

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

FORM 10-K

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

For the fiscal year ended **December 31, 2021**

OR

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

For The Transition Period From To

Commission file number: 001-40886

COGNITION THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State of Other Jurisdiction of incorporation or Organization)

13-4365359
(I.R.S. Employer Identification No.)

2500 Westchester Ave.
Purchase, NY
(Address of principal executive offices)

10577
(Zip code)

Registrant's telephone number, including area code: **(412) 481-2210**

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

Title of Each Class	Trading Symbol(s)	Name Of Each Exchange On Which Registered
Common Stock, par value \$0.001 per share	CGTX	The Nasdaq Stock Market LLC

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

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

Indicate by check mark whether the Registrant has submitted electronically; every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.0405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Based on the closing price as reported on the Nasdaq Stock Market LLC, the aggregate market value of the Registrant's Common Stock held by non-affiliates on December 31, 2021 was approximately \$81,360,160. The Registrant has elected to use December 31, 2021, which was the last business day of the Registrant's most recently completed fiscal year, as the calculation date because on June 30, 2021 (the last business day of the Registrant's most recently completed second fiscal quarter), the Registrant was a privately-held company. Shares of Common Stock held by each executive officer and director and by each stockholder affiliated with a director or an executive officer have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of outstanding shares of the Registrant's Common Stock as of March 23, 2022, was 22,578,584.

Documents Incorporated by Reference

Portions of the Registrant's definitive Proxy Statement relating to the 2022 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2021.

Auditor Firm ID: 42 Auditor Name: Ernst & Young LLP Auditor Location: Philadelphia, PA

TABLE OF CONTENTS

	<u>Page</u>
<u>PART I</u>	
Item 1. Business	6
Item 1A. Risk Factors	51
Item 1B. Unresolved Staff Comments	104
Item 2. Properties	104
Item 3. Legal Proceedings	104
Item 4. Mine Safety Disclosures	104
<u>PART II</u>	
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	105
Item 6. [Reserved]	106
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	107
Item 7A. Quantitative and Qualitative Disclosures About Market Risk	118
Item 8. Financial Statements and Supplementary Data	118
Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	118
Item 9A. Controls and Procedures	118
Item 9B. Other Information	119
Item 9C. Disclosure Regarding Foreign Jurisdictions That Prevent Inspections	119
<u>PART III</u>	
Item 10. Directors, Executive Officers and Corporate Governance	120
Item 11. Executive Compensation	120
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	120
Item 13. Certain Relationships and Related Transactions, and Director Independence	120
Item 14. Principal Accounting Fees and Services	120
<u>PART IV</u>	
Item 15. Exhibits and Financial Statement Schedules	121
Item 16. Form 10-K Summary	123

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, or Annual Report, contains forward-looking statements concerning our business, operations and financial performance, as well as our plans, objectives and expectations for our business operations and financial performance and condition. All statements other than statements of historical or current facts included in this Annual Report are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “design,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “positioned,” “potential,” “predict,” “seek,” “should,” “target,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. In addition, statements that “we believe” or similar statements reflect our beliefs and opinions on the relevant subject. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those expressed in, or implied by these, forward-looking statements and therefore, you should not unduly rely on such statements, including, but not limited to:

- our ability to raise additional capital to fund our operations and continue the development of our current and future product candidates;
- the clinical nature of our business and our ability to successfully advance our current and future product candidates through our ongoing future clinical trials, preclinical studies and development activities;
- our ability to generate revenue from future product sales and our ability to achieve and maintain profitability;
- the accuracy of our projections and estimates regarding our expenses, capital requirements, cash utilization, and need for additional financing;
- the expected uses of the net proceeds from our initial public offering, or IPO, in October 2021, and our existing cash and cash equivalents and the sufficiency of such resources to fund our planned operations;
- the extent to which the COVID-19 pandemic and measures taken to contain its spread ultimately impact our business, including our ongoing and future clinical trials, preclinical studies and development activities;
- our dependence on the success of CT1812, our lead product candidate;
- the novelty of our approach to targeting the S2R complex to treat age-related degenerative diseases and disorders, and the challenges we will face due to the novel nature of such approach;
- the success of competing therapies that are or become available;
- the initiation, progress, success, cost, and timing of our ongoing and future clinical trials, preclinical studies and development activities;
- our ability to obtain and maintain regulatory clearance of CT1812 for approved investigational new drug, or IND, applications and any future IND applications for any of our other product candidates;
- the timing, scope and likelihood of regulatory filings and approvals, including final regulatory approval of our product candidates
- the performance of third parties in connection with the development of our product candidates, including third parties conducting our future clinical trials as well as third-party suppliers and manufacturers;
- our ability to attract and retain strategic collaborators with development, regulatory, and commercialization expertise;

- our ability to successfully commercialize our product candidates and develop sales and marketing capabilities, if our product candidates are approved;
- the size and growth of the potential markets for our product candidates and our ability to serve those markets;
- regulatory developments and approval pathways in the United States and foreign countries for our product candidates;
- the potential scope and value of our intellectual property and proprietary rights;
- our ability, and the ability of any future licensors, to obtain, maintain, defend, and enforce intellectual property and proprietary rights protecting our product candidates, and our ability to develop and commercialize our product candidates without infringing, misappropriating, or otherwise violating the intellectual property or proprietary rights of third parties;
- our ability to recruit and retain key members of management and other clinical and scientific personnel;
- developments relating to our competitors and our industry; and
- other risk and uncertainties, including those described in Item 1A “Risk Factors” in this Annual Report.

We have based these forward-looking statements largely on our current expectations, estimates, forecasts, and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, and financial needs. In light of the significant uncertainties in these forward-looking statements, you should not rely upon forward-looking statements as predictions of future events. Although we believe that we have a reasonable basis for each forward-looking statement contained in this Annual Report, we cannot guarantee that the future results, levels of activity, performance, or events and circumstances reflected in the forward-looking statements will be achieved or occur at all. You should refer to the section titled “Risk Factors” set forth in Part I, Item 1A of this Annual Report for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

SUMMARY OF RISK FACTORS

The risk factors summarized below could materially harm our business, operating results and/or financial condition, impair our future prospects and/or cause the price of our common stock to decline. These are not all of the risks we face and other factors not presently known to us or that we currently believe are immaterial may also affect our business if they occur. Additional detail about these risks are included in Part I, Item 1A “Risk Factors.”

Material risks that may affect our business, operating results and financial condition include, but are not necessarily limited to, those relating to:

Risks Related to Our Business and Industry

- we are a clinical-stage biopharmaceutical company with no products approved for commercial sale and have incurred significant losses since our inception in 2007. We expect to incur significant losses over the foreseeable future and may never achieve or maintain profitability;
- we have not yet completed Phase 2 clinical trials and have no history of commercializing products, which may make it difficult for an investor to evaluate the success of our business to date and to assess our future viability;
- to date, we have partially relied on non-dilutive grants to cover certain of our capital requirements for our clinical trials, and we may fail to continue to receive non-dilutive funding;
- our business has been and could continue to be adversely affected by the ongoing COVID-19 global pandemic and efforts to mitigate it in regions where we or third parties on which we rely have significant manufacturing facilities, concentrations of clinical trial sites or other business operations;
- our business is heavily dependent on the successful development, regulatory approval and commercialization of CT1812 and any future product candidates that we may develop or acquire;
- we may not successfully expand our pipeline of product candidates, including by pursuing additional indications for CT1812 or by in-licensing or acquiring additional product candidates for other diseases;
- preclinical and clinical development involves a lengthy and expensive process with an uncertain outcome, and the results of preclinical studies and early clinical trials are not necessarily predictive of future results;
- we have not tested any of our product candidates in pivotal clinical trials and our product candidates may not have favorable results in future clinical trials;
- we have conducted, and in the future plan to conduct, clinical trials for product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials; and
- even if our current or future product candidates obtain regulatory approval, they may fail to achieve the broad degree of adoption and use by physicians, patients, hospitals, healthcare payors and others in the medical community necessary for commercial success.

Risks Related to Our Intellectual Property

- if we are unable to obtain and maintain patent protection for our technology and product candidates including our lead product candidate, CT1812, or if the scope of the patent protection obtained is not sufficiently broad, we may not be able to compete effectively in our markets.

- we may not be able to protect our intellectual property rights throughout the world.
- patent terms may be inadequate to protect our competitive position on our product candidates including our lead product candidate, CT1812, for an adequate amount of time.
- we may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.
- third-party claims or litigation alleging infringement of patents or other proprietary rights, or seeking to invalidate patents or other proprietary rights, may delay or prevent the development and commercialization of any of our product candidates including our lead product candidate, CT1812.
- we may become involved in lawsuits to protect or enforce our patents or our other intellectual property rights, which could be expensive, time consuming and unsuccessful.
- changes in U.S. patent law or the patent law of other countries or jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our product including our lead product candidate, CT1812.

Risks Relating to Government Regulation

- even if we obtain regulatory approval for a product candidate, our products will remain subject to regulatory scrutiny.
- healthcare legislation, including potentially unfavorable pricing regulations or other healthcare reform initiatives, may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates.
- if we develop a small molecule product candidate that obtains regulatory approval, additional competitors could enter the market with generic versions of such drugs, which may result in a material decline in sales of affected products.
- our business operations and current and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose us to penalties.

Risks Relating to Our Common Stock

- the market price and trading volume of our common stock have been and may continue to be volatile, which could result in rapid and substantial losses for our stockholders.
- the concentration of our capital stock ownership with our directors and their affiliated entities and our executive officers will limit stockholders' abilities to influence certain corporate matters.
- some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

PART I

Item 1. Business

Overview

We are a clinical-stage biopharmaceutical company engaged in the discovery and development of innovative, small molecule therapeutics targeting age-related degenerative diseases and disorders of the central nervous system, or CNS, and retina. Currently available therapies for these diseases are limited, with many diseases having no approved therapies or treatments. Our goal is to develop disease modifying treatments for patients with these degenerative disorders by initially leveraging our expertise in the σ -2 (sigma-2) receptor, or S2R, which is expressed by multiple cell types, including neuronal synapses, and acts as a key regulator of cellular damage commonly associated with certain age-related degenerative diseases of the CNS and retina. We believe that targeting the S2R complex represents a mechanism that is functionally distinct from other current approaches in clinical development for the treatment of degenerative diseases.

Our lead product candidate, CT1812, is an orally delivered, small molecule antagonist designed to penetrate the blood-brain barrier and bind selectively to the S2R complex. We have initially focused on the development of CT1812 for the treatment of Alzheimer's disease, or AD, by targeting the accumulation of β -amyloid, or A β , oligomers, which has been linked to the disease. By displacing these A β oligomers from neuronal receptors in the S2R complex, we expect to demonstrate that CT1812 can slow the loss of synapses and cognitive decline observed in AD. CT1812 is the first S2R antagonist to reach clinical trials and is currently in Phase 2 development for the treatment of AD. The direct healthcare costs to care for patients with AD and other dementias in the United States is currently estimated to exceed \$300 billion. Approximately 5.8 million people in the U.S. have been diagnosed with AD, and the World Health Organization estimates that AD affects as many as 35 million people globally. Among people with AD, approximately 50% have mild disease, 30% have moderate disease and 20% have severe disease.

We are continuing to enroll patients in two ongoing Phase 2 clinical trials (SHINE and SEQUEL) with CT1812 in mild-to-moderate AD. Preliminary results from an interim analysis of the first 24 patients in Part A of our ongoing SHINE Phase 2 clinical trial demonstrated a statistically significant decline in the presence of A β and a positive trend on cognitive function as measured by the Alzheimer's Disease Assessment Scale-Cognitive Subscale, or ADAS-Cog, in patients receiving CT1812 compared to placebo. We anticipate top-line data in 2023. Our ongoing SEQUEL Phase 2 clinical trial is also evaluating changes in brain function, as measured by quantitative electroencephalography, or qEEG, in mild-to-moderate AD with top-line data expected in the fourth quarter of 2022. We have treated 164 subjects with CT1812 in our clinical trials to date including 76 patients with mild-to-moderate AD. CT1812 has continued to be well tolerated and has been granted Fast Track designation by the U.S. Food and Drug Administration, or FDA, in this indication.

Our clinical trials have been funded by approximately \$168.9 million in cumulative grants awarded primarily by the National Institute of Aging, or NIA, a division of the National Institutes of Health, which includes a grant award of approximately \$81.0 million from the NIA to fund our Phase 2 (COG0203) study of CT1812 in patients with early-stage AD. We intend to enroll 540 patients in our COG0203 clinical trial with mild cognitive impairment, or MCI, due to AD or mild AD who have elevated levels of A β as determined by positron emission tomography, or PET, imaging or as measured in cerebral spinal fluid, or CSF. Patients will be randomized to receive CT1812 or a placebo for 18 months. In addition to cognitive and functional measures, such as the Clinical Dementia Rating Scale, or CDR, Sum of Boxes, or SB, and ADAS-Cog, we intend to use a variety of biomarkers to measure target and/or pathway engagement and assess changes in neurodegeneration and disease progression. We are conducting this clinical trial in collaboration with the Alzheimer's Clinical Trial Consortium, or ACTC, an NIA-funded clinical trials network designed to accelerate studies for therapeutics for AD and related dementias, and we expect to begin enrollment in the second half of 2022.

We intend to expand our CT1812 pipeline to include additional indications such as dry age-related macular degeneration, or dry AMD, a disease that results in the deterioration of the macula, causing distortion, loss of central vision and eventual blindness, for which there are currently no FDA approved treatments. The S2R complex is expressed

in the retina in several cell types including the retinal pigment epithelial cells, or RPE, photoreceptors and retinal ganglion cells. We believe that an S2R antagonist, such as CT1812, may help to regulate the damage-response processes related to these cells that are impaired in dry AMD. After the completion of our ongoing preclinical studies and subject to discussion with the FDA, we intend to advance directly into a Phase 2 clinical trial in the second half of 2022, leveraging our knowledge of CT1812's preclinical and clinical profile to date. We have initiated discussions with the FDA regarding our plan.

In addition, we are developing other product candidates in the area of synucleinopathies. Synucleinopathies are a group of degenerative diseases characterized by the abnormal accumulation of the alpha-synuclein protein in neural cell bodies, including Parkinson's disease, or PD, and dementia with Lewy bodies, or DLB.

Our Pipeline

We are developing a pipeline of innovative, small molecule product candidates that are designed to target the S2R complex, a key regulator of the cellular damage response for diseases such as AD, dry AMD, geographic atrophy (an advanced form of dry AMD), or GA, and other conditions for which there is significant unmet medical need. Our current pipeline is summarized below:

Product Candidate	Target Indication	Preclinical	Phase 1	Phase 2	Phase 3	Funding
CT1812	SEQUEL Mild-moderate AD					\$3.3M
CT1812	SHINE Mild-moderate AD					\$30M
CT1812	ACTC Early-stage AD					\$81M
CT1812	DLB					\$30M
CT1812	Dry AMD *					
CT2168	Synucleinopathies †		IND enabling studies			
CT2074	Dry AMD		IND enabling studies			

* Provided the FDA agrees, we intend to proceed with a Phase 2 study supported by the Phase 1 AD studies † including Parkinson's disease and DLB

Mild to Moderate AD

We are currently engaged in two ongoing Phase 2 clinical trials, designed to evaluate safety, dosing and potential efficacy for CT1812 as a treatment for mild-to-moderate AD. These trials include evaluations of CT1812's ability to engage with the S2R complex enabling the displacement of Aβ oligomers, its impact in synaptic density and its restoration of synaptic function. In the largest of these trials, our COG0201 SHINE study, we are assessing CT1812's ability to alter disease progression and cognition, with a target enrollment of 120 participants.

