant Liability

The Company accounted for the warrant to purchase Series A-1 convertible preferred stock as a liability as this warrant was a freestanding financial instrument that required the Company to transfer assets upon exercise. The warrant liability was initially recorded at fair value. The warrant liability was remeasured at each reporting period and upon the exercise of the applicable warrant, with gains and losses arising from subsequent changes in its fair value recognized in other income and expense in the statements of operations and comprehensive loss. The warrant was exercised on June 22, 2021, and the remaining value of the warrant liability was reclassified to convertible preferred stock on the balance sheet. There were no preferred stock warrants outstanding as of December 31, 2022.

Common Stock Warrants

The Company assesses whether warrants issued require accounting as derivatives. The Company determined that its common stock warrants were (1) indexed to the Company's own stock and (2) classified in stockholders' equity in accordance with FASB ASC Topic 815, *Derivatives and Hedging*. As such, the Company concluded the warrants met the scope exception for determining whether the instruments require accounting as derivatives and should be classified in stockholders' equity. In June 2021, several holders of warrants to purchase the Company's common stock exercised their warrants and purchased a total of 137,446 shares of common stock at an exercise price of $4.47. On July 6, 2021, in connection with the closing of the Company's IPO, the Company issued 178,847 shares of common stock in exchange for the 248,247 outstanding common stock warrants at an exercise price of $4.47 and there were no common stock warrants outstanding following this issuance.

Research and Development Expenses

Research and development expenses primarily consist of consultants and materials, biologic storage, salaries and other personnel-related expenses related to research and development activities and are expensed as incurred. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and are reflected on the balance sheets as prepaid or accrued expenses. The Company records accruals for estimated ongoing research costs. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the studies, including the phase or completion of events, invoices received and contracted costs.

Clinical trial costs are a significant component of research and development expenses and include costs associated with third-party contractors. The Company accrues and expenses costs for clinical trial activities performed by third parties based upon the work completed to date for each clinical trial in accordance with established agreements. The Company determines its costs through discussions with internal clinical stakeholders and outside service providers as to the progress

or stage of completion of clinical trials or services and the contracted fee to be paid for such services. In the event advance payments are made to an outside service provider, the payments are recorded within prepaid expenses and other current assets on the Balance Sheet and subsequently recognized as research and development expense in the Statement of Operations when the associated services have been performed. As actual costs become known, the Company adjusts its estimates, liabilities and assets. Inputs used in the determination of estimates discussed above may vary from actual, which will result in adjustments to research and development expense in future periods.

Stock-based Compensation

The Company expenses stock-based compensation to employees, non-employees and board members over the requisite service period based on the estimated grant date fair value of the awards and actual forfeitures. The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model, which requires the use of a number of complex assumptions including the fair value of the common stock, expected volatility, risk-free interest rate, expected dividends, and the expected term of the option. The assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award. All stock-based compensation costs are recorded in research and development expense or general and administrative expense in the statements of operations and comprehensive loss based upon the respective employee's or non-employee's roles within the Company. Forfeitures are recorded as they occur. See also Note 9 below.

Income Taxes

Income taxes are recorded in accordance with ASC 740, *Income Taxes* ("ASC 740"), which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse, and net operating loss ("NOL") carryforwards and research and development ("R&D") tax credit carryforwards. Valuation allowances are provided if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. The Company has recorded a full valuation allowance to reduce its net deferred income tax assets to zero. In the event the Company were to determine that it would be able to realize some or all of its deferred income tax assets in the future, an adjustment to the deferred income tax asset valuation allowance would increase income in the period such determination was made.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit would more likely than not be realized assuming examination by the taxing authority. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. The Company has not recorded any liabilities related to uncertain tax positions as of December 31, 2022 and 2021. The Company's policy is to record interest and penalties, if any, as part of income tax benefit. No interest or penalties were recorded during the years ended December 31, 2022 and 2021.

Net Loss Per Share of Common Stock

Basic net loss per share of common stock is calculated using the two-class method under which earnings are allocated to both common shares and participating securities based on their participation rights. Net loss attributable to common stockholders was not allocated to the convertible preferred stock as the holders of the convertible preferred stock did not have a contractual obligation to share in any losses. Basic net loss per share is calculated by dividing the net loss attributable to common shares by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share of common stock is computed by dividing the net loss using the weighted-average number of common shares and, if dilutive, potential common shares outstanding during the period. For the year ended December 31, 2022, potential common shares consisted of stock options. For the year ended December 31, 2021, potential common shares consisted of stock options and warrants to purchase common stock (using the treasury stock method), and the conversion of convertible preferred stock and the preferred warrant (using the if-converted method). See Note 12 below.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one segment.

Recently Adopted Accounting Pronouncements

ASC 842 requires lessees to recognize the liabilities related to all leases, including operating leases, with a term greater than 12 months on the balance sheet and also requires lessees and lessors to disclose key information about their leasing transactions. The Company adopted this guidance on January 1, 2022, using the modified retrospective method and the Company elected the package of practical expedients upon transition, which retained the lease classification for leases that existed prior to the adoption of this guidance. The Company recorded both a right-of-use asset and a lease liability of approximately $0.2 million on its balance sheet upon the adoption of ASC 842.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* ("ASU 2019-12"), which is intended to simplify various aspects related to accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in ASC 740 and also clarifies and amends existing guidance to improve consistent application. The Company adopted this guidance on January 1, 2022 with no material impact to the Company's financial statements upon adoption.

Recently Issued Accounting Pronouncements

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which was codified with its subsequent amendments as ASC 326. ASC 326 seeks to provide financial statement users with more decision-useful information about the expected credit losses on financial instruments, including trade receivables, and other commitments to extend credit held by a reporting entity at each reporting date. The amendments require an entity to replace the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects current expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The updated guidance is effective for the Company on January 1, 2023. The Company's marketable securities portfolio consists entirely of available-for-sale debt securities and, as such, the adoption of this guidance did not have a material impact on its financial statements and disclosures upon adoption.

NOTE 3. MARKETABLE SECURITIES

The Company's marketable securities consisted of the following (in thousands):

	December 31, 2022			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Available-for-sale securities, short-term				
Corporate debt securities	$ 30,174	$ —	$ (249)	$ 29,925
Asset-backed securities	3,006	—	(102)	2,904
U.S. treasury securities	15,032	—	(357)	14,675
Total available-for-sale securities, short-term	48,212	—	(708)	47,504
Available-for-sale securities, long-term				
Corporate debt securities	15,880	—	(43)	15,837
Total available-for-sale securities, long-term	15,880	—	(43)	15,837
Total available-for-sale securities	$ 64,092	$ —	$ (751)	$ 63,341

	December 31, 2021			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Available-for-sale securities, short-term				
Commercial paper	$ 47,939	$ —	$ —	$ 47,939
Corporate debt securities	7,992	—	(11)	7,981
Asset-backed securities	16,177	—	(22)	16,155
Total available-for-sale securities, short-term	72,108	—	(33)	72,075
Available-for-sale securities, long-term				
Corporate debt securities	16,816	—	(103)	16,713
Asset-backed securities	3,013	—	(25)	2,988
U.S. treasury securities	11,988	—	(70)	11,918
Total available-for-sale securities, long-term	31,817	—	(198)	31,619
Total available-for-sale securities	$ 103,925	$ —	$ (231)	$ 103,694

As of December 31, 2022, the Company's available-for-sale securities classified as short-term mature in one year or less and the Company's available-for-sale securities classified as long-term mature within two years. Certain of the Company's available-for-sale marketable securities that were in an unrealized loss position as of December 31, 2022 have been in a loss position for between 12 to 15 months; however, unrealized losses on available-for-sale securities as of December 31, 2022 were not significant and were primarily due to changes in interest rates, including market credit spreads, and not due to increased credit risks associated with specific securities. Accordingly, no other-than-temporary impairment was recorded for the years ended December 31, 2022 and 2021. There were no realized gains or losses for the years ended December 31, 2022 and 2021. The Company does not intend to sell these securities and it is not more likely than not that the Company will be required to sell the investments before recovery of their amortized cost bases, which may be at maturity.

NOTE 4. FAIR VALUE MEASUREMENTS

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

	Fair value measurements at reporting date using			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Fair Value at December 31, 2022
Assets included in:				
Cash and cash equivalents				
Money market securities	$ 129,100	$ —	$ —	$ 129,100
Marketable securities				
Corporate debt securities	—	45,762	—	45,762
Asset-backed securities	—	2,904	—	2,904
U.S. treasury securities	—	14,675	—	14,675
Total fair value	$ 129,100	$ 63,341	$ —	$ 192,441

	Fair value measurements at reporting date using			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Fair Value at December 31, 2021
Assets included in:				
Cash and cash equivalents				
Money market securities	$ 121,162	$ —	$ —	$ 121,162
Marketable securities				
Commercial paper	—	47,939	—	47,939
Corporate debt securities	—	24,694	—	24,694
Asset-backed securities	—	19,143	—	19,143
U.S. treasury securities	—	11,918	—	11,918
Total fair value	$ 121,162	$ 103,694	$ —	$ 224,856

The fair value of the Company's money market funds is determined using quoted market prices in active markets for identical assets.

The fair value for the available-for-sale marketable securities is determined based on valuation models using inputs that are observable either directly or indirectly (Level 2 inputs), such as quoted prices for similar assets or liabilities, yield curve, volatility factors, credit spreads, default rates, loss severity, current market and contractual prices for the underlying instruments or debt, broker and dealer quotes, as well as other relevant economic measures.

Series B Convertible Preferred Stock Tranche Rights Liability

The fair value for the tranche liability was estimated as a forward contract using a valuation model, calibrated at issuance. The valuation model at issuance estimated the implied value of the Series B stock as of the expected milestone date utilizing the probability of milestone achievement, expected timing of milestone achievement, and risk-free rate. The model was calibrated such that the value of the initial tranche and the forward contract were equal to the initial tranche proceeds at issuance. Subsequently, the fair value of the liability was discounted to the valuation date and adjusted for probability of the achievement of the milestone event. The calibrated valuation model was updated as of the end of each reporting period and in the Stay Private scenario utilized in the hybrid methodology as of June 17, 2021 (the date of the Milestone Closing, as further discussed in Note 7). Significant estimates and assumptions impacting fair value include the discount rate,

expected time to the Milestone Closing, and probability of the Milestone Closing. The discount rate was equal to the risk-free rate commensurate with the estimated timing of the Milestone Closing.

The following assumptions were used in the estimation of the fair value of the tranche liability as a forward contract as of each of the dates indicated:

	June 17, 2021	December 31, 2020
Risk-free interest rate	0.07%	0.12%
Expected time to Milestone Closing (in years)	0.8	1.3
Probability of achievement of Milestone Closing	100%	65%

For the other portion of the hybrid method used as of June 17, 2021, the fair value for the tranche liability was estimated based upon an allocation of the underlying equity value, which was determined using an IPO value as estimated through analysis of IPOs for comparable guideline companies, to arrive at a value per share in the IPO scenario. The estimated fair value of the tranche liability was $81.2 million and $5.0 million as of the Milestone Closing on June 17, 2021 and December 31, 2020, respectively. The significant increase in the June 17, 2021 valuation stemmed from both a shift in methodology from an option pricing method ("OPM") to a Hybrid Model where the concluded value of the forward tranche was derived by the sum of the probability weighted present value of the forward tranche in the Stay Private and IPO scenarios (with the former including all other potential exit scenarios other than an imminent IPO), as well as the increase in the probability of achievement of the Milestone Closing. The resulting difference in estimated fair value was recognized as a change in fair value within other income in the accompanying statements of operations.

The tranche liability was revalued each reporting period with the change in fair value recorded in the accompanying statements of operations through the issuance of the Milestone Shares on June 17, 2021. Following the Milestone Closing, the remaining tranche liability was reclassified to convertible preferred stock on the balance sheet.

Series A-1 Convertible Preferred Stock Warrant Liability

On October 19, 2018, the Company issued a ten-year warrant (the "Series A-1 Warrant") to purchase up to an aggregate of 447,426 shares of Series A-1 convertible preferred stock at an exercise price of $2.794 on or before October 18, 2028.

The warrant liability met the definition of a freestanding financial instrument, as it was legally detachable and separately exercisable from the initial closing of the Series A-1 convertible preferred stock. As such, it was revalued each reporting period with the change in fair value recorded in the accompanying statements of operations until the warrant was exercised on June 22, 2021.

The fair value of the warrant liability was estimated using the OPM backsolve method as of December 31, 2020 and using a hybrid method, which included an OPM backsolve in the Stay Private scenario as of June 22, 2021. The following assumptions were used in the estimation of the fair value of the warrant liability using the OPM backsolve method as of each of the dates indicated:

	June 22, 2021	December 31, 2020
Risk-free interest rate	0.25%	0.13%
Expected term (in years)	2.0	2.0
Expected volatility	90%	90%
Expected dividend yield	0%	0%

The hybrid method used to value the warrant liability at June 22, 2021 considered both the underlying equity value determined using the OPM backsolve method in a Stay Private scenario, as well as the underlying equity value that was determined using an expected IPO value as estimated through analysis of IPOs for comparable guideline companies, to arrive at a value per share in the IPO scenario. The underlying equity values from each approach were probability weighted

based upon the expected likelihood of each scenario. The fair value of the warrant liability was estimated to be $12.02 and $0.85 as of June 22, 2021 and December 31, 2020, respectively.

The following table provides a reconciliation of the tranche liability and warrant liability measured at fair value using Level 3 significant unobservable inputs (in thousands):

	Series A-1 Preferred Stock Warrant	Series B Tranche Rights	Total
Balance, January 1, 2021	$ 380	$ 5,033	$ 5,413
Change in fair value	5,000	76,157	81,157
Settlement of tranche liability due to issuance of Milestone Shares	—	(81,190)	(81,190)
Settlement of warrant liability upon exercise of warrant	(5,380)	—	(5,380)
Balance, December 31, 2021	$ —	$ —	$ —

NOTE 5. SUPPLEMENTAL FINANCIAL INFORMATION

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

	December 31,	
	2022	2021
Prepaid insurance	$ 1,106	$ 1,514
Research and development service agreements	1,077	2,591
Prepaid raw materials	199	83
Dues and subscriptions	105	96
Other	237	140
Total prepaid expenses and other current assets	$ 2,724	$ 4,424

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

	December 31,	
	2022	2021
Research and development	$ 1,211	$ 2,476
Compensation and other employee liabilities	2,008	1,102
Legal	—	130
Other	131	204
Total accrued expenses and other current liabilities	$ 3,350	$ 3,912

NOTE 6. LEASES

The Company has been subleasing space in Carmel, Indiana since March 1, 2020. The Company executed a new sublease for this space that was effective on February 1, 2021 and expires on August 30, 2023. The sublease does not provide the Company with any renewal options. The Company allows others to sublease a portion of the space from the Company for less than a one-year period. The Company recognizes sublease income in other income (expense) on its statements of operations and comprehensive loss. The Company expects to recognize approximately $9,000 in sublease income during 2023.

On September 28, 2022, the Company entered into a lease for office space in Charlottesville, Virginia with a lease term of 15 months beginning October 1, 2022. On December 1, 2022, the Company entered into a lease for additional office space in the same building in Charlottesville, Virginia with a lease term of 12 months beginning on January 1, 2023. There is no

automatic renewal for either of the Charlottesville, Virginia leases, but any holdover tenancy shall be on a month-to-month basis thereafter.

The following table summarizes quantitative information about the Company's operating leases for the year ended December 31, 2022 (in thousands):

Operating leases		
Operating lease cost	$	154
Less: sublease income		(43)
Operating lease expense		111
Short-term lease rent expense		13
Total rent expense	$	124

Supplemental information related to leases for the year ended December 31, 2022 was as follows (dollar amounts in thousands):

Operating cash flows from operating leases	$154
Right-of-use assets obtained in exchange for operating lease liabilities	$242
Weighted-average remaining lease term – operating leases (in years)	0.7
Weighted-average discount rate – operating leases	10.0%

As of December 31, 2022, the present value of maturities of the Company's operating lease liabilities were as follows (in thousands):

Year ended December 31, 2023	$	109
Less: present value discount		(4)
Operating lease liabilities	$	105

Prior to the adoption of ASC 842, and for the year ended December 31, 2021, the Company recognized rent expense on a straight-line basis over the lease period and recorded deferred rent expense for rent expense incurred but not yet paid. During the year ended December 31, 2021, the Company recognized total rent expense of approximately $147,000, and recognized sublease income of approximately $66,000.

NOTE 7. CONVERTIBLE PREFERRED STOCK

Convertible Preferred Stock

On June 9, 2021, the Board and the holders of more than 67% of the then-outstanding shares of Series B convertible preferred stock held by the Series B purchasers (the "Requisite Investors") elected to waive the achievement of the milestone subject to the terms and conditions of the Series B Preferred Stock Purchase Agreement (the "Series B Agreement") and consummate the subsequent closing (the "Milestone Closing"). On June 17, 2021, the Milestone Closing for the Series B convertible preferred stock occurred, resulting in the sale of 7,908,027 shares of Series B convertible preferred stock at $3.80 per share for gross proceeds of $30.0 million, bringing the total number of Series B convertible preferred shares outstanding to 19,770,070. See "*Series B Convertible Preferred Stock Tranche Rights Liability*" above in Note 4.

On June 22, 2021, a warrant to purchase 447,426 shares of Series A-1 convertible preferred stock at an exercise price of $2.794 per share was exercised (see "*Series A-1 Convertible Preferred Stock Warrant Liability*" above in Note 4), bringing the total number of Series A-1 convertible preferred shares outstanding to 7,985,305.

Conversion rights

Shares of all series of convertible preferred stock were convertible into such number of fully paid and non-assessable shares of common stock as determined by dividing the original issuance price for such series by the applicable conversion price for such series then in effect. The initial conversion price per share for each series of convertible preferred stock was the original issue price applicable to such series as shown in the table above, subject to adjustment in the event of certain dilutive issuances. The convertible preferred stock original issuance price and conversion price were each subject to adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the convertible preferred stock.

Each share of convertible preferred stock was convertible at any time at the option of the holder at the conversion ratio then in effect. In addition, each share of convertible preferred stock was to be automatically converted into common stock at the conversion ratio then in effect upon either (a) the closing of an underwritten public offering resulting in gross proceeds to the Company of at least $75 million and at a price per share equal to at least two times the Series B original issuance price, or $7.60 (subject to adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B convertible preferred stock), or (b) the date and time, or the occurrence of an event, specified in such vote or written consent of at least 67% of the holders of the then-outstanding shares of Series B convertible preferred stock.

On July 6, 2021, in connection with the closing of the IPO, 477,297 shares of Series A, 7,985,305 shares of Series A-1, and 19,770,070 shares of Series B convertible preferred stock, respectively, automatically converted into an equal number of shares of common stock. There were no shares of convertible preferred stock outstanding as of December 31, 2022 or 2021.

NOTE 8. STOCKHOLDERS' EQUITY

Authorized Shares

On July 6, 2021, the Company issued 9,999,999 shares of common stock in the IPO, and on July 8, 2021, the Company issued an additional 1,499,999 shares of common stock that were purchased by the underwriters pursuant to the underwriters' option to purchase additional shares at the public offering price less underwriting discounts and commissions. The price to the public for each share was $16.00. The aggregate net proceeds from the Company's IPO, after underwriting discounts and commissions and other offering expenses of $15.4 million, were $168.6 million.

Effective upon the closing of the IPO on July 6, 2021, the Company amended its certificate of incorporation such that the total number of shares of all classes of capital stock authorized to be issued was increased to 310,000,000, with 10,000,000 shares designated as preferred stock with a par value of $0.0001, and 300,000,000 shares designated as common stock with a par value of $0.0001.

Common Stock

As of December 31, 2022, the Company's Amended and Restated Certificate of Incorporation authorized the issuance of 300,000,000 shares of common stock, $0.0001 par value per share. Each share of common stock is entitled to one voting right.

Shelf Registration and At-The-Market Equity Offering

On July 1, 2022, the Company filed a shelf registration statement on Form S-3 (the "Registration Statement"). Pursuant to the Registration Statement, the Company may offer and sell securities having an aggregate public offering price of up to $200.0 million. In connection with the filing of the Registration Statement, the Company also entered into a sales agreement with BofA Securities, Inc. and Stifel, Nicolaus & Company, Incorporated (the "Sales Agents"), as sales agents, pursuant to which the Company may issue and sell shares of its common stock for an aggregate offering price of up to $50.0 million under an at-the-market offering program (the "ATM"), which is included in the $200.0 million of securities that may be offered pursuant to the Registration Statement. Pursuant to the ATM, the Company will pay the Sales Agents a commission rate of up to 3.0% of the gross proceeds from the sale of any shares of common stock. The Company is not obligated to make any sales of shares of its common stock under the ATM.

In October 2022, the Company issued 422,160 shares of common stock under the ATM for net proceeds of $3.8 million, at a weighted average price of $10.06 per share.

Common Stock Warrants

In accordance with ASC 815, the common stock warrants issued in 2014 through 2017 did not meet the definition of a derivative and were classified in stockholders' equity (deficit) in the consolidated balance sheets.

In June 2021, several holders of warrants to purchase the Company's common stock exercised their warrants and purchased a total of 137,446 shares of common stock at an exercise price of $4.47. On July 6, 2021, the Company issued 178,847 shares of common stock in exchange for the remaining 248,247 outstanding common stock warrants at an exercise price of $4.47. As of December 31, 2022 and 2021, there were no common stock warrants outstanding.

NOTE 9. STOCK-BASED COMPENSATION

2021 Equity Incentive Plan

The 2021 Equity Incentive Plan (the "2021 Plan"), which provides for the grant of incentive stock options to employees, and the grant of nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards and other forms of stock awards to employees, directors and consultants, became effective on June 30, 2021. The 2021 Plan is a successor to the Company's Amended and Restated Stock Performance Plan that was adopted by the Board and stockholders on April 8, 2013 (as amended from time to time, most recently on November 20, 2020, the "2013 Plan"). Following the effectiveness of the 2021 Plan, no further grants may be made under the 2013 Plan; however, any outstanding equity awards granted under the 2013 Plan continue to be governed by the 2013 Plan. As of December 31, 2022, there were 3,326,220 options outstanding under the 2013 Plan.

Initially, the maximum number of shares of the Company's common stock that may be issued under the 2021 Plan was 7,698,282 shares, which is the sum of (1) 3,550,000 new shares, plus (2) 667,104 shares that remained available for issuance under the Company's 2013 Plan at the time the 2021 Plan became effective, plus (3) any shares subject to outstanding stock options or other stock awards that were granted under the 2013 Plan that, on or after the 2021 Plan became effective, terminate or expire prior to exercise or settlement, are settled in cash, are forfeited or repurchased because of the failure to vest, or are reacquired or withheld to satisfy a tax withholding obligation or the purchase or exercise price in accordance with the terms of the 2013 Plan. In addition, the number of shares of the Company's common stock reserved for issuance under the 2021 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2022 through January 1, 2031, in an amount equal to 5% of the total number of shares of the Company's common stock outstanding on December 31 of the fiscal year before the date of each automatic increase, or a lesser number of shares determined by the Board prior to the applicable January 1. On January 1, 2022, the Board increased the number of shares of common stock reserved for issuance under the 2021 Plan by 2,023,663 shares.

The maximum number of shares of the Company's common stock that may be issued upon the exercise of incentive stock options under the 2021 Plan is 12,000,000. As of December 31, 2022, 9,721,945 shares were authorized for issuance under the 2021 Plan and 3,976,237 shares remained available for issuance under the 2021 Plan.

Stock Options

The Black-Scholes option-pricing model was used to estimate the fair value of stock options granted during the years ended December 31, 2022 and 2021 with the following weighted average assumptions:

	Year Ended December 31,	
	2022	2021
Risk-free interest rate	1.7% – 4.2%	0.4% – 1.3%
Expected term (in years)	5.8 – 6.1	5.3 – 6.1
Expected volatility	90%	90%
Expected dividend yield	0%	0%

The weighted average grant date fair value of options granted during the years ended December 31, 2022 and 2021 was $3.79 per share and $1.93 per share, respectively.

Prior to the Company's IPO, the fair value of the Company's common stock underlying the stock options was historically determined by the Board with assistance from management and, occasionally with input from an independent third-party valuation firm. For the year ended December 31, 2020, management engaged an independent third-party valuation firm to provide an estimate of the fair value of its common stock, which was utilized as an input to the Company's Black-Scholes options pricing model for stock options awarded during the first quarter of 2021. The December 31, 2020 fair value of common stock was determined considering a number of objective and subjective factors, including valuations of comparable companies, sales of convertible preferred stock, operating and financial performance, the lack of liquidity of the Company's common stock and the general and industry-specific economic outlook. The fair value of the Company's common stock as of June 30, 2021 was estimated based upon the per share offering price of the Company's common stock to the public in its IPO which closed on July 6, 2021. The June 30, 2021 fair value for the Company's common stock was utilized as an input for options granted by the Company to its Board on June 30, 2021, which was immediately prior to the IPO. As of June 30, 2021 and December 31, 2020, management estimated the fair value of a share of common stock to be $16.00 and $0.83, respectively.

As of December 31, 2020, management, with the assistance of an independent third-party valuation firm, estimated the fair value of a share of common stock utilizing the following assumptions:

Risk-free interest rate	0.13%
Expected time to liquidity event (in years)	2.0
Expected volatility	90%
Expected dividend yield	0%

The stock options granted after December 31, 2017 vest monthly over a range of 12 to 36 months or vest monthly over a total of 48 months following a one-year cliff and all have a ten-year contractual term. Stock options granted prior to December 31, 2017 were either fully vested upon grant or generally vested monthly over a range of three to 24 months and have a ten-year term. The Company became publicly traded in July 2021 and lacks company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies. Due to the lack of historical exercise history, the expected term of the Company's stock options has been determined using the "simplified" method for awards. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is zero based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

The following table reflects summarized stock option activity:

	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2022	3,835,618	$ 2.51		
Granted	1,999,050	$ 5.04		
Exercised	(131,626)	$ 0.93		
Forfeited	(79,872)	$ 6.35		
Expired	(12,277)	$ 16.00		
Outstanding at December 31, 2022	5,610,893	$ 3.36	8.1	$ 14,980
Vested and exercisable at December 31, 2022	2,188,874	$ 2.03	7.1	$ 8,714

The intrinsic value of stock options exercised during the years ended December 31, 2022 and 2021was approximately $0.6 million and $0.1 million. As of December 31, 2022, total unrecognized compensation costs related to unvested stock option

awards granted was approximately $8.9 million, which the Company expects to recognize over a weighted-average period of approximately 2.6 years.

The Company recorded stock-based compensation expense related to stock options in the following expense categories of its statements of operations and comprehensive loss for the periods shown (in thousands):

	Year Ended December 31,	
	2022	2021
General and administrative	$ 2,163	$ 690
Research and development	898	232
Total stock-based compensation	$ 3,061	$ 922

Employee Stock Purchase Plan

The 2021 Employee Stock Purchase Plan (the "ESPP"), which permits employees to purchase shares of the Company's common stock, became effective on June 30, 2021. A total of 375,000 shares of the Company's common stock were initially reserved for sale under the ESPP. The number of shares of the Company's common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2022 through January 1, 2031, by the lesser of (1) 1% of the total number of shares of the Company's common stock outstanding on the last day of the fiscal year before the date of the automatic increase, and (2) 800,000 shares; provided that before the date of any such increase, the Board may determine that such increase will be less than the amount set forth in clauses (1) and (2). As of December 31, 2022, there are 779,732 shares authorized for issuance under the ESPP and have been no purchases of shares under the ESPP.

NOTE 10. INCOME TAXES

The Company has not recorded any tax provision or benefit for federal income taxes for the years ended December 31, 2022 and 2021. Current income taxes are based upon the year's income taxable for federal and state tax reporting purposes. Deferred income taxes (benefits) are provided for certain income and expenses, which are recognized in different periods for tax and financial reporting purposes. Deferred tax assets and liabilities are computed for differences between the financial statements and tax bases of assets and liabilities that will result in taxable or deductible amounts in the future based on enacted tax laws and rates applicable to the period in which the differences are expected to affect taxable income, and NOL and R&D tax credit carryforwards.

A reconciliation of the expected tax computed at the U.S. statutory federal income tax rate to the total benefit for income taxes for the years ended December 31, 2022 and 2021 is as follows:

	Year Ended December 31,	
	2022	2021
Statutory federal income tax rate	21.0 %	21.0 %
State tax, net of federal benefit	2.7	0.7
Non-deductible stock compensation	(0.5)	—
Rate change	(1.1)	(0.2)
Change in fair value of tranche and warrant liabilities	—	(16.9)
Non-deductible expense	—	(0.1)
R&D credit	—	(0.3)
Other	—	0.1
Change in valuation allowance	(22.1)	(4.3)
Income tax provision (benefit)	0.0 %	0.0 %

Significant components of the Company's deferred tax assets as of December 31, 2022 and 2021 were as follows (in thousands):

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss	$ 13,125	$ 10,819
R&D credit	1,381	1,381
Capitalized R&D	6,788	—
Stock compensation	675	263
Accruals and other temporary differences	179	58
Gross deferred tax assets	22,148	12,521
Valuation allowance	(22,118)	(12,520)
Total deferred tax assets	30	1
Deferred tax liabilities:		
Depreciation	(30)	(1)
Total deferred tax liabilities	(30)	(1)
Net deferred tax assets	$ —	$ —

In assessing the realizability of deferred tax assets as of December 31, 2022 and 2021, management considered whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible or the NOL carryforwards and R&D tax credit carryforwards will be used. The Company has determined that it is not more likely than not that its deferred tax assets will be realized. Accordingly, a valuation allowance for the full amount of the net deferred tax assets has been recorded as of December 31, 2022 and 2021. The change in the valuation allowance as of December 31, 2022 from December 31, 2021 is due to the pretax loss incurred for the year ended December 31, 2022.