Early-stage AD

We plan to evaluate CT1812 in a 540-patient Phase 2 COG0203 clinical trial to investigate the potential for CT1812's use at an earlier stage of AD. In addition to cognitive and functional measures, such as CDR-SB, ADAS-Cog and volumetric magnetic resonance imaging, or vMRI, we intend to use a variety of biomarkers to measure target and/or pathway engagement and assess changes in neurodegeneration and disease progression. We will be enrolling patients in the second half of 2022. This trial has been funded by a grant of approximately \$81.0 million from the NIA.

DLB

We are evaluating CT1812 in a 120-patient Phase 2 COG1201 clinical trial to investigate the potential for CT1812's use as a disease-modifying agent in DLB. We are assessing cognitive and functional measures such as Montreal Cognitive Assessment (MoCA), Cognitive Drug Research Battery (CDR), Clinician Assessment of Fluctuation (CAF), Epworth Sleepiness Scale (ESS), Unified Parkinson's Disease Rating Scale — Part III (MDS-UPDRS3), Clinical Global Impression of Change (ADCS-CGIC), ADCS-Activities of Daily Living (ADCS-ADL) and Neuropsychiatric Inventory (NPI). We are currently evaluating sites to commence our trial. The trial has been funded by a grant of approximately \$30 million from the NIA.

Dry AMD

We are also evaluating the use of CT1812 to treat dry AMD. We believe that human genetic and internal proteomic pathway analyses obtained through our AD trials provides evidence of a relationship between the S2R complex and dry AMD. We are currently engaged in preclinical development activities for this indication, including studies to elucidate the key mechanisms by which CT1812 and the S2R complex alter the biological processes that contribute to dry AMD. We believe that an S2R antagonist, such as CT1812, may help to regulate the damage-response processes related to these cells that are impaired in dry AMD. After the completion of our ongoing preclinical studies and discussion with the FDA, we intend to advance directly into a Phase 2 clinical trial in the second half of 2022, leveraging our knowledge of CT1812's preclinical and clinical profile to date. We have initiated discussions with the FDA regarding our plan.

Discovery Initiatives

We are actively engaged in a number of early-stage discovery programs which are built upon our identification of five structurally distinct chemical series. We believe we have identified several structurally distinct compounds that possess advantages for specific disease indications and patient populations. Two of these next-generation S2R modulators have been identified for synucleinopathies and dry AMD and are being assessed as potential IND candidates.

One of our S2R modulators, CT2168, has shown potential disease modification in synucleinopathies such as DLB and PD. Data indicate that this next-generation S2R modulator has activity in α -synuclein assays, indicating the potential to alleviate α -synuclein oligomer-induced neurotoxicity.

Another of our next-generation S2R modulators, CT2074, has shown activity in cell-based dry AMD assays suggesting the potential to maintain homeostatic functions of RPEs, ameliorate lysosomal dysfunction, and prevent RPE cell death. It has further demonstrated retinal exposures above 80% receptor occupancy with oral administration and favorable PK properties, including high degree of bioavailability and high retina-to-plasma ratio, which we believe may provide us with a suitable next-gen molecule to advance for this indication. Therefore, we believe S2R modulators may present a novel therapeutic approach for these indications and intend to pursue development as described below.

Our Strategy

Our objectives are to develop and advance our portfolio, beginning with our lead product candidate, CT1812, through clinical development for the treatment of age-related degenerative diseases and disorders of the CNS and retina and to leverage our understanding of the S2R complex and its regulation of pathways to pursue indications in other degenerative disorders. The key elements of our strategy include:

- **Advance clinical development of our lead product candidate, CT1812, in mild-to-moderate AD and earlier stages of the disease.** Our lead product candidate, CT1812, has progressed through Phase 1 and into Phase 2 clinical trials. Funding of the Phase 1 and into Phase 2 trials is primarily through the NIA. We are evaluating CT1812 in other AD populations as well and developing CT1812 for patients with earlier symptomatic stages of AD and Mild Cognitive Impairment, which is a slight and noticeable measurable decline in cognitive abilities due to AD. We plan to initiate this clinical trial for COG0203 in patients with mild dementia associated with early-stage AD and will enroll patients in the second half of 2022. The trial has been funded by a grant of approximately \$81.0 million awarded from the NIA.

- **Pursue the development of CT1812 for dry AMD.** We plan to evaluate CT1812 as a potential therapy for dry AMD, a common eye disease that results in the deterioration of the macula, causing visual distortion, loss of central vision and eventual blindness. We believe that an S2R antagonist, such as CT1812, may help to regulate the damage-response processes related to these cells that are impaired in dry AMD. After the completion of our ongoing preclinical studies and discussion with the FDA, we intend to advance directly into a Phase 2 clinical trial in the second half of 2022, leveraging our knowledge of CT1812's preclinical and clinical profile to date. We have initiated discussions with the FDA regarding our plan.
- **Leverage our understanding of the S2R complex to develop product candidates for other CNS and degenerative diseases, including synucleinopathies.** We intend to develop and advance other product candidates to treat synucleinopathies, which include PD and DLB. We are initiating a study of CT1812 in patients with DLB and are currently evaluating sites. Data published in February 2021 showed that the S2R complex may play an integral role in the pathology of PD and we believe these results merit further study.
- **Expand our pipeline through internal development, in-licensing and acquisitions.** We intend to leverage our expertise in drug development and business development to evaluate additional product candidates as well as bring forward novel chemical matter using our library generation and Novel Improved Conditioned Extraction, or NICE, screening platform. To achieve this objective, we may supplement our internal development initiatives through selective in-licensing arrangements, as well as investments in strategic collaborations, and partnerships which complement our initiatives.
- **Optimize the value of CT1812 and other product candidates in major markets.** We currently retain all worldwide rights to CT1812 for all indications. We plan to develop and pursue approval of CT1812 and other future product candidates in major markets. Where appropriate, we may use strategic collaborations or partnerships to accelerate development and maximize the commercial potential of our programs. We and our key opinion leaders believe CT1812 also can be used in combination with other therapeutics targeting AD biologies and thus may have many partnering opportunities.
- **Continue to pursue non-dilutive funding opportunities.** The majority of our clinical trials have been funded by approximately \$168.9 million in cumulative grants awarded primarily by the NIA, which includes an approximately \$81.0 million grant award from the NIA to fund our upcoming Phase 2 (COG0203) study of CT1812 in patients with early-stage AD. These grants are non-dilutive and allow us to collaborate with research institutions in pursuing the development of our product candidates for age-related degenerative diseases. We intend to continue our work with these research institutions and plan to seek additional non-dilutive funding for our clinical development when possible.

Our Team and Collaborators

We have assembled a management team with extensive experience with CNS and degenerative diseases, significant expertise in the S2R biology domain, as well as drug discovery, clinical development, general management and business development. Collectively, our management team has a track record of managing drug development programs that have received regulatory approval and been successfully commercialized. These include programs at Bristol-Myers Squibb Company and Pfizer Inc. In addition, our management team has built companies that have initiated innovative technologies and investigational new drug programs. We augment the strengths of our management team with an experienced board of directors and scientific and medical advisory boards. We believe our team, with its deep scientific and drug development background, positions us to become a leader in the development of therapies for age-related degenerative diseases and disorders.

Since our inception, we have collaborated and worked closely with key healthcare organizations and thought leading institutions in the field of degenerative diseases to develop and advance our therapeutic candidates. To date we have received approximately \$168.9 million in cumulative grants awarded primarily from the NIA to support our clinical trials.

Our Approach to Treating Age-Related Degenerative Diseases of the CNS and Retina

Age-related degenerative diseases are defined by an age-related decline of cellular function often resulting in cell death. Neurodegenerative diseases, perhaps the most prominent of these degenerative disorders, are a variety of conditions defined by progressive degeneration of nerve cells, or neurons, which often leads to neuronal death, causing decline in cognition or other functions, resulting in decreased quality of life and shorter life span. The two most common neurodegenerative diseases are AD and PD.

To our knowledge, no other biopharmaceutical company has focused solely on stopping the synaptic binding and signaling of soluble A β oligomers through the use of small molecule receptor antagonists, such as CT1812. We believe our deep expertise in oligomer and synaptic biology provides us with a competitive advantage and led to the creation of (1) proprietary assays that target the critical molecular step causing memory loss and (2) proprietary chemical libraries yielding highly brain penetrant small molecule drugs.

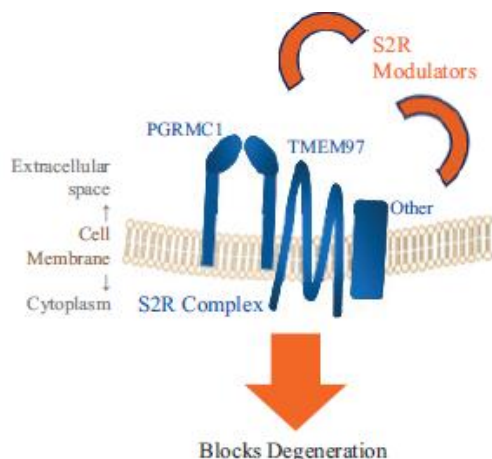
Based on this expertise, we are able to discover and optimize small molecule receptor antagonists like CT1812 that we believe represent a functionally distinct and promising approach to synaptorestorative AD therapeutics where neurons remain viable and functional. These molecules were designed to displace A β oligomers bound to neuronal receptors at synapses by selectively targeting and clearing A β oligomers from the brain into the CSF.

In addition to neurodegenerative diseases, other degenerative diseases include AMD. AMD is a common eye disease that results in the deterioration of the macula, causing visual distortion, loss of central vision and eventual blindness. It is the leading cause of blindness in people over 60 years of age and afflicts approximately 11 million Americans, including an estimated 12% of all U.S. adults over 80 years of age. We believe that human genetic and internal proteomic pathway analyses obtained through our AD trials provides evidence of a relationship between the S2R complex and dry AMD. We are currently engaged in preclinical development activities for this indication, including studies to elucidate the key mechanisms by which CT1812 and the S2R complex alter the biological processes that contribute to dry AMD. We believe that an S2R antagonist, such as CT1812, may help to regulate the damage-response processes related to these cells that are impaired in dry AMD. After the completion of our ongoing preclinical studies and discussion with the FDA, we intend to advance directly into a Phase 2 clinical trial in the second half of 2022, leveraging our knowledge of CT1812's preclinical and clinical profile to date. We have initiated discussions with the FDA regarding our plan. Other S2R modulators are being explored, currently in lead identification studies, prior to lead optimization and candidate selection for IND-enabling studies.

The Sigma-2 Receptor Complex

The S2R complex is comprised of transmembrane protein 97, or TMEM97, a four-domain transmembrane protein that forms a complex with progesterone receptor membrane component 1, or PGRMC1. The S2R complex is expressed in the CNS, the retina, as well as peripheral organs, including the pancreas, liver and kidney. Within the brain, the S2R complex is found in several areas, including the cerebellum, cortex, hippocampus and substantia nigra, and is enriched in neurons as compared to glial cells in the adult brain. In the retina, the S2R complex is expressed in several cell types including the RPE cells, photoreceptors and retinal ganglion cells.

The sigma-2 receptor (S2R) complex



Internal and third-party studies suggest that the role of PGRMC1 and TMEM97, the protein components of the S2R complex, regulate cell damage response processes, including cholesterol biosynthesis, vesicle trafficking, progesterone signaling, lipid membrane-bound protein trafficking and receptor stabilization at the cell surface. In addition, the S2R complex regulates autophagy, the cellular process by which altered cellular proteins are degraded and removed. The aberrant activity of these processes, believed to be triggered by cellular stresses, is a hallmark of the dysfunction related to degenerative diseases. The S2R complex is a key regulator of processes that have been implicated in several age-related degenerative diseases and disorders including AD, retinal diseases, such as dry AMD, and synucleinopathies, such as PD and DLB.

We believe the array of degenerative disorders which involve protein components of the S2R complex allows for the potential therapeutic use of proprietary S2R antagonists in numerous indications. While a fuller understanding of the molecular mechanisms involving the S2R complex remains to be elucidated, evidence suggests that targeting the S2R complex may provide therapeutic benefit to a wide range of age-related degenerative diseases and disorders. We believe modulating the S2R complex to normalize cellular function may provide a restoration of normal cellular processes.

Biomarker and Imaging-Driven Evidence

Biomarkers have become increasingly important in the development of treatments for neurodegenerative diseases for a number of reasons, including monitoring drug activity in patients, assessing changes in disease pathology during treatment and identifying responder populations for clinical studies. Given that biomarker-enabled therapeutics have a higher rate of success at gaining product approval, we elected to employ biomarkers in our programs to mitigate clinical development risk. To that end, in addition to a number of cognitive tests, our clinical trials use a variety of biomarkers to measure target and/or pathway engagement and assess changes in disease progression. For example, in AD, changes in cerebrospinal fluid, or CSF, concentrations of neurogranin and synaptotagmin-1 can be indicative of damage to synapses. In PD and other synucleinopathies, changes in markers such as α -synuclein species, lysosomal enzymes, markers of amyloid and tau pathology, and neurofilament light chain can indicate dysfunction in membrane trafficking and autophagy processes. Quantitative EEG and PET imaging agents as well as vMRI may have utility in several neurodegenerative disorders to measure synaptic function, synaptic density and brain atrophy, respectively.

Our Novel, Improved Conditioned Extracts (NICE) Screening Platform

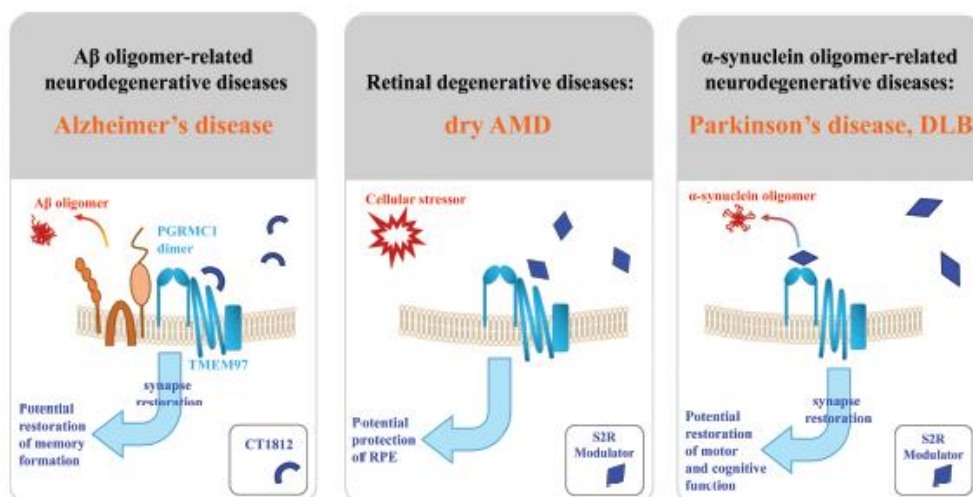
Chemical structures that we are currently evaluating as potential therapeutics for degenerative diseases originate from our NICE screening platform. The NICE screening platform allows us to generate proprietary small molecule libraries derived from natural chemical scaffolds through a proprietary process which we refer to as conditioned

extraction. Conditioned extraction, a process pioneered by a cofounder, allows us to eliminate undesirable properties of well characterized, biologically active compounds sourced from natural products, while retaining their biological activity. The resulting molecular configurations are then subjected to proprietary functional *in vitro* screening assays designed to replicate the mature brain and its intricate connections and patterns of electrical signaling. Unlike most other screening assays, such as cells lines derived from immortalized neuronal tumor cells, our use of mature primary neuronal cultures provides us with information-rich measurements more indicative of normal brain function and predicative of functional benefit. We have utilized our NICE screening platform in conjunction with these mature primary neuronal cultures to develop product candidates for our proprietary Early Alzheimer's Screening System, or EASSY.