As of December 31, 2022, the Company had approximately $52.7 million of NOL carryforwards available for federal tax purposes which a portion begins to expire on December 31, 2028. As a result of the Tax Act of 2017, for U.S. income tax purposes, NOLs generated prior to December 31, 2017 can still be carried forward for up to 20 years, but NOLs generated after December 31, 2017 carryforward indefinitely, but are limited to 80% utilization against taxable income. Of the total federal NOL of $52.7 million, $6.4 million will begin to expire in 2028 and $46.2 million will not expire.

As of December 31, 2022, the Company also had approximately $61.3 million of state NOL carryforwards. The state NOLs begin to expire on December 31, 2028.

As of December 31, 2022, the Company had approximately $1.4 million of R&D credit carryforwards available for federal tax purposes, which begin to expire on December 31, 2023.

Utilization of the NOL and R&D credit carryforwards may be subject to a substantial annual limitation due to ownership change limitations that may have occurred or that could occur in the future, as required by Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), as well as similar state provisions. These ownership changes may limit the amount of NOL and R&D credit carryforwards that can be used annually to offset future taxable income and tax, respectively. In general, an "ownership change" as defined by Section 382 of the Code results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50% of the outstanding stock of a company by certain stockholders. The Company has not completed a formal analysis of the potential impact of Section 382 on its deferred tax assets as of December 31, 2022. Until this analysis has been completed, the Company has not adjusted any of its deferred tax assets, including NOLs or R&D credits. The Company will reassess the amount of NOLs and credits subject to limitation under Section 382 when a study is complete. Due to the existence of the valuation allowance, future changes in the deferred tax assets related to these tax attributes will not impact the Company's effective tax rate.

The Company is subject to U.S. federal and various state taxes. Generally, the tax years remain open for examination by the federal statute under a three-year statute of limitation; however, states generally keep their statutes open for four years. However, the Company's tax years from 2003 and after are subject to examination by the United States and state taxing authorities due to the carry forward of unused NOLs and R&D credits.

NOTE 11. COMMITMENTS AND CONTINGENCIES

The Company is not a party to any material legal proceedings and is not aware of any pending or threatened claims. From time to time, the Company may be subject to various legal proceedings and claims that arise in the ordinary course of its business activities.

In November 2022, the Company entered into a License Agreement ("Agreement") with Lonza Sales AG ("Lonza") for a worldwide-non-exclusive license to use certain Lonza technology in its research and development and drug manufacturing activities. Under the terms of the Agreement, in consideration of the licenses and consents granted to the Company, the Company is required to make an annual payment to Lonza (i) in Swiss Francs in the low six-digits where the Company manufactures ACU193 and (ii) in Swiss Francs in the mid six-digits per sublicense upon the anniversary date of the Agreement where a third party manufactures ACU193. In addition, if the Company generates Net Sales, as defined in the Agreement, of ACU193, the Company will be obligated to pay Lonza a royalty of low single digits based upon what entity manufactures ACU193 at that time.

NOTE 12. NET LOSS PER SHARE

The Company computes net loss per common share using the two-class method required for participating securities. Basic and diluted loss per share was the same for each period presented as the inclusion of all potential common stock outstanding would have been anti-dilutive. Potentially dilutive securities not included in the calculation of diluted net loss per common share, because to do so would be anti-dilutive, include shares issuable upon the exercise of stock options of 5,610,893 and 3,835,618 for the years ended December 31, 2022 and 2021, respectively.

NOTE 13. SUBSEQUENT EVENT

Failure of Silicon Valley Bank

On March 10, 2023, the Company became aware that the Federal Deposit Insurance Corporation ("FDIC") issued a press release (the "FDIC press release") stating that Silicon Valley Bank, Santa Clara, California ("SVB") was closed by the California Department of Financial Protection and Innovation, which appointed the FDIC as receiver. On March 12, 2023, the Treasury Department announced that depositors of SVB would have access to all of their money starting March 13, 2023. The Company had approximately $1.8 million cash deposited with SVB as of December 31, 2022. On March 14, 2023, the Company regained access to the full amount of its cash that was deposited with SVB.

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

We maintain "disclosure controls and procedures," as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our principal executive officer and principal financial officer, 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) as of December 31, 2022. Based on the evaluation of our disclosure controls and procedures, our management concluded that, as of December 31, 2022, our disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed by us in this Annual Report on Form 10-K was (a) reported within the time periods specified by SEC rules and regulations, and (b) communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding any required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of, our principal executive and principal financial and accounting officers and effected by our board of directors and management to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. GAAP, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate. Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO, in the original Internal Control—Integrated Framework updated in 2013. Based on that assessment, our management concluded that our internal control over financial reporting was effective as of December 31, 2022.

Remediation of Material Weakness

Our board of directors and management take internal control over financial reporting and the integrity of our financial statements seriously. In the second half of 2021, we remediated the previously disclosed material weakness in our controls addressing segregation of duties related to roles and responsibilities in our accounting department by hiring additional accounting staff.

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) that occurred during the fiscal quarter ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Attestation Report on Internal Control over Financial Reporting

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm on internal control over financial reporting as we are not subject to section 404(b) of the Sarbanes-Oxley Act of 2022 due to our status as a "smaller reporting company" and "Non-accelerated filer."

Item 9B. Other Information.

None.

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 will be contained in our 2023 Proxy Statement, to be filed with the SEC not later than 120 days after the end of our fiscal year ended December 31, 2022, under the captions “Information Regarding the Board of Directors and Corporate Governance,” “Election of Directors” and “Executive Officers” and is incorporated in this report by reference.

Item 11. Executive Compensation.

The information required by this item will be set forth in the 2023 Proxy Statement under the captions “Executive Compensation” and “Non-Employee Director Compensation” and is incorporated herein by reference.

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

The information required by this item will be set forth in the 2023 Proxy Statement under the captions “Security Ownership of Certain Beneficial Owners and Management” and “Securities Authorized for Issuance under Equity Compensation Plans” and is incorporated herein by reference.

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

The information required by this item will be set forth in the 2023 Proxy Statement under the captions “Transactions with Related Persons” and “Independence of the Board of Directors” and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

The information required by this item will be set forth in the 2023 Proxy Statement under the caption “Ratification of Selection of Independent Registered Public Accounting Firm” and is incorporated herein by reference.

PART IV

Item 15. Exhibit and Financial Statement Schedules.

(a)(1) Financial Statements

The financial statements are included in Item 8. “Financial Statements and Supplementary Data.”

(a)(2) Financial Statement Schedules

All schedules are omitted as information required is inapplicable or the information is presented in the financial statements and the related notes.

(a)(3) Exhibits

Exhibit Number	Description of Exhibit
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K (File No. 001-40551), filed with the Securities and Exchange Commission on July 7, 2021).
3.2	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Company’s Current Report on Form 8-K (File No. 001-40551), filed with the Securities and Exchange Commission on July 7, 2021).
4.1	Amended and Restated Investors’ Rights Agreement, by and among the Registrant and certain of its stockholders, dated November 20, 2020 (incorporated by reference to Exhibit 4.1 to the Company’s Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 9, 2021).
4.2	Description of the Company’s Common Stock (incorporated by reference to Exhibit 4.2 to the Company’s Annual Report on Form 10-K (File No. 001-40551), filed with the Securities and Exchange Commission on March 28, 2022).
10.1*†	License Agreement, by and between the Registrant and Lonza Sales AG, dated November 2, 2022.
10.2†	Collaboration Agreement, by and between the Registrant and Merck & Co., Inc., dated December 22, 2003, as amended and restated as of October 18, 2006 (incorporated by reference to Exhibit 10.1 to the Company’s Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 24, 2021).
10.3+	2021 Equity Incentive Plan and Forms of Option Grant Notice and Agreement, Exercise Notice, Early Exercise Notice and Restricted Stock Award Notice (incorporated by reference to Exhibit 10.2 to the Company’s Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 24, 2021).
10.4+	Non-Employee Director Compensation Policy (incorporated by reference to Exhibit 10.3 to the Company's Annual Report on Form 10-K (File No. 001-40551), filed with the Securities and Exchange Commission on March 28, 2022).
10.5+	2021 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.4 to the Company’s Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 24, 2021).
10.6+	2013 Amended and Restated Stock Performance Plan (as amended through November 20, 2020) (incorporated by reference to Exhibit 10.5 to the Company’s Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 9, 2021).

Exhibit Number	Description of Exhibit
10.7+	Form of Indemnification Agreement with Executive Officers and Directors (incorporated by reference to Exhibit 10.6 to the Company's Registration Statement on Form S-1 (File No. 333-256945), filed with the Securities and Exchange Commission on June 24, 2021).
10.8+	Amended and Restated Executive Employment Agreement, by and between the Registrant and Daniel O'Connell (incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K (File No. 001-40551), filed with the Securities and Exchange Commission on March 28, 2022).
10.9+	Amended and Restated Executive Employment Agreement, by and between the Registrant and Matthew Zuga (incorporated by reference to Exhibit 10.8 to the Company's Annual Report on Form 10-K (File No. 001-40551), filed with the Securities and Exchange Commission on March 28, 2022).
10.10+	Amended and Restated Employment Agreement, by and between the Registrant and Eric Siemers, M.D. (incorporated by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K (File No. 001-40551), filed with the Securities and Exchange Commission on March 28, 2022).
10.11*	Lease Agreement, by and between the Registrant and Price-Poore House, LLC, dated September 28, 2022.
10.12*	Lease Agreement, by and between the Registrant and Price-Poore House, LLC, dated December 1, 2022.
23.1*	Consent of Ernst & Young LLP, independent registered accounting firm.
24.1*	Power of Attorney (included on signature page).
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.
101.INS*	Inline XBRL Instance 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.

† Pursuant to Item 601(b)(10) of Regulation S-K, certain confidential portions of this exhibit have been omitted by means of marking such portions with asterisks [***] as the identified confidential portions (i) are not material and (ii) the Registrant customarily and actually treats that information as private or confidential.

\+ Indicates management contract or compensatory plan.

\# These certifications are being furnished solely to accompany this annual report pursuant to 18 U.S.C. Section 1350, and are not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ACUMEN PHARMACEUTICALS, INC.

Date: March 27, 2023

By: /s/ Daniel O'Connell
Daniel O'Connell
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Daniel O'Connell, William Matthew Zuga and Derek Meisner, and each of them, as his or her true and lawful agents, proxies and attorneys-in-fact, 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 this Annual Report on Form 10-K of Acumen Pharmaceuticals, Inc., and any or all amendments thereto, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that such agent, proxy and attorney-in-fact or any of his substitutes, may lawfully do or cause to be done by virtue thereof.

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

Signature	Title	Date
/s/ Daniel O'Connell Daniel O'Connell	Chief Executive Officer and Director *(Principal Executive Officer)*	March 27, 2023
/s/ William Matthew Zuga William Matthew Zuga	Chief Financial Officer and Chief Business Officer *(Principal Financial Officer and Principal Accounting Officer)*	March 27, 2023
/s/ Kimberlee C. Drapkin Kimberlee C. Drapkin	Director	March 27, 2023
/s/ Nathan B. Fountain Nathan B. Fountain, M.D.	Director	March 27, 2023
/s/ Jeffrey L. Ives Jeffrey L. Ives, PhD	Director	March 27, 2023
/s/ Derrell D. Porter Derrell D. Porter, M.D.	Director	March 27, 2023
/s/ Sean Stalfort Sean Stalfort	Director	March 27, 2023
/s/ Laura Stoppel Laura Stoppel, PhD	Director	March 27, 2023

CONFIDENTIAL
GS SV LICENCE ROW

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL

LICENCE AGREEMENT

between

LONZA SALES AG

and

ACUMEN PHARMACEUTICALS, INC.

[***]

INDEX

APPENDIX

[***]

THIS AGREEMENT is made the day of 2022

BETWEEN

LONZA SALES AG incorporated and registered in Switzerland whose registered office is at Muenchensteinerstrasse 38, CH-4002, Basel, Switzerland (hereinafter referred to as "**Lonza**"),

and

ACUMEN PHARMACEUTICALS, INC. incorporated and registered in USA whose registered office is at 427 Park Street, Charlottesville, VA, 22902, United States (hereinafter referred to as "**Licensee**")

The Licensee and Lonza shall jointly be referred to as the "**Parties**" and individually as the "**Party**".

WHEREAS

A Lonza is the proprietor of the System and the and has the right to grant certain Intellectual Property Rights in relation thereto (all as defined below);

B. The Licensee previously entered into an agreement with [***]; and

C. The Licensee now wishes to take a licence under Intellectual Property Rights of which Lonza is the proprietor in order to use the System (including the Transfected Cell Line) to commercially exploit the Product on the terms set out in this Agreement.

NOW THEREFORE the Parties hereby agree as follows:

1. Definitions and Interpretation

1.1 In this Agreement the following words and phrases shall have the following meanings:

1.1.1 "**Affiliate**" means any company, corporation, limited liability company, partnership or other entity which directly or indirectly controls, is controlled by or is under common control, directly or indirectly, with the relevant Party to this Agreement. "Control" means the ownership of more than fifty percent (50%) of the issued share capital of the entity in question or the legal power to direct or cause the direction of the general management and policies of the entity in question. Such entity shall be deemed an Affiliate only so long as it satisfies the foregoing definition.

1.1.2 "**Approved Territory**" means [***].

1.1.3 **"Cell Line(s)"** means Lonza's CHOK1SV®[1] cell line.

1.1.4 **"Confidential Information"** means any Know-How and confidential information (in any format and on any media) disclosed by or on behalf of one Party to the other in connection with this Agreement including for the avoidance of doubt the terms of this Agreement itself. In the case of Lonza, Confidential Information shall mean all non-public information relating to the

[1] *All trade marks (®) are registered in CH, EU or USA*

[***]

System and any other materials, specifications or information which is provided and/or disclosed by Lonza or its Representatives, to the Licensee and its Representatives, whether directly or indirectly, including, without limitation, all agreements, research databases, trade secrets, Intellectual Property Rights, business and/ or commercial and/ or financial data, specifications, technical designs, documents and drawings which are related to the System, and/or Lonza's business. In the case of Licensee, Confidential Information shall mean (to the extent applicable) information of a confidential nature disclosed by Licensee to Lonza under this Agreement relating to the Product , including: (i) confidential financial information, business plans, projections or strategies in relation to the Product, ; (ii) Licensee's research, development or other investigative activities in connection with Product; (iii) Licensee's regulatory and quality control practices, procedures or policies and/or (iv) Licensee's non-public relationships with customers and/or suppliers; in each case to the extent such information is identified as being confidential by the Licensee at the time of disclosure to Lonza under this Agreement.

1.1.5 **"Effective Date"** means the date first above written.

1.1.6 **"First Commercial Sale"** means the date of the first sale or other disposal of Product for consideration by or on behalf of Licensee in that particular country following regulatory approval in such country.

1.1.7 **"Initiation"** means, with respect to any clinical trial, the first date that a human subject is dosed in such clinical trial.