The candidate library produced by the NICE screening platform is predisposed to compounds with attractive drug-like properties such as low molecular weight, low number of reactive hydrogen bonds, lipophilicity and relatively neutral chemistry properties. These characteristics reduce the reactivity of the molecules and related toxicities, while also enhancing their ability to cross the blood-brain and blood-retina barriers. As a result, the NICE screening platform is designed to accelerate drug development time while reducing development risk. We believe these characteristics provide us with a screening platform that is differentiated from other discovery strategies.

Our Product Candidates

We are leveraging our expertise in the biology of the S2R complex, synaptic function and plasticity, and our understanding of the role of toxic age-related soluble proteins, to construct a pipeline of innovative, differentiated small molecule product candidates that are intended to restore normal cellular damage responses. We intend to develop therapeutics with the potential to overcome diseases associated with age-related toxic protein buildups that disrupt key cellular processes. Our initial product candidates target diseases characterized by dysfunction or dysregulation of the S2R complex that leads to cellular degeneration, as observed in age-related degenerative diseases and disorders, such as AD, dry AMD, PD and DLB as depicted in the illustration below.



Our Lead Product Candidate: CT1812

Our lead product candidate, CT1812, is an orally delivered, small molecule antagonist that penetrates the blood-brain and blood-retina barriers and binds selectively to the S2R complex; and through its modulation restores normal function of synapses, as well as critical cellular processes such as autophagy, cholesterol biosynthesis, vesicle trafficking, progesterone signaling, lipid membrane-bound protein trafficking and receptor stabilization at the cell surface. CT1812 originated from our initial efforts with our NICE screening platform which enables the generation of innovative leads. Leads identified through NICE were then evaluated using proprietary *in vitro* assays designed to better

emulate *in vivo* synaptic activity. We believe the use of these assays allows us to identify functionally active structures which may impact neuronal behavior significantly faster than alternate screening approaches. We currently retain worldwide rights to CT1812 for all indications and are developing CT1812 as a potential treatment for a range of diseases including AD, dry AMD and synucleinopathies, such as DLB.

CT1812 for the Treatment of Alzheimer's Disease (AD)

CT1812 was designed to selectively target and displace A β oligomers bound to neuronal receptors at synapses by a new and differentiated mechanism of action. CT1812 allosterically modulates, changing the conformation of a key multiprotein regulator of oligomer receptors, the sigma-2 receptor complex. This destabilizes the A β oligomer binding site, increasing the off-rate and thereby displacing bound A β oligomers, which are then cleared from synapses. In our preclinical studies, CT1812 has demonstrated the potential to protect synapses, facilitate their restoration and improve cognitive performance. These preclinical results are currently being validated in our ongoing Phase 2 clinical trials.

Overview of the Disease

AD is a progressive neurodegenerative disorder characterized by cognitive dysfunction, memory loss, dementia and the impairment of daily living activities, along with numerous behavioral and neuropsychiatric symptoms. In the advanced stages of the disease, an AD patient is unable to recognize faces, use or understand language and displays a lack of awareness for their surroundings. Continued functional decline ultimately results in the patient's death.

Due to the size of the affected population and the current lack of effective disease modifying therapies, we believe that AD is one of the most significant unmet medical needs of our time. Nearly six million Americans have been diagnosed with AD and disease prevalence is expected to more than double by 2050. The direct healthcare costs to care for patients with AD and other dementias in the United States is currently estimated to exceed \$300 billion and projected to increase to \$1 trillion by 2050. Absent the development of meaningful intervention in the course of the disease, the number of people diagnosed with, and dying from, AD is anticipated to escalate appreciably as lifespans lengthen, since prevalence increases significantly with age. The Centers for Disease Control listed AD as the primary cause of death for more than 121,000 Americans in 2019. The disease is equally devastating worldwide, with the World Health Organization estimating that AD affects as many as 35 million people globally.

Currently Approved AD Therapeutics

Only one disease-modifying therapeutic option has been approved by the FDA. Specifically, Biogen's Aduhelm received accelerated approval on June 7, 2021. The FDA allows accelerated approval for drugs to treat serious conditions that fill an unmet medical need based on a surrogate endpoint. A surrogate endpoint is a marker thought to predict clinical benefit but is not itself a measure of clinical benefit. After receiving accelerated approval, drug companies are still required to conduct studies to confirm the clinical benefit. If the required studies confirm the drug's benefit, then the FDA grants traditional approval of the drug. Aduhelm is a monoclonal antibody administered via infusion reported to reduce A β plaques, which is distinct from our small molecule approach to modulate the S2R, thereby blocking A β oligomers from binding to synapses. The only other therapies approved for AD are indicated to treat the symptoms of AD: acetylcholinesterase inhibitors, or AChEIs, and glutamatergic modulators and an orexin receptor antagonist. AChEIs are designed to slow the degradation of the neurotransmitter acetylcholine, helping to preserve neuronal communication and function temporarily. Glutamatergic modulators are designed to block sustained, low-level activation of the N-methyl-D-aspartate, or NMDA, receptor without inhibiting the normal function of the receptor in memory and cognition. Namenda (memantine), an NMDA receptor antagonist was approved in the United States in 2003. These therapeutic products do not modify or alter the progression of the underlying disease and provide only modest efficacy in treating the symptoms.

Therapeutic Approaches in Development to Treat the Underlying Disease Have Shown Little Success

Numerous therapeutic approaches have been evaluated to remedy the causes of AD. Those focused on reducing the aberrant production, or removal, of intraneuronal neurofibrillary tangles of tau protein have yielded limited clinical benefit. Development initiatives intended to inhibit hyperphosphorylation of the tau protein and related kinase activity,

enhance microtubule stability or block tau aggregation have largely been discontinued due to toxicity or a lack of efficacy. Microglial activation and its role in AD-induced neuroinflammation has emerged as another potential target for therapeutic development as has the proper functioning of processes dictating synaptic plasticity, believed to be of central importance to neuronal activity and continued viability. These efforts have also not yielded meaningful clinical advances.

Among the more prevalent and targeted mechanisms implicated in AD, is the accumulation of A β aggregates in the neuronal synapse where disease progression leads to synaptic dysfunction and dysregulation. The accompanying deterioration in neuronal activity ultimately results in neuronal death. As a result, the reduction in the levels of A β aggregates at the synapse has been a prominent objective of a significant number of therapeutic candidates, including active and passive immunotherapies, designed specifically to target A β aggregates. As with other treatment strategies, with the exception of Aduhelm, these approaches have likewise yielded few meaningful treatment advances.

We believe the overarching issue with therapeutic interventions intended to limit A β aggregate concentrations in the brain is that they fail to discriminate between different forms of A β aggregates: fibrils, plaques and oligomers. Accordingly, these efforts may demonstrate success clearing fibrils and the largely inert plaques, but fail to address the specific neurotoxic effects of A β oligomers. We believe that unlike previously pursued approaches, our strategy of targeting the S2R has the potential to prevent A β oligomer toxicity by acting directly at the synapse, thereby preventing synaptotoxicity, a mechanism we are testing in the clinic currently.

The Role of A β Oligomers on Synapses and the Downstream Impact to Brain Function and AD

Synapses are specialized points of contact between neurons, where electrical signaling and communication takes place. It is well established that synapses are routinely sprouted and resorbed as part of the normal process of learning and memory. Each neuron is covered with an estimated 10,000 synapses and these synapses participate in a complex electrical circuit with other neurons. Neurons do not divide or reproduce as part of normal physiological function.

Emerging scientific evidence suggests that A β oligomers, formed over time through the buildup of A β and its aggregates, bind to specific parts of the synaptic structure and interfere with the normal process of memory formation. This ligand-like activity confers to A β oligomers potent synaptotoxic activity. In response, the neuron dismantles and resorbs the synaptic structure to prevent its abnormal function from interfering with what remains of the normal circuit behavior. If a large enough number of synapses are lost, the neuron dies.

Synaptic loss, however, is not necessarily permanent and synapses can be regained or sprout again once the oligomers are removed. We have observed this process in our research involving preclinical AD models. This observation leads us to believe that displacement of synaptotoxic A β oligomers may enable synapses to recover and potentially slow cognitive decline. We are further encouraged by the numerous precedents which exist that demonstrate the therapeutic utility of blocking ligand-receptor interactions in the brain with small molecule drugs capable of crossing the blood-brain barrier.

CT1812 Uses a Differentiated Mechanism of Action to Selectively Target A β Oligomers

Our proprietary CT1812 clinical candidate employs a novel and fundamentally different mechanism which through alteration of S2R activity selectively facilitates removal of neurotoxic A β oligomers. Experimental evidence suggests that A β oligomers likely occupy binding sites contiguous to the S2R complex. Binding at these locations is believed to produce structural distortions which inhibit the proper functioning of the S2R complex including its role in regulating critical signaling pathways. The preferential binding of CT1812 to the S2R complex produces conformational changes that alters the binding affinity of A β oligomers. CT1812 binding to the S2R complex likely modulates the conformation of the S2R complex, which in turn allosterically alters the conformation of the oligomer binding pocket on the oligomer receptors. Binding pocket destabilization leads to displacement of A β oligomers from the neurons and neuronal synapse. Once displaced, A β oligomers are unable to rebind as long as threshold concentrations of CT1812 are present and are rapidly removed from the synapse. Based on our preclinical studies, we believe that CT1812 not only prevents binding of A β oligomers, displacing them from the S2R complex sites at neuronal synapses, but also slows A β oligomer-induced

loss of synapses and restores synaptic activity, which may reverse downstream alterations related to membrane trafficking.

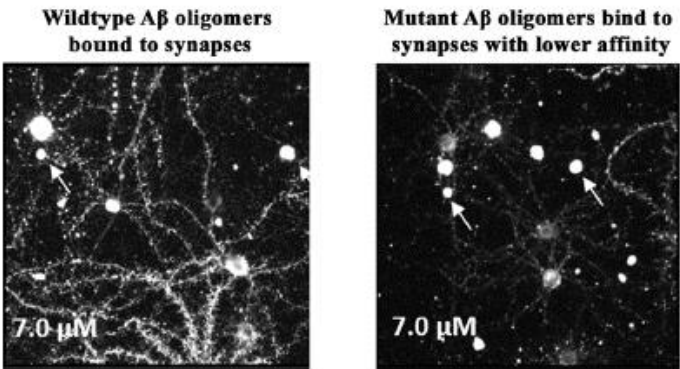
The Use of an S2R Targeted Approach is Supported by the A673T Mutation

We believe the benefit of the mechanism by which CT1812 stops the toxic impact of Aβ oligomers on cellular function is further supported by an analysis of the Aβ sequence variant, A673T, which is commonly referred to as the “Icelandic” mutation. The A673T mutation is the first variant associated with a mutation in the protein structure of Aβ, first identified through a genomic analysis of the Icelandic population, and is notable in that carriers of the mutation are four-fold less likely to develop AD. The A673T mutation, which involves the substitution of the amino acid alanine for threonine at position 673 of the precursor molecule, not only produces fewer Aβ monomers, but our research indicated that the toxic Aβ oligomers generated have four-fold lower affinity for brain cell synapses. This reduced binding is evidenced in the results of *in vitro* experiments, which are presented below. Whereas wildtype Aβ oligomer binding is pronounced, the binding of the A673T variant is much lower.

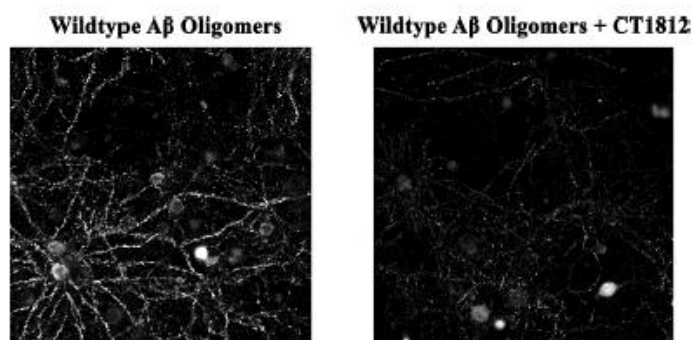
Binding affinities of wildtype versus mutant Aβ oligomers to synapses
(intensity in arbitrary fluorescent units)

	<i>Kd</i> (nM)	<i>B max</i>
wt Aβ (1 – 42) oligomers	Site 1:442 ± 70	7.98 × 105 ± 0.29 × 105
A673T mutant Aβ (1 – 42) oligomers	Site 1:1,955 ± 502	5.98 × 105 ± 0.50 × 105

Kd is a constant used to evaluate and rank the strengths of interactions for ligands and their receptors. The smaller the *Kd* value, the greater the binding affinity. *Bmax* refers to the maximum amount of a ligand that can bind specifically to a receptors. Intensity is measured in arbitrary fluorescent units.



We believe that CT1812 is the only drug currently in clinical trials that mimics the effects of the A673T mutation. As the images presented below suggest, both CT1812 and the A673T mutation similarly reduce the binding of toxic A β oligomers to synapses. We believe that drugs like CT1812 that mimic the protective effects of the A673T mutation are more likely to succeed in the clinical setting in patients with mild-to-moderate AD.



CT1812 Clinical Results in AD

We have completed four clinical trial evaluations of CT1812, in both healthy volunteers and patients with mild-to-moderate AD, with two clinical trials ongoing and one additional trial with topline results currently available and final results expected in the second half of 2022. The clinical trials we have conducted to date have enabled us to evaluate the safety profile of CT1812, as well as validate its mechanism through proof-of-concept trials and conduct initial assessments of its therapeutic potential. The following is the status of our completed and ongoing clinical trials.

Overview of our completed, ongoing and planned clinical studies

	FIH / Safety		Proof of Concept / Mechanism				Impact on Disease Pathology	
Study	SAD/MAD COG0101 (n=93)	DDI COG0103 (n=15)	COG0102 (n = 19)	SNAP COG0104 (n=3)	SPARC COG0105 (n = 23)	SEQUEL COG0202 (n = 16)	SHINE COG0201 (n = 120)	ACTC COG0203 (n=540)
Population	Healthy Volunteers		Mild-Moderate Alzheimer's				Mild-Moderate Alzheimer's	Early Alzheimer's
Status	Completed 2015	Completed 2016	Completed 2018	Completed 1H2021	Enrollment completed	Ongoing	Ongoing Topline 1H2023	Enrollment commencing 2022
Results	Well tolerated	No clinically significant DDI	Well tolerated	Evidence of target engagement	Topline reported	Topline 2023	Interim: trend in cognitive improvement	

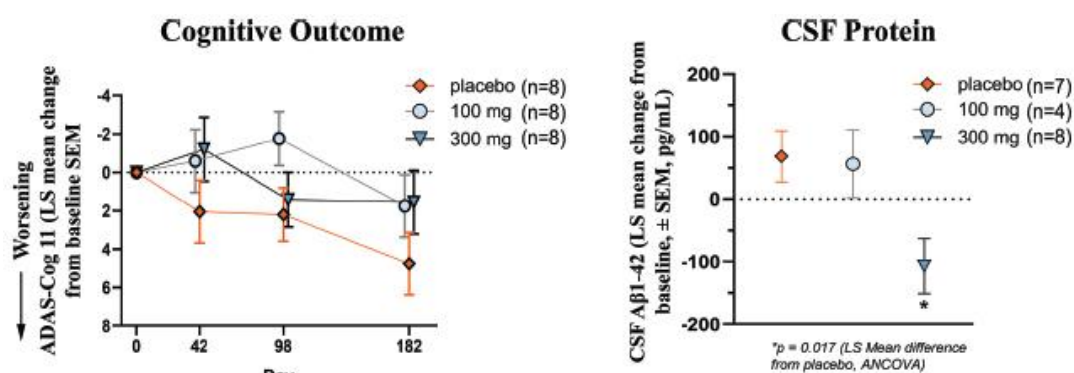
COG0201 — Phase 2 (SHINE) Clinical Trial

Our COG0201 SHINE study is a randomized, double-blind, placebo-controlled Phase 2 clinical trial designed to enroll up to a total of 120 patients with mild-to-moderate AD to evaluate the safety and potential efficacy of CT1812. Participants are divided in two CT1812 dose groups (100 mg or 300 mg) and one placebo group, dosed daily for six months. Endpoints include safety and biomarker evidence of disease modification as well as cognitive function, as measured by the ADAS-Cog 11-item version, or ADAS-Cog 11. ADAS-Cog 11 is a globally recognized cognitive scale that is used to assess cognition in patients with AD.

Preliminary results from an interim analysis of the first 24 patients from the COG0201 study demonstrated that CT1812 continued to be generally well tolerated. There were four serious adverse events, or SAEs, which were not drug-related and occurred in a single placebo patient. The patient was discontinued due to one of the SAEs. Treatment emergent adverse events, or TEAEs, were well balanced across all treatment groups. We observed mild and transient elevations of liver enzymes in three patients without any other indications of liver injury. These results were consistent with findings from earlier clinical studies.

The preliminary results also demonstrated a significant decline in the presence of A β and a three-point mean improvement in the rate of cognitive decline as measured by ADAS-Cog 11, in patients receiving CT1812 when compared to placebo. These results were observed in patients receiving CT1812 or placebo in addition to background therapies they may have already been receiving for AD. We believe these preliminary results provide promising evidence of CT1812's cognitive and biological impact on the 24 patients included in the interim analysis of the SHINE study. These results indicate that patients treated with CT1812 showed relative stability on a measure of cognitive performance compared to the placebo group. A mean difference in the rate of decline of approximately three points was observed between the CT1812 dose groups receiving either 100 mg or 300 mg versus the placebo group based on the ADAS-Cog 11 measurements. After review of these results, which are presented in the graph below, we decided to continue trial enrollment, and are identifying sites and screening patients for this study.

Results indicate a three-point improvement in cognitive decline in CT1812-treated patients.



Proteomic measurements were also performed of CSF and plasma from these patients, from which we have comprehensive datasets of whole proteome changes observed in AD patients given CT1812 versus placebo for six months. From this, we identified product candidate pharmacodynamic biomarkers that could reflect processes of target engagement, pathway engagement and/or early disease modification.

The SHINE trial was not powered to detect statistically significant treatment differences. Nevertheless, p-values were calculated at the time of the interim analysis with respect to the clinical and biomarker outcomes to help inform on the potential importance of observed numerical treatment differences. For these interim analyses, p-values < 0.05 were considered “significant” while p values > 0.05 were considered “non-significant.” The approximately three-point treatment difference relative to placebo observed for the pooled dose groups that was observed on the ADAS-Cog 11 was non-significant (p > 0.05; p = 0.1295), while the treatment difference relative to placebo that observed for the reduction in CSF A β 42 protein at the 300mg dose was significant (p < 0.05; p = 0.0178).

Proof-of-Concept Clinical Trials for the Mechanism of CT1812

We have conducted and are continuing to conduct a series of clinical proof-of-concept trials intended to assess target engagement and the impact of CT1812 on synaptic activity. These proof-of-concept trials are presented in more detail below.

COG0202 — Phase 2 (SEQUEL) Trial

Our COG0202 SEQUEL study is a randomized, double-blind, placebo-controlled Phase 2 clinical trial of 16 patients with mild-to-moderate AD to evaluate the potential efficacy of CT1812 in restoring synaptic function in patients through quantitative EEG measurement, as reflected by relative theta power. The trial is configured as a two-arm crossover trial, in which half of the participants will receive 300 mg of CT1812 daily for 29 days. After a 14-day wash out period, these participants will receive placebo for an additional 29 days. The other half of the participants receive placebo daily for 29 days. After a 14-day wash out period, these participants will receive CT1812 treatment for an additional 29 days. CSF and EEG evaluations are taken periodically throughout the duration of the trial. We anticipate reporting topline data from this trial in fourth quarter of 2022.

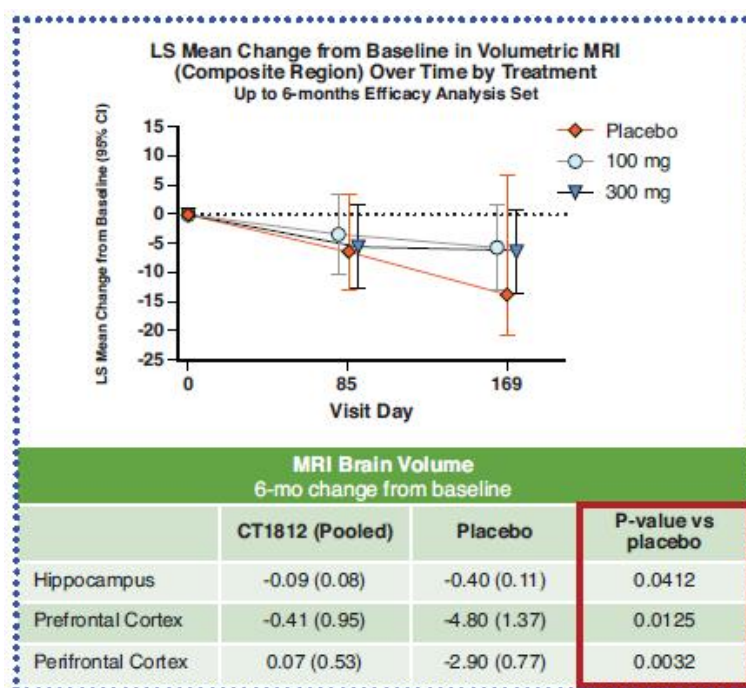
COG0105 — Phase 1 (SPARC) Trial

The COG0105 SPARC study is a randomized, double-blind, placebo-controlled Phase 1 clinical trial of 23 patients with mild-to-moderate AD. The primary objectives of the study were to evaluate CT1812 for safety and tolerability. The secondary objectives were to evaluate potential effects of CT1812 on biologically relevant endpoints using various imaging modalities, including PET imaging and vMRI as well as CSF biomarkers, and cognitive and clinical endpoints.

Participants were randomized to receive treatment with 100 mg or 300 mg of CT1812 or placebo once daily for 24 weeks. A preliminary analysis has been made of safety, clinical laboratory measurements, PET imaging, functional MRI and vMRI, CSF biomarkers and clinical outcomes in patients treated with CT1812 compared to those in patients receiving placebo.

Seventeen patients completed the study protocol, eleven in the CT1812 arm (six in the 100mg cohort; five in the 300mg cohort) and six in the placebo arm. CT1812 was well-tolerated with similar adverse event rates across treatment arms. Most adverse events were mild-to-moderate in severity with no deaths and no treatment-related SAEs reported. We observed mild and transient elevations of liver enzymes without any other indications of liver injury in two patients in the 300-milligram group. The patients were discontinued from the study and the liver enzyme levels returned to normal.

Topline results from the analyses of secondary endpoints demonstrated that after 24-weeks of treatment, there were no significant treatment differences on the ADAS-Cog 11 change from baseline. In addition, there were no significant treatment differences on SV2A signal change compared to baseline. However, vMRI showed a trend ($p=0.0641$) towards a significant reduction in the loss of composite brain volume in CT1812-treated patients (pooled) compared to placebo. A statistically significant ($p<0.05$) reduction in loss of brain volume was also observed in three brain regions (hippocampus, prefrontal cortex and pericentral cortex) in treated patients (pooled) compared to placebo, as shown in the table below.



Additional analyses are underway, including examination of CSF biomarkers including A β , tTau, pTau181 and a host of synaptic biomarkers. This trial was completed in 2021.

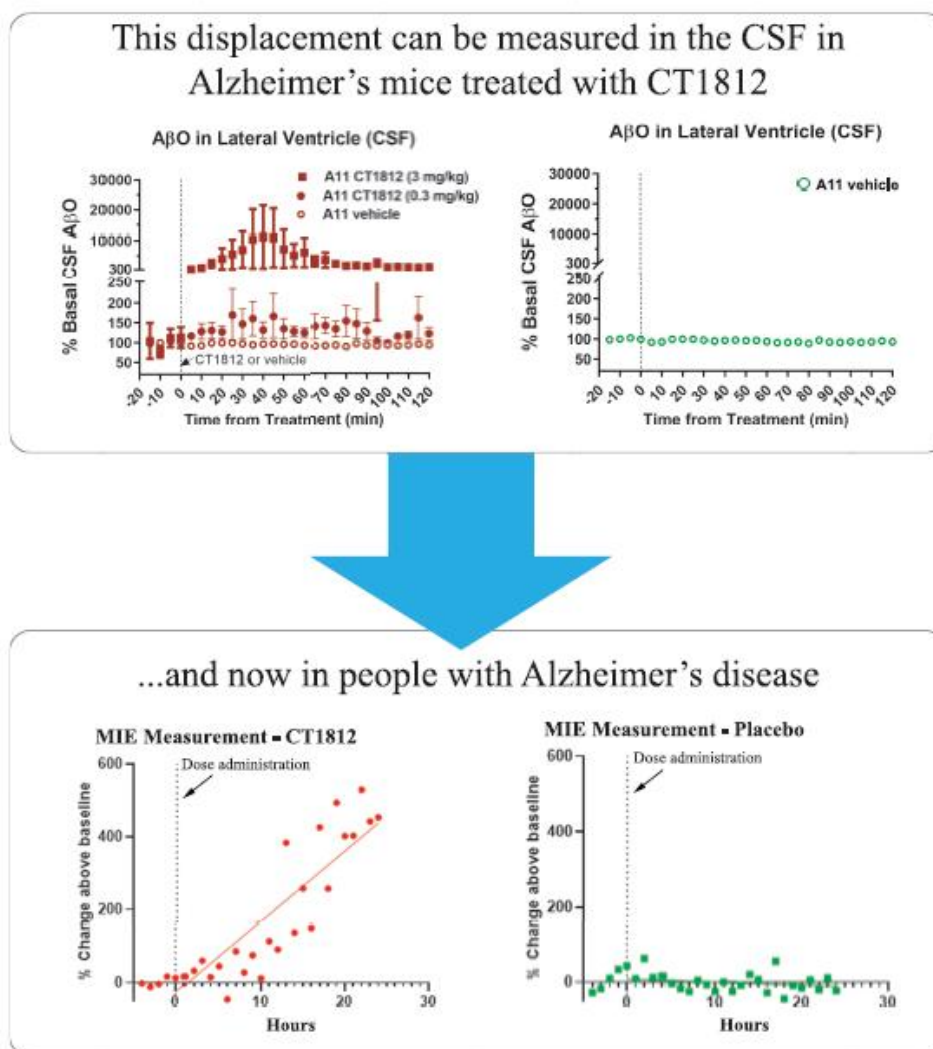
COG0104 — Phase 1 (SNAP) Trial

Our COG0104 SNAP study was a randomized, double-blind, placebo-controlled Phase 1 clinical trial that enrolled three patients with mild-to-moderate AD to measure the effects of CT1812 on displacement of A β oligomers. Patients were randomized 2:1 to receive a single dose of CT1812 or placebo. Patients enrolled in the trial had an indwelling catheter placed in the lumbar CSF space. CSF samples were collected hourly over a 28-hour period. Five CSF samples were collected before and 24 samples collected after administration of a single 560 mg oral dose of CT1812 or placebo. CSF samples from trial participants were analyzed to measure the concentration of A β oligomers over the trial period.

Results of this trial revealed an increase in A β oligomer levels in the CSF over the 24-hour period following treatment with CT1812, but not in the patient administered placebo. These findings were observed using two independent methods, microimmunoelectrode and western blots. This effect of CT1812 was specific to A β oligomers, as no CT1812-related increase in A β 1-40 or 1-42 monomer was observed.

We believe these results provide the early proof of principle of CT1812 target engagement in AD patients. Further, we believe that they corroborate our mechanism of action previously demonstrated in preclinical studies, providing the first evidence that our preclinical studies translate to patients with AD.

First evidence of target engagement in humans, which mirrors that found preclinically; and we believe this reinforces that our mechanism of action extends to patients with AD



COG0102 — Phase 1 Trial

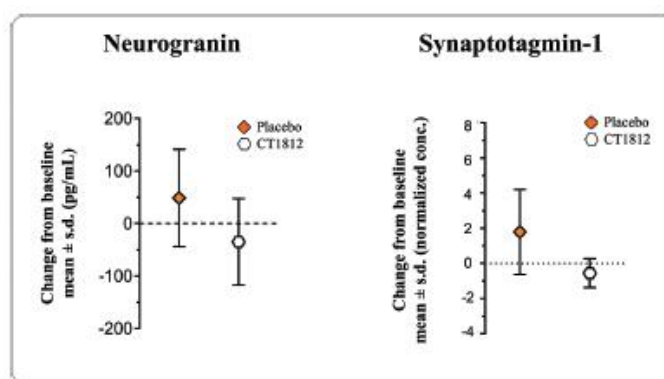
Our COG0102 study was a randomized, double-blind, placebo-controlled, Phase 1 clinical trial of 19 patients with mild-to-moderate AD. Participants were administered one of three oral doses of CT1812, either 90 mg, 280 mg or 560 mg, once daily for 28 days. The primary endpoint of the trial was safety with a secondary objective of establishing the

pharmacokinetic, or PK, profile of CT1812. Also included as exploratory endpoints were measurement of CT1812 in CSF, and protein expression changes in CSF and plasma.

In order to gauge the impact of CT1812 on synaptic damage due to AD, we measured concentrations of synaptic proteins, neurogranin and synaptotagmin-1, in CSF samples from these patients using clinically validated standardized assays. Our evaluation of AD protein biomarkers in the CSF revealed that neurogranin levels, shown in the left graph below, in patients treated with CT1812 for 28 days was significantly decreased compared to levels measured in patients administered placebo ($p = 0.05$, analysis of covariance). Neurogranin is a synaptic damage marker that increases in the CSF of AD patients reflecting its decrease in the brain. The lowering of synaptic damage markers in the CSF is consistent with CT1812's mechanism of action as observed in our preclinical studies and demonstrates the potential of the drug to slow A β oligomer-induced synapse loss.