1.1.8 **"Intellectual Property Rights"** means all rights, title and interests, vested and/or arising out of any industrial or intellectual property, whether protected at common law or under statute, which includes (without limitation) any rights and interests in patents, copyrights, designs, trademarks, service marks, trade-names, technology, business names, logos, commercial symbols, processes, developments, licenses, trade secrets, goodwill, drawings, computer software, formulae, technical information, research data, procedures, designs, Confidential Information and any other knowledge of any nature whatsoever throughout the world whether in existence today or which will come into existence in the future, and including all applications for patents, copyrights, trademarks, trade names, rights to apply and any amendments/modifications or renewals thereto; and all other intellectual property rights.

1.1.9 **"Know-How"** means any technical and other information, whether patented or unpatented, including, but without prejudice to the generality of the foregoing, ideas, concepts, trade secrets, know-how, inventions, discoveries, data, formulae, specifications, instructions, skills, techniques, processes, procedures for experiments and tests and other protocols, results of experimentation and testing, fermentation and purification techniques and assay protocols, assays, materials (including biological, pharmacological, toxicological, pharmaceutical and chemical), data and information (including analytical, pre-clinical, clinical, safety, manufacturing and quality control), and study designs and protocols, in all cases whether or not now known or hereinafter developed.

1.1.10 "**Licensed Know-How**" means the System Know-How.

1.1.11 **"Net Sale(s)"** means all revenues recorded by or on behalf of Licensee or its Sublicensees for Product sold in the Territory. The permitted deductions booked on an accrual basis by Licensee and its Sublicensees under their

[***]

respective accounting standards to calculate the recorded net sales from gross sales are as follows:

(a) [***]

(b) [***]

(c) [***].

Such permitted deductions shall not include, without limitation, [***]

Subject to the qualification stated below, [***]

Notwithstanding anything contained in this Agreement to the contrary, [***] shall not be included in this provision.

If the Product is sold as a combined product that consists of Product together with another therapeutically active ingredient or product (a **"Combination"),** the Net Sales will be calculated by multiplying the Net Sales of the Combination (as defined using the Net Sales definition above) by the fraction, A/(A+B) where A is the weighted (by sales volume) average sale price of the Product in the relevant country, and B is the weighted average sale price (by sales volume) in that country of the product(s) containing the other component(s) in finished form. Regarding prices comprised in the weighted average price when sold separately referred to above, if these are available for different dosages from the dosages of Product and other components that are included in the Combination, then the Parties shall mutually agree on the appropriate proportional adjustment to such prices in calculating the royalty-bearing Net Sales of the Combination. If the weighted average sale price cannot be determined for the Product or other component(s), the calculation of Net Sales for a Combination will be mutually agreed upon by the Parties based on the relative value contributed by each component, such agreement to be negotiated in good faith without unreasonable delay. For the avoidance of doubt, in no event will a bioconjugate be deemed to be a Combination for the purposes of this Agreement.

1.1.12 [***].

1.1.13 **"Product"** means ***ACU193*** *(previously known as M0011538 under the Merck Agreement)* of which Licensee is the proprietor and which (or a component of which) is obtained by the expression of any one gene or of any combination of genes by use of the System, or any formulation containing the same.

1.1.14 "**Representatives**" shall mean a Party's Affiliates or its or their directors, officers, employees, agents and advisors, finance-providers, and/or consultants.

1.1.15 **"Royalty Term"** shall have the meaning ascribed to it in Clause 5.2.

1.1.16 **"Strategic Partner"** means a person or entity: (i) [***]; and (ii) [***]. In no event may any entity whose role in the relationship is [***].

1.1.17 **"Sublicensee"** means any Strategic Partner or other Third Party to which Licensee grants a sublicence of the rights granted to Licensee pursuant to this Agreement.

1.1.18 **"System"** means Lonza's [***] system known as the [***] consisting of the System Materials, and the System Know-How (whether used individually or in combination with each other) and including any part of such system that is embodied within or otherwise used to create the Transfected Cell Line(s). For the avoidance of doubt, any gene proprietary to Licensee inserted into the System for the purposes of producing Product does not form part of the System.

1.1.19 **"System Know-How"** means Know-How relating directly or indirectly to the System known to Lonza from time to time, of which Lonza is the proprietor (including, without limitation: (i) manuals of operating procedures for the System; (ii) regulatory information supplied in connection with the System; (iii) vector nucleotide sequences; (iv) Know-How concerning the composition of the System; and (v) any such Know-How that is otherwise embodied within one or more component(s) of the System).

1.1.20 "**System Materials**" means the Cell Lines and Vectors.

1.1.21 **"Territory"** means worldwide.

1.1.22 **"Third Party"** means any individual or entity other than Lonza or Licensee.

1.1.23 **"Transfected Cell Lines"** means the Cell Line(s) transfected by or on behalf of Licensee and which expresses Product.

1.1.24 **"Vectors"** means Lonza's [***] vectors set out in Appendix 1.

1.2 The headings of this Agreement are inserted only for convenience and shall not affect the construction hereof.

1.3 Where appropriate words denoting a singular number only shall include the plural and vice versa.

1.4 References to the recitals, clauses and appendix shall be deemed to be a reference to the recitals, clauses and appendix to this Agreement and shall form an integral part of this Agreement.

1.5 References to any statute or statutory provision include a reference to the statute or statutory provision as from time to time amended, extended or re-enacted.

1.6 Reference in this Agreement to Lonza shall, unless repugnant to the subject or context thereof, include its Affiliates, successors and assigns.

2. Supply of System Know-How

2.1 Unless previously supplied by Lonza under a separate agreement, Lonza shall, if requested by Licensee in writing, supply further System Know-How as required by Licensee solely for regulatory purposes (and which shall, when permitted and at Lonza's sole discretion, only be supplied directly to the regulatory agency by Lonza). Any such System Know-How provided hereunder (together with all other applicable components of the System previously received by Licensee) shall be used strictly in accordance with the terms of this Agreement.

2.2 Should any transportation of the System be arranged by Lonza on behalf of Licensee, such transportation shall be made at sole risk of the Licensee. The Licensee shall indemnify Lonza against all losses, expenses, demands, claims, actions, judgments,

[***]

assessments, damages, liabilities, fines, penalties, costs and fees incurred by Lonza by reason of such transportation.

3. Ownership of Property and Intellectual Property

3.1 Save for any Intellectual Property Rights licensed to Lonza, it is hereby acknowledged and agreed that, as between the Parties, any and all property and Intellectual Property Rights in the System is vested in Lonza. Similarly, it is hereby acknowledged as between the Parties any and all Intellectual Property Rights in the Product and any gene proprietary to Licensee (or any of its licensors or sublicensees) inserted into the System, or used with the System, for the purpose of producing Product is vested in Licensee (or its applicable licensors and sublicensees), to the extent that this is severable from and does not disclose, infringe or reveal any Intellectual Property Rights of Lonza.

4. Licences

Commercial Activities Licence

4.1 Lonza hereby grants to Licensee on the Effective Date a worldwide non-exclusive licence under the System (with the right to sublicence, subject to Clause 4.2 below) to market, sell, offer for sale, distribute, import and export Product in the Territory ("**Commercial Activities**").

4.2 Subject to the provisions of this Clause 4.2 and the terms and conditions of this Agreement, Licensee shall be entitled to grant a sublicence to the rights granted by Clause 4.1 (each a "**Commercial Activities Sublicence**") to any one or more Third Parties for the purposes of any such Third Party undertaking Commercial Activities for or on behalf of Licensee (each a "**Commercial Activities Sublicensee**") provided always:

4.2.1 Licensee shall ensure such Commercial Activities Sublicensee's use of the Product is undertaken solely for undertaking Commercial Activities for or on behalf of Licensee; and

4.2.2 The Commercial Activities Sublicensee shall not, by virtue of this Agreement, be granted any right or licence, either express or implied, to the System, other than for undertaking Commercial Activities for or on behalf of Licensee. Licensee agrees to ensure that such Commercial Activities Sublicensee shall not assign, transfer, further sublicense [***] or otherwise make over the benefit or the burden of the rights granted to it pursuant to the Commercial Activities Sublicence ; and

4.2.3 Licensee shall notify Lonza in writing within [***] days of granting a Commercial Activities Sublicence under this Agreement.

4.2.4 [***].

Manufacturing Activities Licence:

4.3 Lonza hereby grants to Licensee on the Effective Date a non-exclusive licence under the System, (with the right to sublicence, subject to Clause 4.4 below) to use, develop and manufacture Product (including any regulatory filings for Product and support related thereto) at: (i) Licensee's premises located in the Approved Territory (and notified in writing to Lonza prior to commencement of manufacturing); (ii) a

[***]

Manufacturing Sublicensee's premises (subject to Clauses 4.4.3 and 4.4.4 below), or (iii) such other premises approved in writing by Lonza under the terms of this Agreement ("**Manufacturing Activities**").

4.4 Subject to the provisions of this Clause 4.4 and the terms and conditions of this Agreement, Licensee shall be entitled to grant a sublicence to the rights granted by Clause 4.3 (each a "**Manufacturing Sublicence**") to any one or more Third Parties for the purposes of any such Third Party undertaking Manufacturing Activities for or on behalf of Licensee (each a "**Manufacturing Sublicensee**") provided always:

4.4.1 Licensee shall require and procure that such Manufacturing Sublicensee's use of the System, and Lonza's Intellectual Property Rights (subject always to Clause 4.6) is undertaken solely for undertaking Manufacturing Activities for or on behalf of Licensee; and

4.4.2 The Manufacturing Sublicensee shall not, by virtue of this Agreement, be granted any right or licence, either express or implied, under any patent or proprietary right vested in Lonza or otherwise, to use the System, Lonza's Intellectual Property Rights or the Product other than for undertaking Manufacturing Activities for or on behalf of Licensee. Licensee agrees to require and procure that such Manufacturing Sublicensee shall not assign, transfer, further sublicense or otherwise make over the benefit or the burden of the rights granted to it pursuant to this Agreement; and

4.4.3 Prior to the grant of any Manufacturing Sublicence pursuant to this Clause 4, subject to Clause 4.4.4 below, Licensee shall obtain the written consent of Lonza (such consent not to be unreasonably withheld, conditioned or delayed) to the grant of such sublicence. It is agreed between the Parties that Lonza shall be considered to be reasonably withholding its consent if it holds commercial concerns as to protection of its Intellectual Property Rights and confidentiality should Lonza's Intellectual Property Rights be sub-licensed to the proposed Manufacturing Sublicensee. The Licensee shall notify Lonza in writing within [***] days of granting each Manufacturing Sublicence under this Agreement (including pursuant to Clause 4.4.4 below); and

4.4.4 [***] Notwithstanding Clause 4.4.3, Lonza hereby grants its consent to the grant of a Manufacturing Sublicence by Licensee to [***] (in each case as Third Party Manufacturers for the purposes of Clause 5). For the avoidance of doubt:

(a) such consent shall extend only to the location and pre-approved activities of [***], save as otherwise approved in writing by Lonza;

(b) at the time of notifying Lonza of any Manufacturing Sublicence granted to [***], such notice shall include: (i) details of the Manufacturing Activities to be performed by [***] and materials to be transferred (save as set out in Appendix 2); and (ii) the full name of the legal entity engaged, following which the Parties shall formally update Appendix 2; and

(c) in connection with the Manufacturing Sublicence executed with [***] as set out in Appendix 2 [***]. Licensee shall pay Lonza the annual payment of [***] in accordance with Clause 5.1.4.1 below, with such fee being first payable within [***] days of the Effective Date of this Agreement and thereafter on each anniversary of such date during the course of the [***] Sublicence.

4.4.5 Within [***] days following termination or expiry of this Agreement or Licensee's arrangements with any such Manufacturing Sublicensee (whichever occurs earlier), Licensee shall confirm in writing to Lonza that Transfected Cell Lines and Licensed Know-How (including materials provided to Manufacturing Sublicensee relating directly or indirectly to the System) are destroyed and/or returned to Licensee.

Activities Performed Prior to Effective Date

4.5 Notwithstanding Clauses 4.1 and 4.3 above, Licensee has carried out certain activities in connection with the development and/or manufacture of Product prior to the Effective Date (including, without limitation, those activities set out in Appendix 3) (the "**Product Development Activities**"). [***]:

4.5.1 Licensee hereby acknowledges that it shall remain fully responsible and liable for the acts and omissions of any and all Third Parties used in connection with the Product Development Activities [***], in each case whether occurring before, on or after the Effective Date; and

4.5.2 Licensee shall indemnify Lonza against all costs, expenses, claims, loss, or damage incurred or suffered by Lonza, or for which Lonza may become liable, [***] related to Product Development Activities (in each case whether occurring before, on or after the Effective Date).

General Licence Restrictions (Commercial Activities and Manufacturing Activities)

4.6 Any Manufacturing Sublicence or Commercial Activities Sublicence granted by Licensee shall be granted expressly subject to the terms of this Agreement, and it shall be Licensee's responsibility to ensure the strict adherence by each Manufacturing Sublicensee and Commercial Activities Sublicensee hereunder to the terms and conditions of this Agreement. Licensee shall be responsible and liable for the acts or omissions of each Manufacturing Sublicensee and Commercial Activities Sublicensee herein and Licensee shall indemnify Lonza against all costs, expenses, claims, loss or damage incurred or suffered by Lonza, or for which Lonza may become liable arising out of any act or omission of any Sublicensee, including any product liability claim relating to Product manufactured, supplied or put into use by the Sublicensee.

4.7 Notwithstanding any other provision, Licensee shall not transfer the Cell Lines and/or Vectors to any Third Party without Lonza's prior and express written consent, provided, however, that Licensee is allowed to transfer the Transfected Cell Lines to a Manufacturing Sublicensee for the purposes of and subject to Clause 4.4. Licensee shall not transfer any Licensed Know-How without prior written approval by Lonza, which shall only be granted to the extent strictly required for Manufacturing Activities.

4.8 Licensee hereby undertakes that it will neither reverse engineer nor make any modifications, adaptations or improvements to the System and/or Transfected Cell Lines (including for the avoidance of doubt but not by way of limitation inserting alternate cell lines and/or vectors) without Lonza's prior written consent, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.

4.9 Licensee shall use the System only in accordance with the licences granted under Clause 4, and shall not use, cause the use of or permit to be used the System for any purpose not directly authorised by this Agreement.

4.10 The provisions of Clauses 4.1 to 4.9 shall continue to apply with respect to: (i) [***] and (ii) [***].

4.11 No licence is granted save as expressly provided herein and no licence in addition thereto shall be deemed to have arisen or be implied by way of estoppel or otherwise.

Additional Licensee Obligations

4.12 Licensee shall notify Lonza within [***] of when Product changes its phase of clinical trial and/or when it is first offered for commercial sale.

4.13 Licensee shall obtain at its own expense all licences, permits and consents necessary for the provision of Product in the Territory.

4.14 Licensee acknowledges and agrees that the exercise of the licence granted to the Licensee under this Agreement is subject to all applicable laws, enactments, regulations and other similar instruments in the Territory, and the Licensee understands and agrees that it shall at all times be solely liable and responsible for such due observance and performance.