Another synaptic damage biomarker that is elevated in the CSF of AD patients is synaptotagmin-1. CSF levels of synaptotagmin-1 were similar at baseline and end of study in patients treated with CT1812, whereas its levels in the placebo group displayed a marked increase over the same time period. This analysis of CT1812's impact on synaptotagmin-1 levels is presented in the right graph below. Consistent with our belief that targeting the S2R has the potential to prevent A β oligomer toxicity, we observed a reduction in neurogranin and synaptotagmin in CSF, which are measures of synaptic damage, suggesting that CT1812 may have the ability to protect synapses in AD patients.

Treatment with CT1812 was associated with lower levels of neurogranin and synaptotagmin-1 compared to placebo



CT1812 was well tolerated in the COG0102 study. All AEs were mild-to-moderate. Some of the participants in the highest dose group experienced lymphocytopenia or elevated liver enzymes. These laboratory abnormalities resolved in most patients with continued dosing of CT1812. One trial participant was discontinued from CT1812 prior to study completion because of elevated liver enzymes with subsequent resolution of this abnormality. Lymphocytopenia or elevated liver enzymes were not observed in either the 90 mg or 280 mg dosing cohorts. There were no SAEs.

Our Phase 1 Safety Trials

In addition to Phase 1 clinical trials conducted in our targeted patient population, we also conducted a series of Phase 1 clinical trials in healthy volunteers designed to evaluate the safety profile of CT1812, as well as determine potential drug-food or drug-drug interactions. These trials and their results, which are summarized below, indicated that CT1812 was generally well-tolerated.

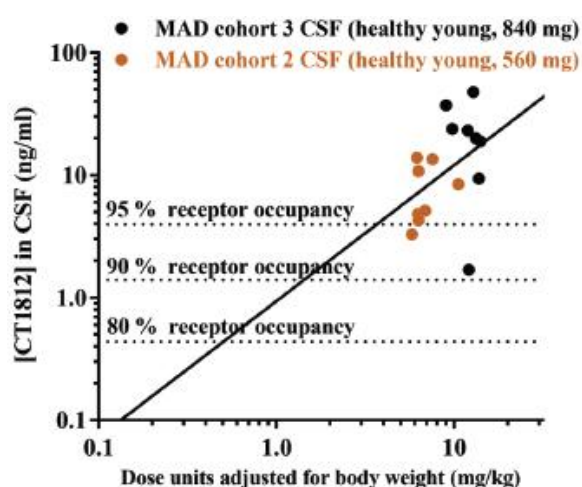
COG0101 — First in human phase 1 clinical trial

Our COG0101 study was a randomized, double-blind, placebo-controlled ascending dose Phase 1 multi-cohort clinical trial of 93 healthy volunteers to assess the safety and potential drug-food interactions of CT1812. The trial was conducted in two segments.

The first segment was structured as an ascending single dose trial, in which participants received one dose of CT1812 with increasing doses given to each of six cohorts. In this segment of the trial, eight participants were enrolled per dosing cohort with six participants receiving CT1812 and two receiving placebo. The doses evaluated were 10 mg, 30 mg, 90 mg, 180 mg, 450 mg and 1,120 mg. A seventh cohort of six patients received a single 90-mg dose after receiving a standardized meal. All doses were administered as scheduled.

The second segment was configured as a multiple ascending dose trial, that enrolled 39 healthy volunteers, divided in three cohorts of ten participants, with one additional cohort consisting of nine healthy elderly volunteers. Each participant in this segment of the trial received a single dose of CT1812 each day for 14 days. The doses evaluated in this second segment were 280 mg, 560 mg and 840 mg.

CT1812 CSF concentrations correlated to a >80% S2R predicted receptor occupancy in brain



Following completion of each trial cohort, bioanalytical evaluation of plasma CT1812 PK was conducted.

This trial demonstrated that administration of CT1812 in single doses of up to 1,120 mg, administered once, as well as up to 840 mg of CT1812 dosed for 14 consecutive days was well tolerated. Significantly, CT1812 concentrations detected in the CSF correlated to an estimated receptor occupancy in the brain of greater than 80%. There was one SAE in the multiple-dose portion of the study that was deemed unrelated to study drug. There were no SAEs related to the product candidate or TEAEs leading to withdrawal from the study.

COG0103 — Phase 1 trial

Our COG0103 study was a Phase 1 clinical trial of 15 healthy volunteers designed to evaluate the potential effects of CT1812 on select CYP isoenzymes: CYP2C19, CYP2C9, CYP2D6 and CYP3A4. This was accomplished by assessing its effects on substrates of these isoenzymes: 20 mg omeprazole, 500 mg tolbutamide, 50 mg dextromethorphan and 4 mg midazolam. The 15 healthy volunteers who participated in the trial received the substrates of these isoenzymes two days prior to the initial dose of CT1812 and PK assessments were performed. A dose of 560 mg

of CT1812 was administered to each of the trial participants for the following six consecutive days. The day 6 dose of CT1812 was administered concomitantly with the four-substrate cocktail and PK assessments were repeated.

A weak drug interaction was observed between CT1812 and midazolam and dextromethorphan. A lack of any clinically meaningful interaction was observed with coadministration of omeprazole or tolbutamide. Based on the small magnitude of change in PK parameters of the probe drugs observed in this study for the isoenzymes CYP2D6 and CYP3A4, clinically meaningful interactions are unlikely.

Clinical Development Plans and Future Trials

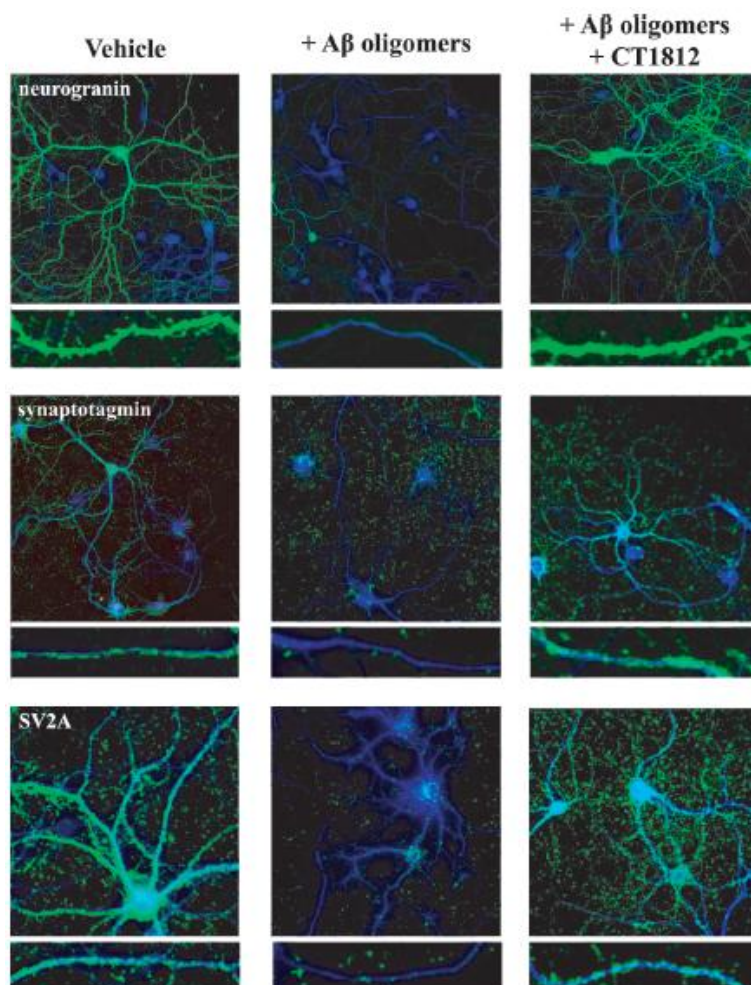
Our Upcoming COG0203 Phase 2 Clinical Trial Fully Funded by NIA Grant of approximately \$81.0 million

Our COG0203 study is a randomized, double-blind, placebo-controlled Phase 2 clinical trial designed to enroll 540 patients with early-stage AD and powered to show a change in the rate of cognitive and functional decline. We intend to enroll patients with MCI, due to AD or mild AD who have elevated levels of A β as determined by PET imaging or as measured in CSF. The trial is being conducted in collaboration with the ACTC and will utilize up to 35 academic sites associated with the consortium. Patients will be randomized to receive CT1812 or a placebo for 18 months. In addition to a battery of cognitive measures, we intend to use a variety of biomarkers to measure target engagement and assess changes in neurodegeneration and disease progression. We have received a grant of approximately \$81.0 million from the NIA to fully fund this trial.

Preclinical Results

Prior to entering clinical trials, the therapeutic potential of CT1812 was observed in numerous preclinical studies. As is demonstrated in the images below, the addition of A β oligomers to neuronal cell cultures resulted in synaptotoxicity as illustrated by the reduced expression of synaptic markers neurogranin, synaptotagmin and SV2A. The lack of immunoreactivity of these three synaptic proteins can be seen in the middle column of the image below. However, the presence of CT1812 blocked the A β oligomer-induced loss of synapses, as reflected by the presence of synaptic protein expression displayed in the right-hand column below.

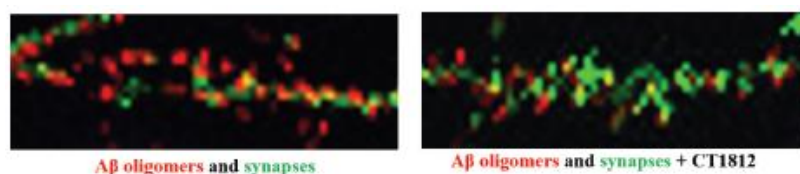
CT1812 prevents A β oligomer-mediated synaptic damage



Immunofluorescent images of cultured brain cells:
green = synaptic markers; blue = neuronal MAP2

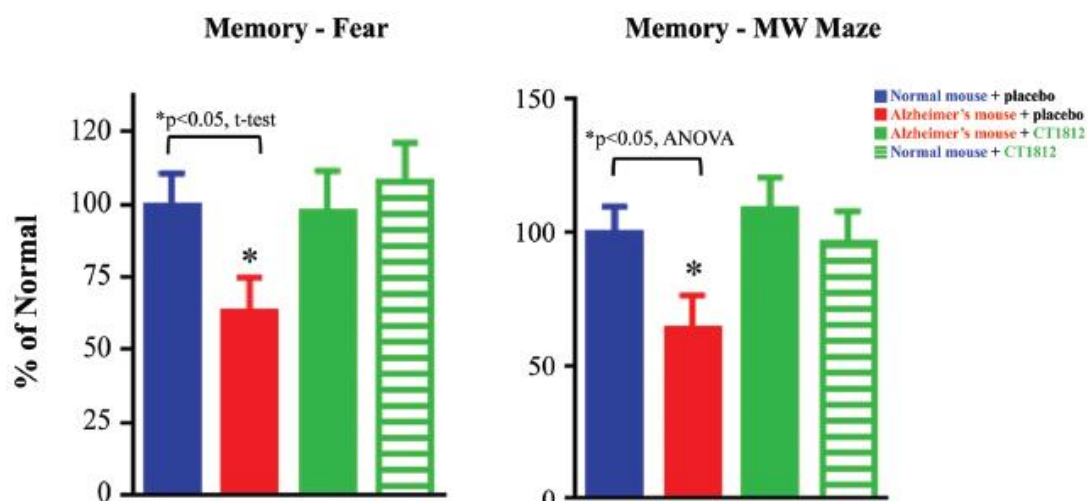
Results showed that CT1812 also slowed the loss of synapses that is triggered by A β oligomers. A higher resolution image of the cell culture exposed to A β oligomer is shown below, before the addition of CT1812, which is presented on the left, and after the addition of CT1812, which is presented on the right. A β oligomers shown in red bind to synaptic receptors and reduce numbers of synapses shown in green. The addition of CT1812 displaces A β oligomer binding and appears to block the effects induced by the A β oligomers, with the synapse numbers remaining at levels similar to normal.

CT1812 slows loss of synapse numbers in the presence of A β oligomers



The protective benefits of CT1812 observed in these *in vitro* assays are supported by functional *in vivo* assessments of CT1812. In one such preclinical study, the memory of mice was tested based on the subject's ability to recall fear-inducing triggers and its performance in a maze. The mice exhibiting symptoms of AD, depicted by the red bars in the image below, performed significantly worse in both the fear and maze tests when compared to normal, non-transgenic mice, represented by the blue bars. However, after administration of CT1812, the AD mice, represented by the solid green bars, were seen to perform at a level similar to that achieved by normal mice. We believe these results are illustrative of CT1812's ability to restore synaptic proteins and numbers to normal levels and with it, the animal's functional capabilities.

CT1812 restores functional capabilities in a mouse model of AD



CT1812 for the Treatment of Dry Age-Related Macular Degeneration (Dry AMD)

We believe that several lines of evidence suggest that modulation of the S2R complex may provide significant therapeutic utility for the treatment of dry AMD. Human genetics points to TMEM97 as a promising therapeutic target for dry AMD, as indicated via several large-scale, independent genome-wide association, or GWA, studies. In addition, unbiased pathway analysis of AD patient proteomic data obtained during our clinical trials provides independent evidence of a relationship between the S2R complex and dry AMD.

We are currently engaged in preclinical development activities for this indication, including studies to elucidate the key mechanisms by which CT1812 and the S2R complex alter the biological processes that contribute to dry AMD.

Early proof-of-concept studies with CT1812 indicate a role of S2R modulators in rescuing key aspects of dry AMD including maintaining homeostatic functions of RPEs, ameliorating lysosomal dysfunction and preventing RPE cell

death. PK assessment indicates that we can achieve therapeutic levels (>80% receptor occupancy) of CT1812 in retinal tissue through oral administration.

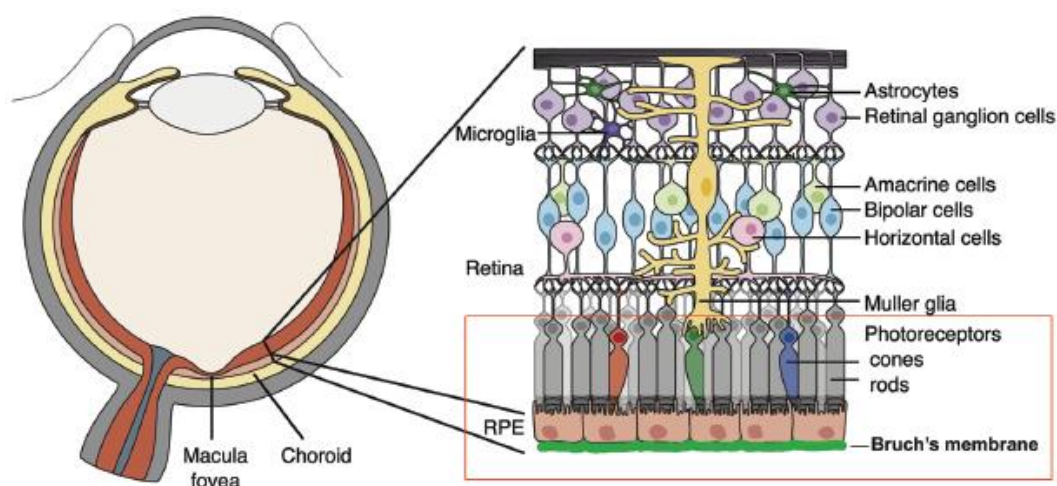
We intend to initiate this trial in the fourth quarter of 2022. We believe that well-characterized clinical endpoints and a defined regulatory path increase the attractiveness of this indication.

Overview of the Disease

AMD is the leading cause of blindness in people over 50 years of age in the United States, afflicting approximately 11 million people in the U.S., including an estimated 12% of all U.S. adults over 80 years of age. Dry AMD is a progressive condition and accounts for up to 90% of all AMD cases. Advanced dry AMD, or GA, affects approximately 2 million people in the U.S. There are no approved therapeutics available for dry AMD. Other treatments in development are primarily invasive, including intravitreal injections, stem cell replacement and gene therapy approaches. We believe the limited treatment options available for patients with dry AMD, coupled with newly implicated biochemical pathways, make dry AMD an attractive target for the development of therapeutics.

There are two types of AMD, the first of which is neovascular, or wet AMD, and non-neovascular, or dry AMD. Dry AMD, which accounts for approximately 90% of all AMD cases, is a progressive condition that involves a dysregulation of cellular processes, among which is the accumulation of lipid deposits, known as drusen, that causes a thickening of the Bruch's membrane. This thickening disrupts the cytoarchitecture of the retinal pigment epithelium, or RPE, and this disruption, coupled with oxidative stress and inflammation, leads to the diminished health and function of RPE and photoreceptor cells, with accumulated damage resulting in cell death and visual impairment.

The anatomy of the eye and the regions impacted by AMD



Limitations of Current Treatments

Treatments for dry AMD are currently limited to vitamins and over-the-counter zinc. While there are no therapeutics approved by the FDA to treat dry AMD, there is considerable development activity ongoing involving numerous targets. Among the areas of ongoing interest are efforts targeting the complement pathway and its role in inflammation, as mutations in this pathway have been associated with higher risk of dry AMD. In addition, cell and gene therapy approaches are being evaluated to regenerate RPE cells and rescue the loss of photoreceptors. Small molecule visual cycle modulators are also under evaluation to maintain retinal integrity. Most of these approaches require invasive administrations.

Rationale for S2R Mechanism of Action

Indications of S2R Involvement in Dry AMD

We believe that several lines of evidence suggest that modulation of the S2R complex may provide significant therapeutic utility for the treatment of dry AMD. First, human genetics point to TMEM97 as a promising therapeutic target, as indicated via several large-scale, independent genome-wide association, or GWA, studies. These studies indicate a genetic mutation known as a single nucleotide polymorphism, or SNP, in the TMEM-VTN locus confers decreased risk for dry AMD. It remains unknown if this mutation confers a change in TMEM97 expression levels. However, knockdown of TMEM97 in *in vitro* models of the disease partially rescues RPE cells from oxidative stress-induced cell death. Investigation of the effects of pharmacological perturbation of the S2R complex signaling is currently ongoing to determine if the rescue of cell death mediated by decreasing TMEM97 expression can be replicated by S2R antagonists, such as CT1812.

Unbiased Analysis of Clinical Trial Sample Proteomics Data: Top Disease Ontologies

Unbiased pathway analysis of AD patient proteomic data obtained during the COG0102 and SHINE Part-A clinical trials provides independent evidence of the relationship between the S2R complex and dry AMD. Analyses of CSF were performed to ascertain which predesignated functional disease ontologies may be affected by the administration of CT1812. These analyses identified GA and macular degeneration as two of the top indications affected, with GA presenting the most significant relationship. Subsequent analyses identified several subsets of proteins altered by CT1812 that are involved in dry AMD.

In subsequent analyses examining the overlap of proteins altered in CSF and plasma biofluids of AD patients treated with CT1812 versus placebo, we identified a set of proteins, altered by CT1812 that have been previously shown by other groups to be disrupted in dry AMD or GA, compared to age-matched controls. Subsequent analysis identified several pathways in which these proteins are involved, many of which have known genetic or biological links to processes disrupted in dry AMD. We believe the collective insights provided by these analyses provide early proof of concept that an S2R modulator may be capable of altering AMD relevant proteins and pathways in an aged patient population.

Preclinical Support for Clinical Trials

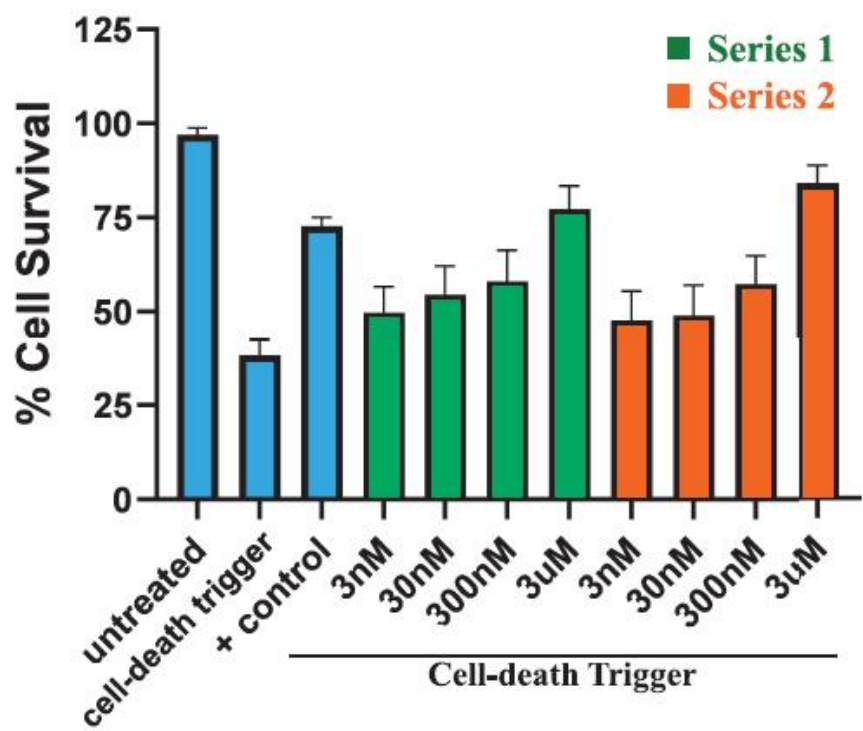
Early proof-of-concept studies indicate a clear role of S2R modulators in rescuing key aspects of dry AMD. Mechanistic studies and pathway analysis suggest a key role of S2R modulators in dry AMD.

Mechanistic Studies Indicate CT1812 Plays a Role in Cell Survival and Inflammatory Pathways in RPE Cells

Pathways Altered by CT1812 vs vehicle (p-value < 0.05)
Oxidative stress
Apoptosis and survival APRIL and BAFF signaling
Signaling Transduction Role of MIF as an intracellular mediator
Cell cycle Role of SCF complex in cell cycle regulation
Immune response IFN-alpha/beta signaling via JAK/STAT
Development PEDF signaling
Aβ Oligomers
Immune response BAFF-induced non-canonical NF-κB signaling
Immune response Role of PKR in stress-induced antiviral cell response
Apoptosis and survival APRIL and BAFF signaling
Apoptosis and survival NGF activation of NF-κB
Apoptosis and survival Apoptotic TNF-family pathways
Inflammation
Cytoskeleton remodeling Regulation of actin cytoskeleton nucleation and polymerization by Rho GTPases
Neurophysiological process Activity-dependent synaptic AMPA receptor removal
Cell adhesion Classical cadherin-mediated cell adhesion
Transcription Ligand-dependent activation of the ESR1/SP pathway
Immune response Lysophosphatidic acid signaling via NF-κB

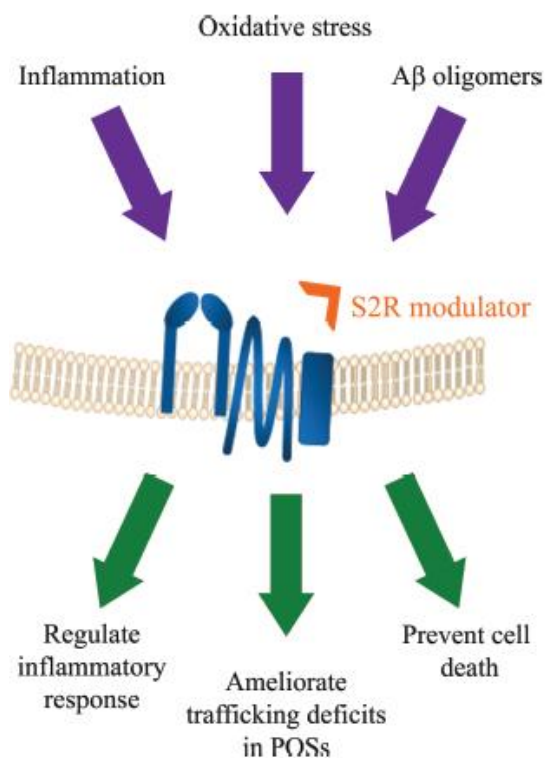
Functional studies support a role of S2R modulators in preventing cell death in a concentration dependent manner, as indicated by the chart below, which suggests that S2R modulators may prevent RPE cell death in dry AMD.

Functional Data Indicates That σ -2 Modulators Rescue Cell Death in RPE Cells



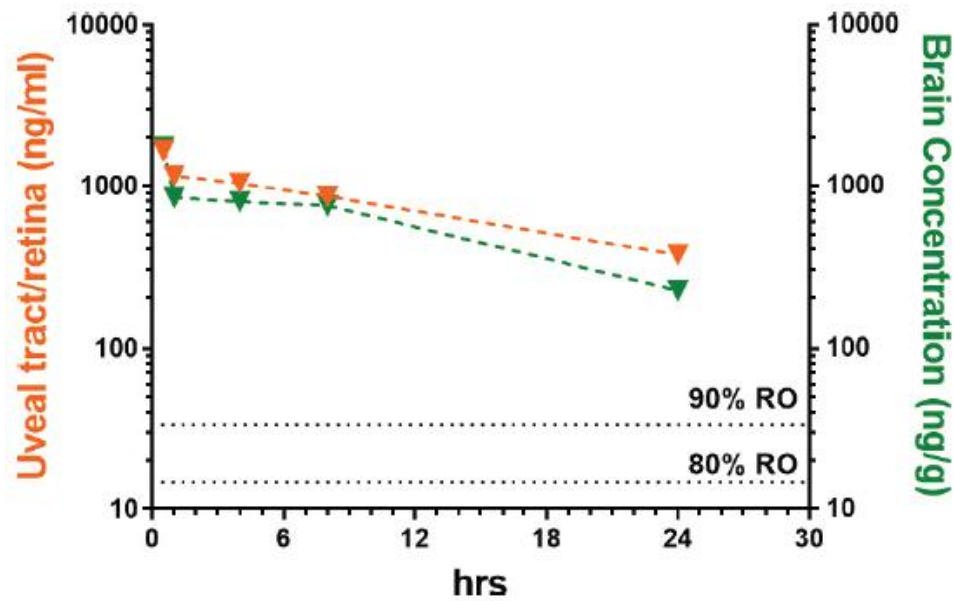
Additional functional studies extend our method of action, or MoA, beyond rescuing cell death, and suggest S2R modulators may ameliorate disruptions in homeostatic functions of RPEs, including ameliorating lysosomal dysfunction and salvaging the ability of RPE cells to recycle photoreceptor outer segments.

Working Hypothesis of MoA in Dry AMD

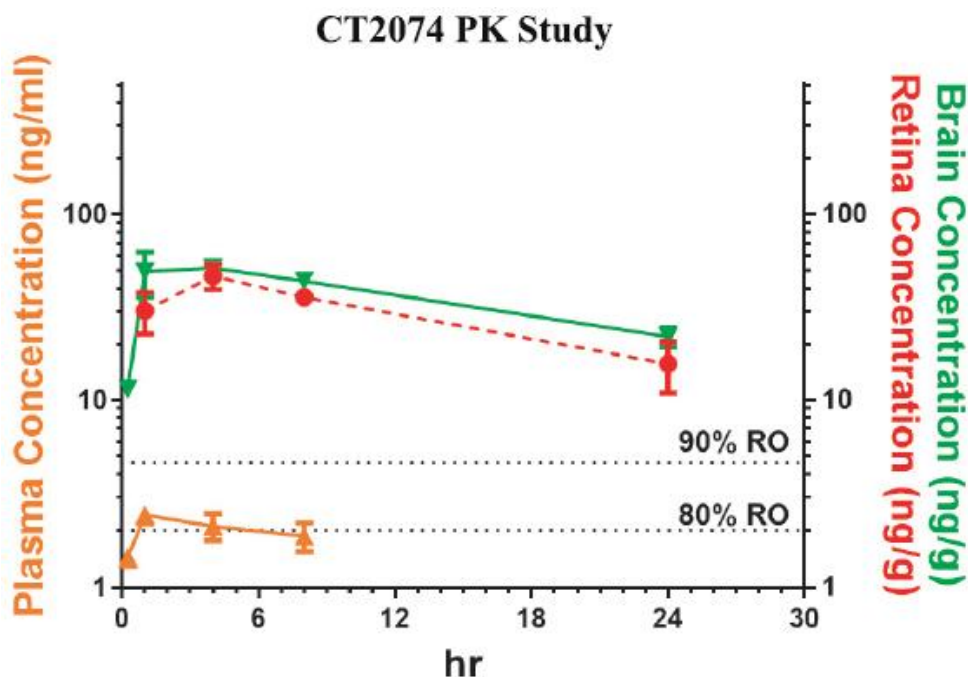


We believe preclinical studies provide further evidence supporting a clinical trial for CT1812 as a potential treatment for dry AMD. PK assessment indicates that we can achieve therapeutic levels (>80% receptor occupancy) of CT1812 in retinal tissue through oral administration. Moreover, as is illustrated in the graph below, CT1812 levels recorded in the retina were similar to those in the brain, suggesting that the dose(s) used to achieve potential therapeutic levels in the retina needed to achieve efficacy will be similar to the dose(s) for AD.

Similarities in CT1812 concentrations following oral administration in the brain and retina



Our next-generation S2R modulator, CT2074, shows good retinal exposures above 80% receptor occupancy with oral administration. This modulator has favorable PK properties, including high degree of bioavailability and high retina-to-plasma ratio, and shows activity in rescuing deficits in AMD assays.



Additional studies have been conducted to elucidate the key mechanisms by which CT1812 and the S2R complex alter the biological processes that contribute to dry AMD. *In vitro* and *in vivo* preclinical studies are evaluating the utility of CT1812 to impede the death of retinal ganglion cells. Not only is it anticipated that these proof-of-concept studies will allow us to further elucidate the mechanism by which the S2R complex modulators act upon the various disease pathologies, but the learnings from this may also inform appropriate patient selection, time of intervention and clinical outcome measurements to enable a successful clinical trial design.

Proposed Phase 2 Clinical Trial Design

We believe that an S2R antagonist, such as CT1812, may help to regulate the damage-response processes related to these cells that are impaired in dry AMD. After the completion of our ongoing preclinical studies and subject to discussion with the FDA, we intend to initiate Phase 2 clinical trial in the second half of 2022, leveraging our knowledge of CT1812's preclinical and clinical profile to date. We have initiated discussions with the FDA regarding our plan to leverage results of our previous clinical trials to accelerate clinical development of CT1812 as a treatment for dry AMD.