5. Payments

5.1 In consideration of the licences and consents granted to Licensee pursuant to Clauses 4.1, 4.3 and 4.5 above, and in consideration for the right to sublicence the rights granted by Clauses 4.1 and 4.3 (pursuant to Clauses 4.2 and 4.4 respectively), Licensee shall pay Lonza as follows:

5.1.1 in consideration of the Product Development Activities, an up-front payment of [***] within [***] of the Effective Date;

5.1.2 in respect of Product manufactured by Lonza, a royalty of [***] percent of Net Sales;

5.1.3 where [***] manufactures Product (whether for clinical or commercial purposes):

5.1.3.1 a payment of [***] due annually during the course of this Agreement, and being first payable upon [***] and thereafter on each anniversary of such date; and

5.1.3.2 a royalty of [***] percent of Net Sales of Product.

5.1.4 where any person or entity other than [***] manufactures Product (whether for clinical or commercial purposes) ("[***]"):

5.1.4.1 a payment of [***] per sublicence due annually during the course of such sublicence (irrespective as to the years of manufacture), and being first payable on the commencement date of the relevant sublicence; and

5.1.4.2 a royalty of [***] of Net Sales of Product.

5.2 Any royalties due under this Clause 5 shall be required in each country in the Territory on a country-by-country basis until [***] from the First Commercial Sale of the Product in that particular country (the "**Royalty Term**"). For the avoidance of doubt, upon expiration of a Royalty Term in any individual country, all other terms and conditions of this Agreement shall remain in full force and effect.

5.3 The provisions of this Clause 5 shall remain in effect notwithstanding termination or expiry of this Agreement until the settlement of all subsisting claims by Lonza.

6. Royalty Procedures

6.1 Licensee shall, and shall ensure that its Sublicensees shall, keep true and accurate records and books of account containing all data necessary for the calculation of royalties payable to Lonza. Such records and books of account shall, upon reasonable notice having been given by Lonza (which in no event shall be [***] prior notice), be open upon prior written notice at mutually agreeable and reasonable times during regular business hours for inspection by independent auditors selected by Lonza and reasonably acceptable to Licensee. Such independent auditors shall agree to maintain the confidentiality of the information and materials disclosed during the audit on terms and conditions no less restrictive than the terms and conditions set forth in Clause 8. Any such audit shall be conducted in a manner that does not interfere unreasonably with the operations of Licensee's business. Lonza may perform an audit [***] each calendar year. Each audit shall begin upon the date specified by Lonza and shall be completed as soon as reasonably practicable. Lonza shall pay the costs of the independent auditors conducting such audit, unless the results of the audit reveal an underpayment of [***] or more by Licensee, in which case, Licensee shall pay the reasonable costs of the independent auditors. If an audit concludes that an overpayment or underpayment has occurred during the audited period, such payment shall be remitted by the Party responsible for such payment to the other Party within [***] after the date such auditor's written report identifying the overpayment or underpayment is delivered to the Party responsible for such payment.

6.2 Licensee shall prepare a statement in respect of each calendar quarter which shall show for the immediately preceding quarter details of the sales of Product on a country-by-country basis, including a full list of all of the permitted deductions which have been applied by Licensee when calculating the Net Sales from the gross sales, and the royalty due and payable to Lonza thereon.

Such statement shall be submitted to Lonza within [***] after the end of the calendar quarter to which it relates, together with a remittance for the royalties due to Lonza to which Lonza shall issue a receipted invoice in return.

6.3 All sums due under this Agreement:

6.3.1 shall be paid in [***] to Lonza.

6.3.2 [***]

6.4 To the extent that Licensee reports Net Sales otherwise than in [***] then royalty payments due to Lonza shall be first calculated in the local currency in which Net Sales are reported and then shall be converted to a [***] value at the rate of exchange first published in the [***].

6.5 Where Lonza does not receive payment of any sum by the due date, Lonza shall, provide Licensee of written notice of same. In the event that Licensee fails to make such payment within [***] of such notice, then interest shall accrue thereafter on the sum due and owing to Lonza at the rate of [***] over the base rate from time to time of National Westminster Bank plc, interest to accrue on a day-to-day basis without prejudice to Lonza's right to receive payment on the due date.

7. Liability and Warranties,

7.1 The Licensee hereby acknowledges: (i) this is a licence to the Licensed Know-How and not to any other Lonza Intellectual Property Rights; and (ii) that in order to exploit the rights granted herein the Licensee may require licences under Lonza patent rights or under Third Party patent rights (including those vested in Affiliates of Lonza) that may be infringed by the use by the Licensee of the rights licensed herein. It is hereby agreed that it shall be the Licensee's responsibility to satisfy itself as to the need for such licences and if necessary to obtain such licences; provided that where any such patent rights vested in Lonza or its Affiliates would prevent the Licensee and its Sublicensees from operating the System as permitted by the terms of this Agreement, then such patent rights shall be automatically included within the Intellectual Property Rights licensed to Licensee hereunder.

7.2 The Licensee warrants [***] that: (i) the Licensed Know-How (and all other Confidential Information of Lonza) has at all times been kept strictly confidential by Licensee and that any Third Parties to whom Licensee disclosed any Licensed Know-How are subject to written obligations of confidentiality that are no less restrictive to the terms hereof; (ii) any System Materials and/or Transfected Cell Lines received by Licensee prior to the Effective Date have been used for the sole, limited purpose of Product Development Activities and any Third Parties to whom System Materials and/or Transfected Cell Lines were disclosed by Licensee are subject to written obligations restricting use to Product Development Activities; (iii) it has not done (or otherwise authorised any Third Party to do) anything that would adversely impact the System; (iv) any and all tangible elements of the System (including Transfected Cell Line(s)) have been destroyed or otherwise returned to Licensee by any Third Parties, save as set out in Appendix 2; and (v) that it has the authority enter into this Agreement in respect of the Product and to exercise the Commercial Activities Licence and Manufacturing Activities Licence.

7.3 Each Party (**"Indemnifying Party"**) shall indemnify and hold harmless the other Party and its Affiliates, and their respective directors, officers, employees and agents (each an **"Indemnified Party")** at all times in respect of any and all losses, damages, costs and expenses (collectively **"Losses")** suffered or incurred as a result of any contractual, tortious or other claims or proceedings by Third Parties (collectively **"Third Party Claims")** against Indemnified Party arising out of the Indemnifying Party's breach of this Agreement, including breach of representations or warranties, violation of applicable law, negligence or wilful misconduct; provided that with respect to any Third Party Claim for which each Party is entitled hereunder to seek indemnification from the other Party, each Party as the Indemnifying Party shall indemnify the other Party for its Losses only to the extent of the Indemnifying Party's relative responsibility for the facts underlying the Third Party Claim.

7.4 With respect to product liability claims or proceedings, the following shall apply: (a) except to the extent provided in (b) below, Licensee shall indemnify and hold harmless Lonza, its Affiliates and their respective officers, employees and agents at all times in respect of any and all losses, damages, costs and expenses suffered or incurred as a result of any tortious claims or proceedings of death or bodily injury relating to the Product, and (b) Lonza shall indemnify and hold harmless Licensee, its Affiliates and their respective directors, officers, employees and agents at all times in respect of any and all losses, damages, costs and expenses suffered or incurred as a result of any tortious claims or proceedings of death or bodily injury relating to the Product to the extent such claims or proceedings result directly from defects in the Cell Lines and Vectors.

7.5 Any condition or warranty other than those relating to title which might otherwise be implied or incorporated within this Agreement by reason of statute or common law or otherwise is hereby expressly excluded.

7.6 If an Indemnified Party intends to seek indemnification under this Agreement:

(a) the Indemnified Party will notify the Indemnifying Party in writing promptly upon becoming aware of any claim, provided that the failure by an Indemnified Party to give such notice will not relieve the Indemnifying Party of its indemnification obligation under this Agreement except and only to the extent that the Indemnifying Party is actually prejudiced as a result of such failure to give notice;

(b) The Indemnified Party will not settle or compromise any claim without the prior written consent of the Indemnifying Party, and the Indemnifying Party will not settle or compromise any claim in any manner which would have an adverse effect on the Indemnified Party's interests, without the prior written consent of the Indemnified Party, which consent, in each case, will not be unreasonably withheld, conditioned or delayed;

(c) The Indemnified Party will reasonably cooperate with the Indemnifying Party at the Indemnifying Party's expense and will (where free and reasonably able to do so) make available to the Indemnifying Party all pertinent information under the control of the Indemnified Party that is reasonably required by the Indemnifying Party for the conduct of such claim, which information will be subject to Clause 8; and

(d) the Indemnified Party shall take all reasonable steps to mitigate a loss it may suffer or incur as a result of an event that may give rise to a claim under such indemnity.

7.7 EXCEPT FOR EITHER PARTY'S BREACH OF CLAUSE 8 HEREOF, SUBJECT TO CLAUSE 7.8, IN NO EVENT SHALL EITHER PARTY AND/OR THEIR RESPECTIVE AFFILIATES BE LIABLE TO THE OTHER PARTY, THEIR AFFILIATES AND THEIR RESPECTIVE OFFICERS, EMPLOYEES AND AGENTS WITH RESPECT TO ANY SUBJECT MATTER OF THIS AGREEMENT WHETHER IN CONTRACT IN TORT IN NEGLIGENCE OR FOR BREACH OF STATUTORY DUTY OR OTHERWISE FOR ANY LOSS OF PROFITS, OR FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES.

7.8 Nothing in this Agreement shall exclude or limit the liability of either Party for fraud or for death or personal injury caused by its negligence or for wilful or deliberate breach of this Agreement or for any other liability that may not be limited or excluded as a matter of law.

8. Confidentiality

8.1 Licensee expressly acknowledges that:

8.1.1 Confidential Information disclosed by Lonza pursuant to this Agreement is supplied in circumstances imparting an obligation of confidence and Licensee shall keep such Confidential Information secure, secret and confidential and undertakes to respect Lonza's proprietary rights therein and to use the same for the sole purpose of this Agreement;

8.1.2 it shall not during the period of this Agreement or at any time for any reason whatsoever, disclose, cause or permit to be disclosed such Confidential Information to any Third Party other than its Representatives (where permitted in accordance with Clause 8.3 below) or its Sublicensees hereunder, in each case for use in accordance with and subject to the terms of this Agreement;

8.1.3 Licensee shall procure that (save as otherwise permitted under this Clause 8) only its and its Sublicensee's employees, officers and/or directors hereunder shall have access to Lonza's Confidential Information and then only on a need to know basis and that all such employees, officers and/or directors shall be informed of their secret and confidential nature and shall be subject to written obligations of confidentiality no less restrictive than the terms herein. Licensee shall immediately notify Lonza if it becomes aware of any unauthorised use or disclosure of Lonza's Confidential Information (whether occurring before, on or after the Effective Date).

8.2 Lonza expressly acknowledges and undertakes that:

8.2.1 any Confidential Information disclosed by the Licensee to Lonza pursuant to this Agreement is disclosed in circumstances imparting an obligation of confidence and Lonza shall keep such Licensee's Confidential Information secure, secret and confidential and undertakes to respect Licensee's proprietary rights therein and to use the same for the sole purpose of this Agreement;

8.2.2 it shall not during the period of this Agreement or at any time for any reason whatsoever disclose and/or cause and/or permit to be disclosed such Licensee's Confidential Information to any Third Party, except to its contractors or professional advisers who need to know such Confidential Information in connection with Lonza's exercise or performance of its rights and obligations under this Agreement, or to its Representatives (where permitted in accordance with Clause 8.3 below); and

8.2.3 Lonza shall procure that its employees, officers and/or directors shall have access to Licensee's Confidential Information only on a confidential and need-to-know basis and Lonza shall notify Licensee if it becomes aware of any unauthorised use or disclosure of Licensee's Confidential Information.

8.3 Each Party will restrict the disclosure of the terms of this Agreement to its Representatives who have been informed of the confidential nature of the same and who have a need to know such terms. Prior to disclosure to such persons, the disclosing Party shall bind its Representatives to confidentiality and non-use obligations no less stringent than those set forth herein. The receiving Party shall notify the disclosing Party as promptly as practicable of any unauthorized use or disclosure. To the extent that either Party wishes to disclose any other Confidential Information to any of its Representatives, save as expressly permitted by this Clause 8, this shall be subject to obtaining the prior written consent of the other Party. The receiving Party shall be responsible for breaches of this Agreement as if the breach were a breach by receiving Party.

8.4 The obligations of confidence referred to in this Clause 8 shall not extend to any information which the receiving Party demonstrates with competent proof:

8.4.1 is or shall become generally available to the public otherwise than by reason of a breach by the recipient Party (or its Representatives, as applicable) of such information of the provisions of this Clause 8;

8.4.2 is known to the recipient Party of such information and is at its free disposal prior to its receipt from the other;

8.4.3 is subsequently disclosed to the recipient Party without obligations of confidence by a Third Party owing no such obligation of confidentiality to the disclosing Party; or

8.4.4 can be demonstrated by competent written evidence as having been independently developed by the recipient of the information in question without use or reference to the information of the disclosing Party.

8.5 Permitted Uses. Notwithstanding the foregoing it is acknowledged between the Parties that a receiving party may be required to disclose Confidential Information of the disclosing party to the extent such disclosure by the receiving party is required pursuant to a valid order of a court of competent jurisdiction or as otherwise required by applicable law (including any statutory, regulatory or similar legislative requirement applicable to the production of Product). In such circumstances the disclosing Party will, to the extent legally permissible, inform the other Party prior to disclosure being made as to the nature of the required disclosure, shall only make the disclosure to the extent legally required and shall seek to impose obligations of secrecy wherever possible. Notwithstanding such disclosure such Confidential Information shall otherwise remain subject to this Clause 8.

8.6 Each Party expressly agrees that any breach or threatened breach of the undertakings of confidentiality provided hereunder by a Party may cause irreparable harm to the other Party (**"Non-Breaching Party")** and that money damages may not provide a sufficient remedy to the Non-Breaching Party for any breach or threatened breach. In the event of any breach and/or threatened breach, then in addition to all other remedies available at law or in equity, the Non-Breaching Party shall be entitled to seek injunctive relief and any other relief deemed appropriate by the Non-Breaching Party.

9. Intellectual Property Enforcement

9.1 Lonza hereby undertakes and agrees that at its own cost and expense it will pursue, as determined by Lonza in its commercially reasonable discretion, all necessary actions against any Third Party that Lonza reasonably believes is infringing, misappropriating or violating any Lonza Intellectual Property Rights.

9.2 Licensee shall promptly notify Lonza in writing of any known infringement or improper or unlawful use of or of any challenge to the validity of the Licensed Know-How. Lonza undertakes and agrees to take all such steps and proceedings and to do all other acts and things as may in Lonza's sole discretion be necessary to restrain any such infringement or improper or unlawful use or to defend such challenge to validity and Licensee shall permit Lonza to have the sole conduct of any such steps and proceedings including the right to settle them whether or not Licensee is a party to them; provided that, Lonza will take commercially reasonable steps to account for Licensee's interests under this Agreement when settling such matters.

10. Term and Termination

10.1 This Agreement shall commence on the Effective Date and shall continue in full force and effect in each country of the world unless terminated earlier in accordance with the provisions of this Clause 10 or Clause 13.

10.2 Licensee may terminate this Agreement by giving [***] notice in writing to Lonza.

10.3 Either Lonza or Licensee may terminate this Agreement forthwith by notice in writing to the other upon the occurrence of any of the following events:

10.3.1 if the other commits a material breach of this Agreement which is irremediable or (in the case of a breach capable of remedy) shall not have been remedied within [***] of the receipt by the other of a notice identifying the breach and requiring its remedy; or

10.3.2 if the other is unable to pay its debts or enters into compulsory or voluntary liquidation (other than for the purpose of effecting a reconstruction or amalgamation in such manner that the company resulting from such reconstruction or amalgamation if a different legal entity shall agree to be bound by and assume the obligations of the relevant Party under this Agreement) or compounds with or convenes a meeting of its creditors or has a receiver or administrator appointed over all or any part of its assets or takes or suffers any similar action in consequence of a debt, or ceases for any reason to carry on business.

10.4 Without prejudice to any rights that have accrued under this Agreement or any of its rights or remedies, Lonza may terminate this Agreement immediately by giving written notice to Licensee if:

10.4.1 subject to Clause 8.4, the Licensee contests the secret or substantial nature of the Licensed Know-How; or.

10.4.2 there is a change of control of Licensee (within the meaning of section 1124 of the Corporation Tax Act 2010) in circumstances where:

(a) [***]; or

(b) [***].

10.5 If this Agreement is terminated under this Clause 10 or Clause 13, any and all licences and sublicences granted hereunder shall terminate with effect from the date of termination and Licensee shall destroy (or otherwise procure the destruction of) all System Materials, Transfected Cell Lines and Product and all Confidential Information which is provided by Lonza (including all Know-How, all System Know-How) forthwith and shall certify such destruction immediately thereafter in writing to Lonza; provided, however, that the Licensee and Sublicensees shall have the right to sell or otherwise dispose of all Product then on hand, subject to the payment of royalties and the other terms of this Agreement.

10.6 Termination for whatever reason or expiration of this Agreement shall not affect the accrued rights of the Parties arising in any way out of this Agreement as at the date of termination. The right to recover damages against the other and all provisions which are expressed to survive this Agreement shall remain in full force and effect.

10.7 The terms of Clauses 3, 4.6 to 4.9 (subject always to the consequences of termination in Clause 10.5), 5, 6, 7, 8, 10, 11 and 12, and any definitions required to interpret the foregoing shall survive expiration or termination of this Agreement for whatever reason.

11. Assignment

11.1 Subject to Licensee's rights to sublicence in accordance with Clause 4 and subject to Clauses 11.2 and 11.3 below, neither Party shall be entitled to assign, transfer, charge or in any way make over the benefit and/or the burden of this Agreement without the

prior written consent of the other Party (which consent shall not be unreasonably withheld, conditioned or delayed).

11.2 Licensee shall have the right to assign or otherwise transfer this Agreement (upon giving prior written notice to Lonza) to: [***].

11.3 Lonza shall be entitled without the prior written consent of the Licensee to assign, transfer, charge, sub-contract, deal with or in any other manner make over the benefit and/or burden of this Agreement (i) to an Affiliate or (ii) to any joint venture company of which Lonza is the beneficial owner of at least fifty percent (50%) of the issued share capital thereof or (iii) to any company with which Lonza may merge or (iv) to any company to which Lonza may transfer its assets and undertaking; provided that Lonza provides Licensee with prompt written notice of same.

11.4 This Agreement shall be binding upon the successors and assigns of the parties and the name of a Party appearing herein shall be deemed to include the names of its successors and assigns provided always that nothing herein shall permit any assignment by either Party except as expressly provided herein.

12. Governing Law and Dispute Resolution

12.1 This Agreement shall be governed by and construed in accordance with the laws of England and Wales without regard to any conflicts of laws principles.

12.2 Either Party may submit a notice to the other Party describing in detail the existence of any disputes, controversies or differences concerning the validity, interpretation, or construction of, compliance with, or breach of this Agreement (each a "**Dispute Notice**"), and in such event such dispute shall be promptly presented to a nominated executive officer of each Party for resolution. Such executive officers shall meet (whether by video conference or in person) to discuss in good faith a resolution of such dispute within [***] days after receipt by the other Party of such Dispute Notice (or such other extended period as mutually agreed in writing by the Parties). If the matter is not resolved to the satisfaction of both Parties within [***] days following the meeting of the executive officers, then either Party may invoke the provisions of Clause 12.3 for any dispute. For the avoidance of doubt: (i) nothing in this Clause 12.2 shall prevent a Party immediately commencing action under Clause 12.3 (including for the purposes of emergency relief) where necessary to avoid immediate and irreparable harm; and (ii) this Clause 12.2 is without prejudice to a Party's right to terminate the Agreement in accordance with Clause 10.

12.3 Any dispute that is not resolved pursuant to Clause 12.2, shall be referred to and finally resolved by binding arbitration under the London Court of International Arbitration (LCIA) Rules, which Rules are deemed to be incorporated by reference into this Clause, by a panel of [***] arbitrators appointed in accordance with the said Rules. The seat, or legal place of arbitration shall be London, England and the arbitration shall be conducted in the English language. Each arbitrator shall be conflict-free and decisions of the panel of arbitrators shall be final and binding on the Parties. The arbitration proceeding shall be confidential, and the arbitrators shall issue appropriate protective orders to safeguard each Party's Confidential Information. Except as required by applicable law, no Party shall make (or instruct the arbitrators to make) any public announcement with respect to the proceedings or decision of the arbitrators without prior written consent of the other Party. The existence of any dispute submitted to arbitration, and any award, shall be kept in confidence by the Parties and the arbitrators, except as required in connection with the enforcement of such award or as otherwise required by applicable law.

13. Force Majeure

Neither Party shall be in breach of this Agreement if there is any total or partial failure of performance by it of its duties and obligations under this Agreement occasioned by any act of God (including without limitation, fire), act of government or state, war, civil commotion, insurrection, embargo, epidemic, terrorism or earthquake, prevention from or hindrance in obtaining any raw materials, energy or other supplies, labour disputes of whatever nature and any other reason beyond the reasonable control of that Party. If that Party is unable to perform its duties and obligations under this Agreement as a direct result of the effect of one of the reasons set out in this Clause 13 such Party shall give written notice to the other of such inability stating the reason in question, its anticipated duration, and any action taken to avoid or minimize its effect. The operation of this Agreement shall be suspended during the period (and only during the period) in which the reason continues. The suspension shall be of no greater scope and no longer duration than is necessary and the non-performing party shall use commercially reasonable efforts to promptly remedy its inability to perform and recommence performance. Forthwith upon the reason ceasing to exist the Party relying upon it shall give written notice to the other of this fact. If the reason continues for a period of more than [***] and substantially affects the commercial basis of this Agreement the Party not claiming under this Clause 13 shall have the right to terminate this Agreement by giving written notice of such termination to the other Party.

14. Illegality

14.1 If any provision or term of this Agreement or any part thereof shall become or be declared illegal, invalid or unenforceable for any reason whatsoever including but without limitation by reason of the provisions of any legislation or other provisions having the force of law or by reason of any decision of any Court or other body or authority having jurisdiction over the Parties or this Agreement (including the EC Commission or the European Court of Justice, to the extent applicable):

(i) such provision shall, so far as it is illegal, invalid or unenforceable, be given no effect by the Parties and shall be deemed not to be included in this Agreement;

(ii) the other provisions of this Agreement shall be binding on the Parties as if such provision was not included therein; and

(iii) the Parties agree to negotiate in good faith to amend such provision to the extent possible for incorporation herein in such reasonable manner as most closely achieves the intention of the Parties without rendering such provision invalid or unenforceable.

15. Miscellaneous

15.1 This Agreement embodies and sets forth the entire agreement and understanding of the Parties and supersedes all prior oral and written agreements, representations, misrepresentations (where innocently or negligently made), understandings or arrangements relating to the subject matter of this Agreement (**"Understandings"**). Neither Party shall be entitled to rely on any Understandings which are not expressly set forth in this Agreement.

15.2 This Agreement shall not be amended, modified, varied or supplemented except in writing signed by duly authorised representatives of the Parties.

[***]

15.3 No failure or delay on the part of either Party to exercise any right or remedy under this Agreement shall be construed or operated as a waiver thereof nor shall any single or partial exercise of any right or remedy under this Agreement preclude the exercise of any other right or remedy or preclude the further exercise of such right or remedy as the case may be. The rights and remedies provided in this Agreement are cumulative and are not exclusive of any rights or remedies provided by law.

15.4 Except as required by law, the text of any press release or other communication to be published by or in the media whether of a scientific nature or otherwise and referencing this Agreement (or Lonza's System and/or CDACF Version 9.1 System) shall require the prior written approval of Lonza and Licensee.

15.5 Neither Party hereto shall use the name, trademarks or logos of the other Party, its Affiliates or their employees in any press release, publicity, advertising, or other disclosure without prior written consent of the other Party hereto, except as required under applicable regulations, by governmental agency or by the rules of any stock exchange on which the securities of the disclosing Party are listed (but provided always that the disclosing Party seeks prior approval to the manner in which such name, trademarks or logos will be used, not to be unreasonably withheld or delayed).

15.6 Each of the Parties shall be responsible for its respective legal and other costs incurred in relation to the preparation of this Agreement.

15.7 The Parties do not intend that any term hereof should be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999, or by any other statute or common-law principle, by any person who is not a party to this Agreement.

15.8 Counterparts. This Agreement may be executed in two (2) or more duplicate originals, all of which together shall be deemed one and the same instrument. Execution of this Agreement by facsimile, by email in "portable document format" (".pdf"), or by any other electronic means intended to preserve the original graphic and pictorial appearance of this Agreement, as applicable, shall be binding to the same extent as physical delivery of the paper document bearing original signature.

16. Notice

16.1 Any notice or other document to be given under this Agreement shall be in writing and shall be deemed to have been duly given if: (i) delivered by registered post or a reputable overnight courier service of national standing for next day delivery (with charges prepaid), , or (ii) delivered by email to a Party, or (iii) delivered in person to a Party. Notices shall be given at the address (or e-mail address) set out below for such Party or such other address/e-mail as the Party may from time to time designate by written notice to the other(s):

Address of Lonza
Lonza Sales AG, Muenchensteinerstrasse 38 CH-4002, Basel, Switzerland

With a copy to: Lonza Biologics Plc
228 Bath Road, Slough, Berkshire SL1 4DX, UK
Email: [***]
For the attention of the Head of Legal Services

Address of Licensee
Acumen Pharmaceuticals, Inc.
427 Park Street, Charlottesville, VA, 22902, United States
Email : [***]

For the attention of: Chief Legal Officer

16.2 All such notices and documents shall be in the English language. Any such notice shall be deemed to have been received by the addressee:

(a) if sent by registered post or a reputable overnight courier service (providing proof of postage or delivery), on the fifth (5th) business day after posting or following the date of delivery to such courier service;

(b) if delivered by hand, at the time of such delivery; or

(c) if sent by email, at the time of transmission, or, if this time falls outside business hours (meaning 9.00am to 5.00pm Monday to Friday on a day that is not a public holiday in the place of receipt), when business hours resume.

To prove the giving of a notice or other document it shall be sufficient to show that it was dispatched.

[Signature Page Follows]

AS WITNESS the hands of the duly authorised representatives of the Parties hereto

Signed for and on behalf of .....**/s/ Marc Augustin**.....
LONZA SALES AG

.....Marc Augustin ..... TITLE

Signed for and on behalf of .....**/s/ Albert Pereda**.....
LONZA SALES AG

..... Albert Pereda..... TITLE

Signed for and on behalf of .....**/s/ Daniel J. O'Connell**.....
ACUMEN PHARMACEUTICALS, INC.

..... Daniel J. O'Connell..... TITLE

Signed for and on behalf of .....**/s/ Matt Zuga**.....
ACUMEN PHARMACEUTICALS, INC.

.....Matt Zuga..... TITLE

[***]

APPENDIX 1

VECTORS

[***]

[***]

APPENDIX 2

[***]

[***]

[***]

APPENDIX 3

ACTIVITIES PERFORMED ON PRODUCT PRIOR TO EFFECTIVE DATE

[***]

APPENDIX 4

LICENSEE APPROVED AFFILIATES

[***]

Exhibit 10.11

LEASE AGREEMENT

This Lease made as of the 28th day of September 2022, between Price-Poore House, LLC (herein "Lessor"), and Acumen Pharmaceuticals Inc. (herein "Lessee").

In consideration of the mutual covenants contained herein, the parties agree as follows:

1. DESCRIPTION OF PREMISES. Lessor leases to Lessee a portion of the premises located at 427 Park Street, Charlottesville, Virginia including certain common areas, common facilities, and shared services and described more particularly as third floor, south side.

2. TERM. The term of this lease is fifteen (15) months, beginning on October 1, 2022, and terminating on December 31, 2023, at twelve o'clock p.m. There shall be no automatic renewal of this lease. Any holdover tenancy shall be on the month-to-month basis and all terms of this lease shall apply thereto, except the rent, which will double.

3. RENT. The total base rent during the fifteen months of this Lease is Seven Thousand One Hundred Twenty-Nine Dollars and 50/100 ($7,129.50). Lessee shall pay to Lessor that amount in base installments of Four Hundred Seventy-Five Dollars and 30/100 ($475.30) each month, beginning on October 1, 2022, with succeeding payments due on the 1st day of each month thereafter during the term of the lease. Any rent payment not made by 5:00 p.m. on the 5th day of the month when due shall automatically accrue a late penalty of 5% which shall be payable with the rent. Any sums more than 30 days past due shall bear interest at 18% per annum (on both rent and penalty) from the 30th day past due until paid.

4. SECURITY DEPOSIT. Upon execution of this Lease, Lessee shall deposit with Lessor one month of Rent as a security for the full and faithful performance of every provision of this Lease to be performed by Lessee. If Lessee defaults with respect to any provision of this Lease, and fails to cure said default as described in Paragraph 16, Lessor may use, apply or retain all or any part of said Security Deposit for the payment of any Rent and any other sum then in default or for the payment of any other amount which Lessor may spend or become obligated to spend by reason of Lessee's default or to compensate Lessor for any other loss or damage which Lessor may incur by reason of Lessee's default. Lessee shall not be entitled to interest on any security deposit. If Lessee shall fully and faithfully perform every provision of this Lease to be performed by it, said security deposit or any balance thereof shall be returned to Lessee upon the date which is thirty (30) days after the expiration of the Lease Term and Lessee's vacation of the Premises.

5. In addition to Lessee's square footage portion of the building, Price-Poore House, LLC shall provide the following services which are included in the Rent.

a. Cleaning

b. Building maintenance

c. Utilities

d. Trash Removal

e. Landscaping and snow removal

f. Water cooler service

g. Internet service/Wifi

h. Use of kitchenette on same level as your office, or use of kitchenette on main level for offices on the second and third floors.

i. Use of conference room, provided online booking system shows availability

j. Use of common areas.

6. PARKING. A parking spot is not included at the signing of this lease, but the option to add one (1) spot will be available for the length of the lease at the following terms:

In addition to the Premises listed in Paragraph 1, Lessee shall lease one (1) parking space at a rate of One Hundred Thirteen Dollars and 30/100 ($113.30) per space per month. Parking Rent shall be due and payable on 1st day of each month thereafter during the lease term. Lessee may park in the parking spot noted on the attached Exhibit "A". Visitors to the Premises may park in the spot labeled "V", provided that in no case shall any visitor park in the visitor parking space for more than 6 hours at one time, or more than one day in any given week.