We anticipate eligibility requirements are anticipated to include individuals 50 years of age or older that have received a diagnosis of dry AMD, with a best corrected visual acuity, or BCVA, score of 24 letters or more, with GA of between 2.5 mm² and 17.5 mm². The proposed primary endpoint of the trial is change in GA lesion area using fundus autofluorescence imaging. Proposed secondary endpoints are expected to include change in the square root of the GA lesion area, low luminance visual acuity, or LLVA, and BCVA, low luminance visual acuity deficit and drusen volume as measured by optical coherence tomography. We plan on measuring these outcomes at three-month intervals.

S2R Modulators for the Treatment of Synucleinopathies

Substantial cellular and clinical biomarker evidence demonstrate that our S2R modulators, including our clinical drug candidate CT1812, have a beneficial impact on the pathways impaired in synucleinopathies, namely the localization of α -synuclein aggregates in Lewy bodies, which is a chief hallmark of PD and other synucleinopathies. More recently, human genetic evidence has linked SNCA, the gene encoding α -synuclein, to the pathology of synucleinopathies.

We have conducted preclinical studies of S2R ligands in our library, including CT1812, to explore the potential of S2R antagonists to rescue the biological processes that are impaired in synucleinopathies. Subject to discussion with the FDA, we intend to conduct clinical studies in DLB, PD and potentially other synucleinopathies as outlined below.

An Overview of Synucleinopathies

Synucleinopathies are a group of neurodegenerative disorders in which the protein alpha-synuclein accumulates abnormally to form inclusions in the cell bodies or axons of neurons or oligodendrocytes. Two of the primary synucleinopathies are PD and DLB, which each involve motor and cognitive dysfunction. While the cell types and brain structures that are affected in PD and DLB vary markedly between the disorders, synucleinopathies share a characteristic accumulation of α -synuclein aggregates into fibrils, the major constituent of the Lewy bodies that occur inside brain neurons in these diseases.

Increasing evidence suggests that α -synuclein also aggregates into oligomers, and that oligomers are more toxic than fibrils. α -synuclein oligomers contribute to neurodegeneration through a variety of mechanisms including disrupting normal autophagy, and inducing synaptic dysfunction and loss. Synaptic dysfunction and loss contribute to the cognitive and motor symptoms of these diseases.

Synucleinopathies are second only to AD in terms of neurodegenerative disease prevalence. In the United States, as many as one million people suffer from PD and an estimated 1.4 million from DLB. According to the Parkinson's Foundation and the Lewy Body Dementia Association, the direct healthcare costs for patients with PD and DLB are estimated to be approximately \$25 billion and \$31.5 billion per year, respectively. For PD, these direct medical costs include an estimated \$2.5 billion for medications annually in the United States.

Limitations of Current Treatments

Most approved therapeutic products treat the symptoms of the diseases and modulate dopamine. While some existing products provide meaningful symptomatic relief, they have significant side effect risks, fail to address the progression of the disease, and over time gradually lose their effectiveness in treating the symptoms of the disease. There are no currently approved disease-modifying therapeutics for PD or other synucleinopathies.

Rationale for S2R Mechanism of Action for Synucleinopathies

α -synuclein is a protein primarily found in neural tissue that plays a role in neurotransmission. In synucleinopathies such as DLB and PD, α -synuclein builds up in brain cells and forms oligomers that saturably bind to neurons where they impair critical cellular processes, causing synaptic dysfunction and eventual loss. Our decision to pursue the treatment of synucleinopathies with S2R compounds is based on internal and third-party data, indicating that the S2R components PGRMC1 and TMEM97 regulate cell pathways known to be impaired in synucleinopathies, such as autophagy, vesicle trafficking and lipid synthesis; α -synuclein oligomers bind directly to PGRMC1; and synucleinopathies share certain mechanistic similarities with AD, including pathologies related to aberrant oligomeric protein formations.

As summarized below, we believe our preclinical studies provide compelling evidence supporting the use of CT1812 and our next-generation S2R modulators as potential therapeutics to treat synucleinopathies.

As with oligomers of the A β protein in AD, oligomers of α -synuclein are highly toxic when bound to brain cells and internalized. This binding causes cellular stress, including three major pathway disruptions: upregulation of the autophagy receptor LAMP2A, dysregulation of lipid metabolism and a reduction in membrane trafficking. The S2R

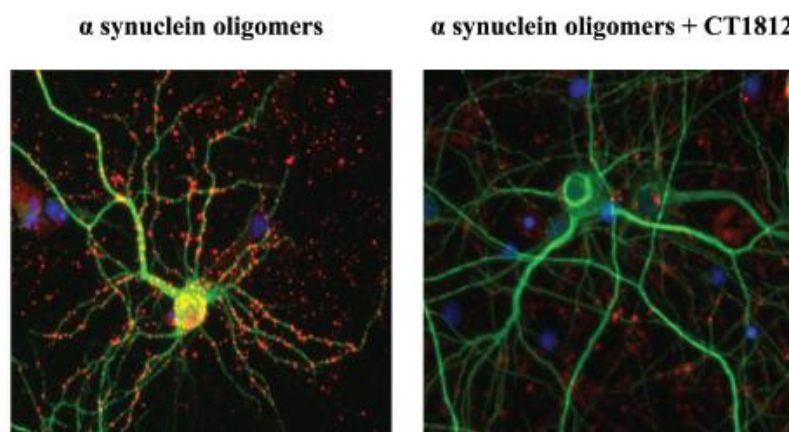
complex components, PGRMC1 and TMEM97, directly regulate these processes, activities which are compromised by the binding and internalization of α -synuclein oligomers.

Compounds that bind to S2R and block α -synuclein binding and/or internalization are therefore expected to be disease-modifying.

Preclinical Study Support for Clinical Trials

The results of *in vitro* studies suggest that S2R antagonists, such as CT1812, may have disease modifying effect on the synucleinopathies by reversing pathway disruption and dysregulation caused by α -synuclein oligomers. In work funded by a grant from the Michael J. Fox Foundation, α -synuclein oligomers were found to bind to brain cells in culture and are internalized, indicated by the red dots in the image to the left below. With the addition of S2R antagonist CT1812, the binding and thus internalization of the α -synuclein oligomers is inhibited as indicated in the image to the right below.

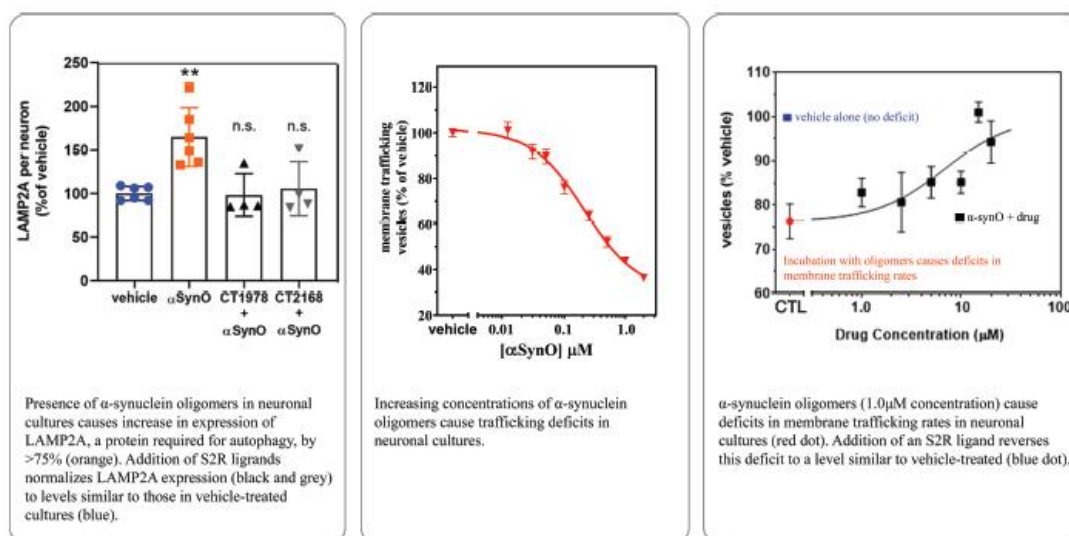
CT1812 blocks the binding and internalization of α -synuclein oligomers the neuronal synapses



The potential for S2R antagonists to reverse the deleterious cellular effects of α -synuclein oligomers is also reflected in the *in vitro* analysis of LAMP2A expression presented below. LAMP2A is a critical component of chaperone-mediated autophagy, one of several processes that eliminate damaged cellular proteins. Its expression, noted in orange, is upregulated in the presence of the toxic α -synuclein oligomer, likely a compensatory mechanism in response to the cellular insult. S2R antagonists, which block membrane trafficking deficits caused by α -synuclein oligomers, are observed to inhibit the upregulation of LAMP2A, as evidenced by the dark and light gray in the below chart. As these antagonists are selective for the S2R complex, their ability to reverse the effects of α -synuclein on LAMP2A expression provides compelling evidence of the S2R complex's importance in the regulation of this autophagy pathway.

In vitro analysis further illustrates α -synuclein oligomers' dose-dependent inhibition of membrane trafficking. Importantly, oligomer-related inhibition was noted to be four-fold higher than that observed with high concentrations of monomeric α -synuclein, illustrative of the significantly greater toxicity of α -synuclein oligomers. The addition of CT1812 was observed to reverse the membrane trafficking deficit related to the presence of α -synuclein oligomer, while having no effect on membrane activity when dosed in its absence.

S2R antagonists reverse the effects of α -synuclein oligomers on LAMP2A expression and trafficking



Proposed Phase 2 Clinical Trial in Dementia with Lewy bodies (DLB)

We are evaluating sites for our Phase 2 clinical trial studying the use of CT1812 to treat patients diagnosed with DLB. The design of this trial is a double-blind, randomized trial involving three dose groups, two active treatment cohorts and a placebo group. We expect to enroll 120 patients in a six-month study, with equal participant numbers in each of the three dose groups, with daily (QD) dosing. Eligibility requirements will include individuals between 50 and 80 years of age that have received a diagnosis of DLB and have a mini-mental state exam, or MMSE, score of between 18 and 27. Clinical endpoints of the trial include safety and physical activity measurements, cognitive assessments, and PK and pharmacodynamic biomarker analyses compared to baseline measurements recorded at the beginning of the trial. In addition, CSF will be collected and analyzed for α -synuclein content and established patterns of differential protein expression.

Additional Product Candidates

Many degenerative disorders likely involve a dysfunctional cellular damage response mechanism and significant evidence is emerging which highlights the importance of the S2R complex and its components in regulating this response. The complex likely contains a number of relevant binding sites that may allow for multiple disease intervention approaches, making it an attractive therapeutic target. Accordingly, we are actively engaged in a number of earlier-stage discovery programs which are built upon our identification of five structurally distinct chemical series. From these series we have multiple leads which will be optimized each of our lead series. Each of these leads has demonstrated favorable potency with variable selectivity in early preclinical testing and each of the molecular series possesses distinct bioavailability and PK properties, including differences in half-life and blood-brain and blood-retina permeability.

Proposed Synucleinopathies Clinical Program

Subject to additional funding, we plan to study several next-generation S2R modulators derived from chemically distinct series to measure their ability to rescue cell death in synucleinopathies such as PD and DLB. We would also study α -synuclein pathology and motor deficits in two mechanistically distinct *in vivo* models of synucleinopathies. In

parallel, these studies will elucidate the mechanism of action by which S2R modulators are efficacious in PD and DLB and provide essential data to support potential biomarker nomination for PD and DLB.

Grant Funding

Historically, we have sought grant funding to strategically advance our programs. To date, we have secured non-dilutive funds from the NIA, the Michael J. Fox Foundation and other groups to pursue our commonly aligned interests of developing therapeutics for neurodegenerative disorders. Taken together, the company has been awarded approximately \$168.9 million in cumulative grants for the advancement of our pipeline programs. Of this, approximately \$128.5 million in cumulative non-dilutive grants have been awarded by the NIA to fund development of CT1812 for the treatment of Alzheimer's disease.

Funding Org	Year	Project	Amount
National Institute on Aging (NIH)	2016	COG0101 Ph1b first-in-patient trial for CT1812	\$ 2,410,669
National Institute on Aging (NIH)	2016	COG0102 Ph1b/2a Clinical Trial for CT1812	\$ 2,410,669
National Institute on Aging (NIH)	2017	COG0104 Ph1 SNAP Study: CSF Catheter	\$ 2,527,271
National Institute on Aging (NIH)	2017	COG0105 Ph1 SPARC Study: SV2a PET	\$ 4,795,774
National Institute on Aging (NIH)	2018	COG0201 Ph2 SHINE Study	\$ 16,848,329
National Institute on Aging (NIH)	2019	COG0202 Ph2 SEQUEL Study: qEEG	\$ 3,300,642
National Institute on Aging (NIH)	2020	COG0203 Ph2 Study with ACTC	\$ 80,974,766
National Institute on Aging (NIH)	2021	COG0108 Study: hAME	\$ 1,642,783
National Institute on Aging (NIH)	2021	COG0201 Ph2 SHINE Amendment	\$ 13,634,548
National Institute on Aging (NIH)	2021	COG1201: Study: DLB	\$ 29,498,048
NIH and others	2010-2021	Ten Preclinical Programs	\$ 10,859,971
			\$ 168,903,470

Each of the grants awarded to us relate to agreed upon direct and indirect costs for specific studies or clinical trials, which may include personnel and consulting costs, costs paid to CROs, research institutions and/or consortiums involved in the grant, as well as facilities and administrative costs. These grants are cost plus fixed fee arrangements in which we are reimbursed for our eligible direct and indirect costs over time, up to the maximum amount of each specific grant award. Only costs that are allowable under the grant award, certain government regulations and the NIH's supplemental policy and procedure manual may be claimed for reimbursement, and the reimbursements are subject to routine audits from governmental agencies from time to time. While these NIA grant do not contain payback provisions, the NIA or other government agency may review our performance, cost structures and compliance with applicable laws, regulations, policies and standards and the terms and conditions of the applicable NIA Grant. If any of our expenditures are found to be unallowable or allocated improperly or if we have otherwise violated terms of such NIA grant, the expenditures may not be reimbursed and/or we may be required to repay funds already disbursed. To date, we have not been found to have breached the terms of any NIA grant.

Intellectual Property

We seek to protect and enhance our proprietary technology, inventions, and improvements that are commercially important to the development of our business by seeking, maintaining, and defending patent rights, in the United States and internationally, whether developed internally or licensed from third parties. We will also seek to rely on regulatory protection afforded through inclusion in expedited development and review, data exclusivity, market exclusivity and patent term extensions where available.

Company Owned Intellectual Property

As of March 1, 2022, our intellectual property portfolio contained nine issued U.S. patents, fifty one issued foreign patents as well as one pending U.S. provisional applications, four pending U.S. patent applications, two pending PCT applications and twenty one foreign pending patent applications directed to the composition of matter of, pharmaceutical compositions of, methods of use of, and methods for selecting subsets of patients for treatment with our chemical

structures, including our lead CT1812. Our current issued patents relating to CT1812 are projected to begin to expire no earlier than 2035, with the composition of matter patent covering CT1812 set to naturally expire in 2035, subject to adjustment or extension of patent term available in a particular jurisdiction. We will likely be awarded Patent Term Extension, or PTE, when CT1812 is approved as a New Chemical Entity, or NCE, that will extend the term of the CT1812 composition of matter patent by up to five years, and we anticipate pursuing additional patents to further protect CT1812 and to further extend the patent term associated with CT1812. We expect to file additional patent applications in support of current and new product candidates as well as new platform and core technologies.