Any Parking Rent not made by 5:00 p.m. on the 5th day of the month when due shall automatically accrue a late penalty of 5% which shall be payable with the rent. Any sums more than 30 days past due shall bear interest at 18% per annum (on both rent and penalty) from the 30th day past due until paid.

7. USE OF PREMISES. The premises are to be used for commercial or personal offices. Lessee shall restrict its use to such office purposes, and shall not use or permit the use of the premises for any other purpose without the written consent of Lessor, or Lessor's authorized agent.

8. RESTRICTIONS OF USE. Any business which requires excessive pedestrian traffic, excessive telephone traffic, heavy customer parking requirements or storage of goods or products on the premises is expressly prohibited. Lessee shall not use the premises in any manner that will increase risks covered by insurance on the premises and result in an increase in the rate of insurance or a cancellation of Lessee's business purposes. Lessee shall not keep, use, or sell anything prohibited by any policy of fire insurance covering the premises, and shall comply with all requirements of the insurers applicable to the premises necessary to keep in force the fire and liability insurance.

9. REPAIRS, MAINTENANCE AND IMPROVEMENTS. Lessee shall maintain its portion of the premises and keep them in good repair at its expense. Lessor shall maintain the common areas.

Lessee acknowledges that the Premises is a newly renovated historic building, which was planned and renovated with office use in mind. As such, Lessee shall not make any structural changes or improvements to the Premises, including, without limitation, the installation of partition walls, plumbing, heating or cooling systems, additional electrical wiring, chimneys or vents or any other permanent modification to the property without the prior written consent of the Lessor which may be withheld in Lessor's sole discretion. Furthermore, Lessee may not make any alterations, modifications or changes of any kind to the exterior of the building (including installation of signage) without prior consultation and consent from Lessor, which again, may be withheld in Lessor's sole discretion.

10. DELIVERY, ACCEPTANCE, AND SURRENDER OR PREMISES. Lessor and Lessee agree that the premises are in fit condition for use by Lessee. Lessee shall surrender its portion of the premises at the end of the lease term, or any renewal thereof, in the same condition as when Lessee took possession, allowing for reasonable use and wear. Before re-delivery,

Lessee shall remove all business signs placed on the premises by Lessee and restore the portion of the premises on which they were placed in the same condition as when received.

11. PARTIAL DESTRUCTION OF PREMISES. Partial destruction of the leased premises shall not render this lease void or voidable, nor terminate it except as herein provided. If the premises are partially destroyed during the term of this lease, Lessor shall repair them when such repairs can be made in conformity with governmental laws and regulations, within 120 days of the partial destruction. Written notice of the intention of Lessor to repair shall be given to Lessee within 60 days after any partial destruction. Rent will be reduced proportionately to the extent to which the repair operations interfere with the business conducted on the premises by Lessee. If the repairs cannot be made within the time specified above, Lessor shall have the option to make them within a reasonable time and continue this lease in effect with proportional rent rebate to Lessee as provided for herein. If the repairs cannot be made in 180 days, and if Lessor does not elect to make them within a reasonable time, either party shall have the option to terminate this lease.

Disputes between Lessor and Lessee relating to provisions of this section shall be arbitrated. The parties shall each select an arbitrator, and the two arbitrators selected shall together select a third arbitrator. The three arbitrators shall determine the dispute, and their decisions shall be binding on the parties. The parties shall divide the costs of arbitration equally between them.

12. ENTRY ON PREMISES BY LESSOR. Lessor reserves the right to enter on Lessee's portion of the premises at reasonable times to inspect them, perform required maintenance and repairs, or make additional, alterations, or modifications to any part of the building in which the premises are located, and Lessee shall permit Lessor to do so. Lessor may erect scaffolding, fences, and similar structures, post relevant notices, and place moveable equipments in connection with making alterations, additions, or repairs, all without incurring liability to Lessee for disturbance of quiet enjoyment of the premises, or loss of occupation thereof.

13. SIGNS. No signage may be added to or removed from the outside of the building without prior consultation and consent from Lessor, which consent may be withheld for any reason. Any signs added by Lessee must meet Lessor's standards, be paid for by Lessee and also be removed at Lessee's expense when Lessee's lease is terminated.

14. NONLIABILITY OF LESSOR FOR DAMAGES. Lessor shall not be liable for liability or damage claims for injury to persons or property from any cause relating to the occupancy of the premises by Lessee, including those arising out of damages or losses occurring on sidewalks, parking lots and other areas adjacent to the leased premises during the term of this lease or any extension thereof. Lessee shall indemnify Lessor from all liability, loss, or other damage claims or obligations resulting form any injuries or losses of this nature which relate to Lessee or its guests, invited clients or other related parties. Lessor shall not be liable for, among other things, any loss to Lessee's personal property stored in or about the premises due to fire, theft, damage or any other cause; and, Lessee in acknowledgment of the lack of liability agrees to obtain tenant's insurance or to otherwise be self insured against all such losses.

15. TAXES AND INSURANCE. Lessor agrees to pay all real estate taxes which may now or hereafter be levied on the Premises and maintain property insurance on same. Lessor further agrees to keep the Premises insured against fire or other casualty as may be covered by a standard fire insurance policy. Lessee shall be responsible for obtaining any contents insurance deemed necessary or appropriate by Lessee, and to maintain its own liability coverage in an amount it deems sufficient.

16. ASSIGNMENT, SUBLEASE OR LICENSE. Lessee shall not assign or sublease the premises, or any right or privilege connected therewith, or allow any other person except agents and employees of Lessee to occupy the premises or any part thereof without first obtaining the written consent of Lessor, which may be withheld in Lessor's sole discretion. A consent by Lessor shall not be a consent to a subsequent assignment, sublease, or occupation by other persons. An unauthorized assignment, sublease, or license to occupy by Lessee shall be void and shall terminate the lease at the option of the Lessor. The interest of Lessee in this lease is not assignable by operation of law without the written consent of Lessor. This paragraph specifically includes a restriction on Lessee's temporary assignment to any third party of a license to use Lessee's Parking, including on a short term, temporary or daily basis and to enter upon the Premises for any reason whatsoever. In no case shall keys or security passes used to enter the building be assigned or lent to any individual not a party to this Lease. Breach of the Lease by doing so shall be cause for immediate termination of this Lease at Lessor's discretion.

17. BREACH. The appointment of a receiver to take possession of the assets of Lessee, a general assignment for the benefit of the creditors of Lessee, any taken or allowed to be taken by Lessee under any bankruptcy act, or the failure of Lessee to comply with each and every term and condition of this lease shall constitute a breach of this lease. Lessee shall have 10 days after receipt of written notice from Lessor of any breach to correct the conditions specified in the notice, or if the corrections cannot be made within the 10-day period, Lessee shall have a reasonable time to correct the default if action is commenced by Lessee within 10 days after receipt of the notice.

Pursuit of remedies described more fully in paragraph 17 shall not preclude pursuit of any of the other remedies provided herein or any other remedies provided by law (all such remedies being cumulative), or shall pursuit of any remedy herein provided constitute a forfeiture or waiver of any Rent or other payments due to Lessor hereunder or of any damages accruing to Lessor by reason of the violation of any of the terms, provisions and covenants herein contained. Nor act or thing done by Lessor or its agents during the term of this Lease shall be deemed a termination of this Lease or an acceptance of the surrender of the Premises, and no agreement to terminate this Lease or accept a surrender of the Premises shall be valid unless in writing signed by the Lessor. No waiver by Lessor of any violation or breach of any of the terms, provisions and covenants herein shall be deemed or construed to constitute a waiver of any other or future violation or breach of any of the terms, provisions and covenants herein contained. Lessor's acceptance of the payment of Rent or other payments hereunder after the occurrence of a default shall not be construed as a waiver of such default, unless Lessor so notifies Lessee in writing. Forbearance by Lessor in enforcing one or more of the remedies herein provided upon a default shall not be deemed or construed to constitute a waiver of such default or of Lessor's right to enforce any such remedies with respect to such default or any subsequent default. Notwithstanding the foregoing, Lessor agrees to use reasonable efforts to mitigate its damages hereunder.

18. REMEDIES OF LESSOR FOR BREACH BY LESSEE. Lessor shall have the following remedies in addition to its other rights and remedies in the event Lessee breaches this lease agreement and fails to make corrections as set forth in Section 18:

a. Lessor may re-enter the Lessee's portion of the premises immediately and remove the property and personnel of Lessee, store the property in a public warehouse or at a place selected by Lessor, at the expense of Lessee, and otherwise deal with it as allowed by Virginia law.

b. After re-entry Lessor may terminate the lease on giving 10 days' written notice of termination to Lessee. Without such notice, re-entry will not terminate the lease.

On termination Lessor may recover from Lessee all damages proximately resulting from the breach, including the cost of recovering the premises.

c. After re-entering, Lessor may relet the premises or any part thereof for any term without terminating the lease, at such rent and on such terms as it may choose. Lessor may make alterations and repairs to the premises. The duties and liabilities of the parties if the premises are relet as provided herein shall be as follows:

i. In addition to Lessee's liability to Lessor for breach of the lease, Lessee shall be liable for all expenses of the reletting, for the alterations and repairs made, and for the difference between the rent received by Lessor under the new lease agreement and the rent installments that are due for the same period under this lease.

ii. Lessor at its option shall have the right to apply the rent received from reletting the premises (1) to reduce Lessee's indebtedness to Lessor under the lease, not including indebtedness for rent, (2) to expenses of the reletting and alterations and repairs made, (3) to rent due under this lease, or (4) to payment of future rent under this lease as it becomes due.

19. ATTORNEY'S FEES. If Lessor files an action to enforce any agreement contained in this lease, or for breach of any covenant or condition, Lessee shall pay Lessor's attorney in the action.

20. NO EXTERIOR STORAGE. No trash, trash cans, garbage, equipment, supplies or other property shall be stored outside the building locate on the Premises. This prohibition extends to the sidewalks, and the parking lot.

21. HARDWOOD FLOORS. Lessee acknowledges that all floors on the Premises have recently been installed or refinished. Lessee shall at all times use a rug or floor protector under desk chairs in order to protect the finish of the floors.

22. FIREPLACE. Some offices throughout the premises are equipped with a wood burning fireplace. All firewood shall be provided by Lessee at its own expense. Lessee acknowledges that such heat is inherently dangerous and that Lessor shall not be liable for any loss or damage to Lessee or its invitees attributable to such wood heat, in accordance with the terms of Paragraph 13 of this Lease. Specifically, Lessee acknowledges that the burning of any green, wet or unseasoned wood can cause creosote accumulation in the chimneys which in turn can cause dangerous chimney fires. Lessee agrees to burn nothing but dry, seasoned hardwood firewood and shall be responsible for inspecting the chimneys and maintaining them free of creosote accumulation. Lessor agrees to have the chimneys swept or cleaned as needed but no more than once annually at its expense. Any more frequent cleaning of chimneys required shall be the responsibility of the Lessee.

23. MISCELLANEOUS PROVISIONS.

a. Governing Law: All questions with respect to the construction of this lease and the rights and liabilities of the parties shall be determined in accordance with the applicable provisions of the laws of the State of Virginia.

b. Binding Effect: This lease shall be binding upon all of the parties hereto and their respective assigns, successors in interest, personal representatives, estates, heirs,

and legatees. All of the rights, privileges and reservations in favor of the Lessor may be exercisable by any agent of the Lessor.

c. Interpretation: When the context in which words are used in this lease indicate that such is the intent, words in the singular number shall include the plural, and vice versa, and words in the masculine gender shall include the feminine and neuter genders, and vice versa. The term “person” as used herein shall mean any individual, corporation, partnership or other entity.

d. Validity: In the event that any provision of this lease shall be held to be invalid, the same shall not affect in any respect whatsoever the validity of the remainder of this lease.

e. Captions: Any section or paragraph title or captions contained in this lease are for convenience or reference only, and shall not be deemed a part of or construed to affect the context of this lease.

f. Amendments: This lease or any portion hereof shall not be changed, annulled, supplemented or amended (except for the Lessor’s right to revise the Rules and Regulations), without such change being in writing and signed by the party to be bound thereby.

IN WITNESS WHERE OF, the parties have executed this lease the date and year first above written.

LESSOR:

Price-Poore House, LLC

/s/ Meghan Murray
By: Meghan Murray
Its: Manager

LESSEE:

Acumen Pharmaceuticals Inc.

/s/ Dan O’Connell
By: Dan O’Connell
Its: CEO

LEASE AGREEMENT

This Lease made as of the 1 day of December 2022, between Price-Poore House, LLC (herein "Lessor"), and Acumen Pharmaceuticals Inc. (herein "Lessee").

In consideration of the mutual covenants contained herein, the parties agree as follows:

1. DESCRIPTION OF PREMISES. Lessor leases to Lessee a portion of the premises located at 427 Park Street, Charlottesville, Virginia including certain common areas, common facilities, and shared services and described more particularly as Northwest corner office on the first floor.

2. TERM. The term of this lease is one (1) year, beginning on January 1, 2023, and terminating on December 31, 2023 at twelve o'clock p.m. There shall be no automatic renewal of this lease. Any holdover tenancy shall be on the month-to-month basis and all terms of this lease shall apply thereto, except the rent, which will double.

3. RENT. The total base rent during the first year of this Lease is Four Thousand Three Hundred Thirty Dollars and 68/100 ($4,330.68). Lessee shall pay to Lessor that amount in base installments of Three Hundred Sixty Dollars and 89/100 ($360.89) each month, beginning on January 1, 2022, with succeeding payments due on the 1st day of each month thereafter during the term of the lease. Any rent payment not made by 5:00 p.m. on the 5th day of the month when due shall automatically accrue a late penalty of 5% which shall be payable with the rent. Any sums more than 30 days past due shall bear interest at 18% per annum (on both rent and penalty) from the 30th day past due until paid.

4. SECURITY DEPOSIT. Upon execution of this Lease, Lessee shall deposit with Lessor one month of Rent as a security for the full and faithful performance of every provision of this Lease to be performed by Lessee. If Lessee defaults with respect to any provision of this Lease, and fails to cure said default as described in Paragraph 16, Lessor may use, apply or retain all or any part of said Security Deposit for the payment of any Rent and any other sum then in default or for the payment of any other amount which Lessor may spend or become obligated to spend by reason of Lessee's default or to compensate Lessor for any other loss or damage which Lessor may incur by reason of Lessee's default. Lessee shall not be entitled to interest on any security deposit. If Lessee shall fully and faithfully perform every provision of this Lease to be performed by it, said security deposit or any balance thereof shall be returned to Lessee upon the date which is thirty (30) days after the expiration of the Lease Term and Lessee's vacation of the Premises.

5. In addition to Lessee's square footage portion of the building, Price-Poore House, LLC shall provide the following services which are included in the Rent.

a. Cleaning

b. Building maintenance

c. Utilities

d. Trash Removal

e. Landscaping and snow removal

f. Water cooler service

g. Internet service/Wifi

h. Use of kitchenette on same level as your office, or use of kitchenette on main level for offices on the second and third floors.

i. Use of conference room, provided online booking system shows availability

j. Use of common areas.

6. PARKING. In addition to the Premises listed in Paragraph 1, Lessee shall lease one (1) parking space at a rate of One Hundred Thirteen Dollars and 30/100 ($113.30) per space per month. Parking Rent shall be due and payable on January 1, 2023, with succeeding payments due on the 1st day of each month thereafter during the lease term. Lessee may park in the parking spot noted on the attached Exhibit "A". Visitors to the Premises may park in the spot labeled "V", provided that in no case shall any visitor park in the visitor parking space for more than 6 hours at one time, or more than one day in any given week.

Any Parking Rent not made by 5:00 p.m. on the 5th day of the month when due shall automatically accrue a late penalty of 5% which shall be payable with the rent. Any sums more than 30 days past due shall bear interest at 18% per annum (on both rent and penalty) from the 30th day past due until paid.

7. USE OF PREMISES. The premises are to be used for commercial or personal offices. Lessee shall restrict its use to such office purposes, and shall not use or permit the use of the premises for any other purpose without the written consent of Lessor, or Lessor's authorized agent.

8. RESTRICTIONS OF USE. Any business which requires excessive pedestrian traffic, excessive telephone traffic, heavy customer parking requirements or storage of goods or products on the premises is expressly prohibited. Lessee shall not use the premises in any manner that will increase risks covered by insurance on the premises and result in an increase in the rate of insurance or a cancellation of Lessee's business purposes. Lessee shall not keep, use, or sell anything prohibited by any policy of fire insurance covering the premises, and shall comply with all requirements of the insurers applicable to the premises necessary to keep in force the fire and liability insurance.

9. REPAIRS, MAINTENANCE AND IMPROVEMENTS. Lessee shall maintain its portion of the premises and keep them in good repair at its expense. Lessor shall maintain the common areas.

Lessee acknowledges that the Premises is a newly renovated historic building, which was planned and renovated with office use in mind. As such, Lessee shall not make any structural changes or improvements to the Premises, including, without limitation, the installation of partition walls, plumbing, heating or cooling systems, additional electrical wiring, chimneys or vents or any other permanent modification to the property without the prior written consent of the Lessor which may be withheld in Lessor's sole discretion. Furthermore, Lessee may not make any alterations, modifications or changes of any kind to the exterior of the building (including installation of signage) without prior consultation and consent from Lessor, which again, may be withheld in Lessor's sole discretion.

10. DELIVERY, ACCEPTANCE, AND SURRENDER OR PREMISES. Lessor and Lessee agree that the premises are in fit condition for use by Lessee. Lessee shall surrender its portion of the premises at the end of the lease term, or any renewal thereof, in the same condition

as when Lessee took possession, allowing for reasonable use and wear. Before re-delivery, Lessee shall remove all business signs placed on the premises by Lessee and restore the portion of the premises on which they were placed in the same condition as when received.

11. PARTIAL DESTRUCTION OF PREMISES. Partial destruction of the leased premises shall not render this lease void or voidable, nor terminate it except as herein provided. If the premises are partially destroyed during the term of this lease, Lessor shall repair them when such repairs can be made in conformity with governmental laws and regulations, within 120 days of the partial destruction. Written notice of the intention of Lessor to repair shall be given to Lessee within 60 days after any partial destruction. Rent will be reduced proportionately to the extent to which the repair operations interfere with the business conducted on the premises by Lessee. If the repairs cannot be made within the time specified above, Lessor shall have the option to make them within a reasonable time and continue this lease in effect with proportional rent rebate to Lessee as provided for herein. If the repairs cannot be made in 180 days, and if Lessor does not elect to make them within a reasonable time, either party shall have the option to terminate this lease.

Disputes between Lessor and Lessee relating to provisions of this section shall be arbitrated. The parties shall each select an arbitrator, and the two arbitrators selected shall together select a third arbitrator. The three arbitrators shall determine the dispute, and their decisions shall be binding on the parties. The parties shall divide the costs of arbitration equally between them.

12. ENTRY ON PREMISES BY LESSOR. Lessor reserves the right to enter on Lessee's portion of the premises at reasonable times to inspect them, perform required maintenance and repairs, or make additional, alterations, or modifications to any part of the building in which the premises are located, and Lessee shall permit Lessor to do so. Lessor may erect scaffolding, fences, and similar structures, post relevant notices, and place moveable equipments in connection with making alterations, additions, or repairs, all without incurring liability to Lessee for disturbance of quiet enjoyment of the premises, or loss of occupation thereof.

13. SIGNS. No signage may be added to or removed from the outside of the building without prior consultation and consent from Lessor, which consent may be withheld for any reason. Any signs added by Lessee must meet Lessor's standards, be paid for by Lessee and also be removed at Lessee's expense when Lessee's lease is terminated.

14. NONLIABILITY OF LESSOR FOR DAMAGES. Lessor shall not be liable for liability or damage claims for injury to persons or property from any cause relating to the occupancy of the premises by Lessee, including those arising out of damages or losses occurring on sidewalks, parking lots and other areas adjacent to the leased premises during the term of this lease or any extension thereof. Lessee shall indemnify Lessor from all liability, loss, or other damage claims or obligations resulting form any injuries or losses of this nature which relate to Lessee or its guests, invited clients or other related parties. Lessor shall not be liable for, among other things, any loss to Lessee's personal property stored in or about the premises due to fire, theft, damage or any other cause; and, Lessee in acknowledgment of the lack of liability agrees to obtain tenant's insurance or to otherwise be self insured against all such losses.

15. TAXES AND INSURANCE: Lessor agrees to pay all real estate taxes which may now or hereafter be levied on the Premises and maintain property insurance on same. Lessor further agrees to keep the Premises insured against fire or other casualty as may be covered by a standard fire insurance policy. Lessee shall be responsible for obtaining any contents insurance deemed necessary or appropriate by Lessee, and to maintain its own liability coverage in an amount it deems sufficient.

16. ASSIGNMENT, SUBLEASE OR LICENSE. Lessee shall not assign or sublease the premises, or any right or privilege connected therewith, or allow any other person except agents and employees of Lessee to occupy the premises or any part thereof without first obtaining the written consent of Lessor, which may be withheld in Lessor's sole discretion. A consent by Lessor shall not be a consent to a subsequent assignment, sublease, or occupation by other persons. An unauthorized assignment, sublease, or license to occupy by Lessee shall be void and shall terminate the lease at the option of the Lessor. The interest of Lessee in this lease is not assignable by operation of law without the written consent of Lessor. This paragraph specifically includes a restriction on Lessee's temporary assignment to any third party of a license to use Lessee's Parking, including on a short term, temporary or daily basis and to enter upon the Premises for any reason whatsoever. In no case shall keys or security passes used to enter the building be assigned or lent to any individual not a party to this Lease. Breach of the Lease by doing so shall be cause for immediate termination of this Lease at Lessor's discretion.

17. BREACH. The appointment of a receiver to take possession of the assets of Lessee, a general assignment for the benefit of the creditors of Lessee, any taken or allowed to be taken by Lessee under any bankruptcy act, or the failure of Lessee to comply with each and every term and condition of this lease shall constitute a breach of this lease. Lessee shall have 10 days after receipt of written notice from Lessor of any breach to correct the conditions specified in the notice, or if the corrections cannot be made within the 10-day period, Lessee shall have a reasonable time to correct the default if action is commenced by Lessee within 10 days after receipt of the notice.

Pursuit of remedies described more fully in paragraph 17 shall not preclude pursuit of any of the other remedies provided herein or any other remedies provided by law (all such remedies being cumulative), or shall pursuit of any remedy herein provided constitute a forfeiture or waiver of any Rent or other payments due to Lessor hereunder or of any damages accruing to Lessor by reason of the violation of any of the terms, provisions and covenants herein contained. Nor act or thing done by Lessor or its agents during the term of this Lease shall be deemed a termination of this Lease or an acceptance of the surrender of the Premises, and no agreement to terminate this Lease or accept a surrender of the Premises shall be valid unless in writing signed by the Lessor. No waiver by Lessor of any violation or breach of any of the terms, provisions and covenants herein shall be deemed or construed to constitute a waiver of any other or future violation or breach of any of the terms, provisions and covenants herein contained. Lessor's acceptance of the payment of Rent or other payments hereunder after the occurrence of a default shall not be construed as a waiver of such default, unless Lessor so notifies Lessee in writing. Forbearance by Lessor in enforcing one or more of the remedies herein provided upon a default shall not be deemed or construed to constitute a waiver of such default or of Lessor's right to enforce any such remedies with respect to such default or any subsequent default. Notwithstanding the foregoing, Lessor agrees to use reasonable efforts to mitigate its damages hereunder.

18. REMEDIES OF LESSOR FOR BREACH BY LESSEE. Lessor shall have the following remedies in addition to its other rights and remedies in the event Lessee breaches this lease agreement and fails to make corrections as set forth in Section 18:

a. Lessor may re-enter the Lessee's portion of the premises immediately and remove the property and personnel of Lessee, store the property in a public warehouse or at a place selected by Lessor, at the expense of Lessee, and otherwise deal with it as allowed by Virginia law.

b. After re-entry Lessor may terminate the lease on giving 10 days' written notice of termination to Lessee. Without such notice, re-entry will not terminate the lease.

On termination Lessor may recover from Lessee all damages proximately resulting from the breach, including the cost of recovering the premises.

c. After re-entering, Lessor may relet the premises or any part thereof for any term without terminating the lease, at such rent and on such terms as it may choose. Lessor may make alterations and repairs to the premises. The duties and liabilities of the parties if the premises are relet as provided herein shall be as follows:

(i) In addition to Lessee's liability to Lessor for breach of the lease, Lessee shall be liable for all expenses of the reletting, for the alterations and repairs made, and for the difference between the rent received by Lessor under the new lease agreement and the rent installments that are due for the same period under this lease.

(ii) Lessor at its option shall have the right to apply the rent received from reletting the premises (1) to reduce Lessee's indebtedness to Lessor under the lease, not including indebtedness for rent, (2) to expenses of the reletting and alterations and repairs made, (3) to rent due under this lease, or (4) to payment of future rent under this lease as it becomes due.

19. ATTORNEY'S FEES. If Lessor files an action to enforce any agreement contained in this lease, or for breach of any covenant or condition, Lessee shall pay Lessor's attorney in the action.

20. NO EXTERIOR STORAGE. No trash, trash cans, garbage, equipment, supplies or other property shall be stored outside the building locate on the premises. This prohibition extends to the sidewalks, and the parking lot.

21. HARDWOOD FLOORS. Lessee acknowledges that all floors on the Premises have recently been installed or refinished. Lessee shall at all times use a rug or floor protector under desk chairs in order to protect the finish of the floors.

22. FIREPLACE. Some offices throughout the premises are equipped with a wood burning fireplace. All firewood shall be provided by Lessee at its own expense. Lessee acknowledges that such heat is inherently dangerous and that Lessor shall not be liable for any loss or damage to Lessee or its invitees attributable to such wood heat, in accordance with the terms of Paragraph 13 of this Lease. Specifically, Lessee acknowledges that the burning of any green, wet or unseasoned wood can cause creosote accumulation in the chimneys which in turn can cause dangerous chimney fires. Lessee agrees to burn nothing but dry, seasoned hardwood firewood and shall be responsible for inspecting the chimneys and maintaining them free of creosote accumulation. Lessor agrees to have the chimneys swept or cleaned as needed but no more than once annually at its expense. Any more frequent cleaning of chimneys required shall be the responsibility of the Lessee.

23. MISCELLANEOUS PROVISIONS.

a. Governing Law: All questions with respect to the construction of this lease and the rights and liabilities of the parties shall be determined in accordance with the applicable provisions of the laws of the State of Virginia.

b. Binding Effect: This lease shall be binding upon all of the parties hereto and their respective assigns, successors in interest, personal representatives, estates, heirs, and legatees. All of the rights, privileges and

reservations in favor of the Lessor may be exercisable by any agent of the Lessor.

c. Interpretation: When the context in which words are used in this lease indicate that such is the intent, words in the singular number shall include the plural, and vice versa, and words in the masculine gender shall include

the feminine and neuter genders, and vice versa. The term "person" as used herein shall mean any individual, corporation, partnership or other entity.

d. Validity: In the event that any provision of this lease shall be held to be invalid, the same shall not affect in any respect whatsoever the validity of the remainder of this lease.

e. Captions: Any section or paragraph title or captions contained in this lease are for convenience or reference only, and shall not be deemed a part of or construed to affect the context of this lease.

f. Amendments: This lease or any portion hereof shall not be changed, annulled, supplemented or amended (except for the Lessor's right to revise the Rules and Regulations), without such change being in writing and signed by the party to be bound thereby.

IN WITNESS WHERE OF, the parties have executed this lease the date and year first above written.

LESSOR:

Price-Poore House, LLC

/s/ Meghan Murray

By: Meghan Murray

Its: Manager

LESSEE:

Acumen Pharmaceuticals Inc.

/s/ Daniel O'Connell

By: Dan O'Connell

Its: CEO

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

(1) Registration Statement (Form S-3 No. 333-266004) of Acumen Pharmaceuticals, Inc.,
(2) Registration Statement (Form S-8 No. 333-263947) pertaining to the 2021 Equity Incentive Plan and 2021 Employee Stock Purchase Plan of Acumen Pharmaceuticals, Inc., and
(3) Registration Statement (Form S-8 No. 333-257666) pertaining to the 2013 Amended and Restated Stock Performance Plan, 2021 Equity Incentive Plan and 2021 Employee Stock Purchase Plan of Acumen Pharmaceuticals, Inc.

of our report dated March 27, 2023, with respect to the financial statements of Acumen Pharmaceuticals, Inc., included in this Annual Report (Form 10-K) of Acumen Pharmaceuticals, Inc. for the year ended December 31, 2022.

/s/ Ernst & Young LLP

Tysons, Virginia
March 27, 2023

Exhibit 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

I, Daniel O'Connell, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal year ended December 31, 2022 of Acumen Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2023

By: /s/ Daniel O'Connell

Daniel O'Connell
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 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

I, Matthew Zuga, certify that:

1. I have reviewed this Annual Report on Form 10-K for the fiscal year ended December 31, 2022 of Acumen Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 27, 2023

By: /s/ Matthew Zuga

Matthew Zuga
Chief Financial Officer and Chief Business Officer
(Principal Financial Officer and Accounting Officer)

Exhibit 32.1

CERTIFICATION OF PERIODIC FINANCIAL REPORTS PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report on Form 10-K of Acumen Pharmaceuticals, Inc. (the "Company") for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Daniel O'Connell, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 27, 2023

By: /s/ Daniel O'Connell

Daniel O'Connell
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF PERIODIC FINANCIAL REPORTS PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the annual report on Form 10-K of Acumen Pharmaceuticals, Inc. (the "Company") for the year ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Matthew Zuga, Chief Financial Officer and Chief Business Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 27, 2023

By: /s/ Matthew Zuga

Matthew Zuga
Chief Financial Officer and Chief Business Officer
(Principal Financial Officer and Accounting Officer)