We are the exclusive owner of five patent families that include several granted U.S. patents and pending U.S. patent applications, as well as granted patents and pending patent applications in numerous foreign jurisdictions, relating to compositions of matter and pharmaceutical compositions of CT1812, analogs of CT1812, and the use of CT1812 for the treatment in certain diseases, disorders and conditions including AD, dry AMD, PD, and synucleinopathies.

The first of these patent families is directed to compositions of matter of CT1812, pharmaceutical compositions of CT1812, methods of using CT1812 for inhibiting amyloid beta effects on a neuronal cell, and methods of using CT1812 to treat AD, and we are the exclusive owner of this patent family in the United States and certain foreign jurisdictions, including Australia, Brazil, Canada, China, the European Union, Hong Kong, India, Israel, Japan, South Korea, Mexico, New Zealand, Russia, and South Africa. As of March 1, 2022, this patent family includes granted patents claiming composition of matter of CT1812, pharmaceutical compositions of CT1812, methods of using CT1812 for inhibiting amyloid beta effects on a neuronal cell, and methods of using CT1812 to treat AD in the United States (three patents), Australia, China, the European Union, Hong Kong, Israel, Japan, Mexico, South Korea, Russia and South Africa. This patent family also includes a pending U.S. patent application and pending application in certain foreign jurisdictions including Brazil, Canada, the European Union, India, and New Zealand. This patent family has a natural expiration date in 2035 subject to any adjustment or extension of patent term that may be available in a particular jurisdiction such as PTE following NDA approval in the United States or extension of patent term via a Supplementary Protection Certificate, or SPC, following EMEA marketing authorization. Upon approval of the NDA for CT1812 in the United States, the patents in this family claiming compositions of matter of CT1812, pharmaceutical compositions of CT1812, and methods of using CT1812 for inhibiting amyloid beta effects on a neuronal cell, and methods of using CT1812 to treat AD will be eligible to be listed in the FDA's publication "*Approved Drug Products with Therapeutic Equivalence Evaluations*," which we refer to as the Orange Book. These patents complement the regulatory exclusivity by providing the basis for an additional waiting periods prior to the FDA's approval of an abbreviated new drug application, or ANDA, or 505(b)(2) applicant. If an ANDA or 505(b)(2) applicant were to file its application referencing the NDA for CT1812 before expiration of our composition of matter, pharmaceutical composition, and method of use patents and the applicant asserted that our patents identified on the Orange Book to be invalid or not be infringed, it may be subject to additional waiting periods prior to the FDA's approval (including a statutory 30-month stay if we sue for infringement, or a shorter period if the patent expires or there are certain settlements or judicial decisions in the patent litigation, starting at the end of the five-year NCE regulatory exclusivity period).

In addition to patent exclusivity, under the provisions of the Hatch-Waxman Act, upon any approval in the United States, we believe that CT1812 will be eligible for five-year NCE regulatory exclusivity, during which time no 505(b)(2) NDA or ANDA can be approved that contains the same active moiety as the chemical entity in the CT1812 NDA. When approved in Europe, CT1812 will also be eligible for 10 years of data and market exclusivity which is extendible for an additional year upon market authorization for one or more new indications during the first eight years of the data and market exclusivity period.

We also own three families of pending patent applications directed to methods for selecting subsets of patients with AD for treatment with CT1812, methods of modulating amyloid beta monomer and oligomer levels using CT1812, and methods of treating dry AMD with CT1812, as well as one pending provisional patent application directed to methods of treating various neurologic diseases including Parkinson's disease and synucleinopathies with CT1812. Any of these applications, if issued, will have a natural expirations between 2038 and 2042, subject to any adjustment or extension of patent term that may be available such as PTE following NDA approval in the United States as well as any term limitations based upon earlier expiring patents.

Additional Product Candidates

We are the exclusive owner of three patent families that include several pending U.S. patent applications, as well as pending patent applications in numerous foreign jurisdictions directed to additional product candidates, including CT2168 and CT2074, among others. These patent families have expirations no earlier than 2038 subject to any adjustment or extension of patent term that may be available such as PTE following NDA approval in the United States as well as any term limitations based upon earlier expiring patents.

Manufacturing Strategy

We oversee and manage third party contract manufacturing organizations to support development and manufacture of product candidates for our clinical trials, and, if we receive marketing approval, we will rely on such manufacturers to meet commercial demand. We expect this strategy will enable us to maintain a more efficient infrastructure, avoiding dependence on our own manufacturing facility and equipment, while simultaneously enabling us to focus our expertise on the clinical development and future commercialization of our products. Currently, we rely on and have agreements with a single third-party contract manufacturer to supply the drug substance for CT1812 and with a single third-party contract manufacturer to manufacture clinical trial supplies of CT1812, and we expect to enter into commercial supply agreements with such manufacturers prior to any potential approval of CT1812. We continue to develop a commercial route for CT1812 API and to meet all requirements for our planned clinical trials. We plan to transfer the API manufacture to a larger third-party manufacturer once the commercial route is developed. The current API manufacturer is able to supply all of our needs for the planned clinical studies.

CT1812 drug product is manufactured via conventional pharmaceutical processing procedures, employing commercially available excipients and packaging materials. The procedure and equipment employed for manufacture and analysis are consistent with standard organic synthesis or pharmaceutical production, and are transferable to a range of manufacturing facilities, if needed. We have selected a larger third-party drug product manufacturer and will be executing technology transfer of drug product manufacture to a larger manufacturer. We will also maintain the current drug substance and product manufacturer as part of our supply chain strategy.

Commercialization Strategy

We currently have no marketing, sales or distribution capabilities. In order to commercialize any products that are approved for commercial sale, we must either develop a sales and marketing infrastructure or collaborate with third parties that have sales and marketing experience.

We may seek third-party support from established pharmaceutical and biotechnology companies for those products that would benefit from the promotional support of a large sales and marketing force. In these cases, we might seek to promote our products in collaboration with marketing partners or rely on relationships with one or more companies with large established sales forces and distribution systems.

We may elect to establish our own sales force to market and sell a product for which we obtain regulatory approval if we expect that the geographic market for a product we develop on our own is limited or that the prescriptions for the product will be written principally by a relatively small number of physicians. If we decide to market and sell any products ourselves, we do not expect to establish direct sales capability until shortly before the products are approved for commercial sale.

Competition

We face substantial competition from multiple sources, including large and specialty biotechnology and pharmaceutical companies, academic research institutions and governmental agencies and public and private research institutions. Our competitors compete with us on the level of the technologies employed, or on the level of development of product candidates. In addition, many small biotechnology companies have formed collaborations with large, established companies to (i) obtain support for their research, development and commercialization of products or (ii) combine several treatment approaches to develop longer lasting or more efficacious treatments that may potentially

directly compete with our current or future product candidates. We anticipate that we will continue to face increasing competition as new therapies and combinations thereof, technologies, and data emerge.

In addition to the current standard of care treatments for patients with neurodegenerative diseases, numerous commercial and academic preclinical studies and clinical trials are being undertaken by a large number of parties to assess technologies and product candidates in the CNS field.

Many of our competitors, either alone or in combination with their respective strategic partners, have significantly greater financial resources and expertise in research and development, manufacturing, the regulatory approval process, and marketing than we do. Mergers and acquisition activity in the biopharmaceutical sector is likely to result in greater resource concentration among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through sizeable collaborative arrangements with established companies. These competitors also compete with us in recruiting and retain 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 one or more of our competitors develop and commercialize products that are safer, more effective, better tolerated, or of greater convenience or economic benefit than our proposed product offering. Our competitors also may be in a position to obtain FDA or other regulatory approval for their products more rapidly, resulting in a stronger or dominant market position before we are able to enter the market. The key competitive factors affecting the success of all of our programs are likely to be product safety, efficacy, convenience and treatment cost.

Employees and Human Capital Resources

As of March 1, 2022, we had 21 employees, 19 of whom were full-time and 15 of whom were engaged in research and development activities. Seven of our employees hold Ph.D. or M.D. degrees. None of our employees are represented by a labor union. We consider our relationship with our employees to be good.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. The principal purposes of our equity and cash incentive plans are to attract, retain and reward personnel through the granting of stock-based and cash-based compensation awards, in order to increase stockholder value and the success of our company by motivating such individuals to perform to the best of their abilities and achieve our objectives.

Government Regulation

Government authorities in the United States, at the federal, state, and local level, and other countries extensively regulate, among other things, the research, development, nonclinical and clinical testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing, and export and import of products such as those we are developing. Generally, before a new drug can be marketed, considerable data must be generated, which demonstrate the drug's quality, safety, and efficacy. Such data must then be organized into a format specific for each regulatory authority, submitted for review and approved by the regulatory authority.

U.S. Drug Development Process

In the United States, the FDA regulates drugs under the federal Food, Drug, and Cosmetic Act, or FDCA, and its implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, the approval process or after approval may subject an applicant to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions,

finances, refusals of government contracts, restitution, disgorgement, or civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on us.

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

- completion of nonclinical laboratory tests, animal studies, and formulation studies in accordance with FDA's good laboratory requirements and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent IRB ethics committee, either centralized or with respect to each clinical site, before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with GCP requirements to establish the safety and efficacy of the proposed drug for its intended use;
- submission to the FDA of an NDA after completion of all pivotal trials;
- determination by the FDA within 60 days of its receipt of an NDA to accept the filing for substantive review;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug is produced to assess compliance with cGMP requirements to ensure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality, and purity, and of selected clinical investigation sites to assess compliance with GCPs;
- FDA review and approval of the NDA to permit commercial marketing of the product for particular indications for use in the United States;
- compliance with any post-approval requirements, including potential requirements to conduct any post-approval studies required by the FDA or the potential requirement to implement a REMS; and
- compliance with the Pediatric Research Equity Act, or PREA, which requires either exemption from the requirements or may require conducting clinical research in a pediatric population.

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

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with 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 parameters to be used in monitoring safety and the effectiveness

criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the clinical trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which may review data and endpoints at designated check points, make recommendations and/or halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

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

Phase One: The product candidate is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism, and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing;

Phase Two: The product candidate 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;

Phase Three: The product candidate 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.

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

The FDA or the sponsor may place a clinical trial on a full or partial clinical hold at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk or concerns related to chemistry, manufacturing and controls. A clinical hold is an order issued by the FDA to delay or suspend an investigation. Following the issuance of a clinical hold or a partial clinical hold, a clinical trial may only proceed after FDA has notified the sponsor that any deficiencies have been corrected and FDA is authorizing the trial to proceed. In addition, an IRB representing each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. An IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product candidate has been associated with unexpected serious harm to patients. Finally, some clinical trials are overseen by an independent group of qualified experts organized by the sponsor, known as a data safety monitoring board or committee. Depending on its charter, this group may determine whether a clinical trial may move forward at designated check points based on access to certain data from the clinical trial.

During the development of a new drug, sponsors are given opportunities to meet with the FDA at certain points. These points may be prior to submission of an IND, at the end of Phase 2, and before an NDA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the FDA to provide advice, and for the sponsor and the FDA to reach agreement on the next phase of development. Sponsors typically use the meetings at the end of the Phase 2 clinical trial to discuss Phase 2

clinical results and present plans for the pivotal Phase 3 clinical trials that they believe will support approval of the new drug.

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

While the IND is active and before approval, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs, findings from animal or *in vitro* testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator brochure.

NDA Review and Approval Process

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development nonclinical and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances. Additionally, no user fees are assessed on NDAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality, and purity. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes 12 months from the date the NDA is submitted to FDA because the FDA has approximately two months to make a "filing" decision after the application is submitted. The FDA conducts a preliminary review of all NDAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the NDA must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing.

The FDA may refer an application for a novel drug to an advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

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

After the FDA evaluates an NDA, it will issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete, and the application will not be approved in its present form. A Complete Response Letter usually describes the specific deficiencies in the NDA identified by the FDA and may require additional clinical data, such as an additional pivotal Phase 3 clinical trial or other significant and time-consuming requirements related to clinical trials, nonclinical studies, or manufacturing. If a Complete Response Letter is issued, the sponsor must resubmit the NDA, addressing all of the deficiencies identified in the letter, or withdraw the application. Even if such data and information are submitted, the FDA may decide that the NDA does not satisfy the criteria for approval.

If 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 NDA with a REMS to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine and to enable patients to have continued access to such medicines by managing their safe use. It 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 offer conditional approval subject to, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may also require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies. In addition, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could impact the timeline for regulatory approval or otherwise impact ongoing development programs.

Expedited Development and Review Programs

The FDA has a fast track designation program that is intended to expedite or facilitate the process for reviewing new drug products that meet certain criteria. Specifically, new drugs are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. With regard to a fast track product, the FDA may consider for review sections of the NDA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA, the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA. CT1812 was awarded Fast Track designation by the FDA in 2016.

Any product submitted to the FDA for approval, including a product with a fast track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis, or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug designated for priority review in an effort to facilitate the review. The FDA endeavors to review applications with priority review designations within six months of the filing date as compared to ten months for review of new molecular entity NDAs under its current PDUFA review goals.

In addition, a product may be eligible for accelerated approval. Drug products intended to treat serious or life-threatening diseases or conditions may be eligible for accelerated approval upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require that a sponsor of a drug receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. In addition, the FDA currently requires pre-approval of promotional materials as a condition for accelerated approval, which could adversely impact the timing of the commercial launch of the product.

The Food and Drug Administration Safety and Innovation Act established a category of drugs referred to as “breakthrough therapies” that may be eligible to receive breakthrough therapy designation. A sponsor may seek FDA designation of a product candidate as a “breakthrough therapy” if the product is intended, alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance. The breakthrough therapy designation is a distinct status from both accelerated approval and priority review, which can also be granted to the same drug if relevant criteria are met. If a product is designated as breakthrough therapy, the FDA will work to expedite the development and review of such drug.

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

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There are continuing, annual program fees for any marketed products. Drug 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 cGMP, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

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

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, or untitled letters;
- clinical holds on post-approval or Phase IV clinical studies, if applicable;
- 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; and
- mandated modification of promotional materials and labeling and the issuance of corrective information.

Under the Pediatric Research Equity Act (PREA) an NDA must contain data to assess the safety and efficacy of the applicant product for indications in applicable pediatric populations. It must also contain information to support dose administration for pediatric populations where the drug may be utilized. FDA has the ability to grant complete waivers, partial waivers, or deferrals for compliance with PREA. PREA requirements may be waived for applications for approval of drug candidates intended to treat, mitigate, prevent, diagnose or cure diseases and other conditions that do not occur in pediatric populations. Generally PREA does not apply for drug candidates which have obtained an orphan designation, unless otherwise regulated by the FDA. Despite this, separate PREA compliance or waivers may still be required for each product indication. Although noncompliance with PREA will generally not be considered for withdrawal of an approval it may be considered by the FDA as the sole basis for enforcement action such as injunction or seizure as non-compliance and may render the drug misbranded.

The FDA closely regulates the marketing, labeling, advertising, and promotion of drug products. A company can make only those claims relating to safety and efficacy that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising, and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labelling.

Marketing Exclusivity

Market exclusivity provisions authorized under the FDCA can delay the submission and approval of certain marketing applications for products containing the same active ingredient. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain approval of an NDA for a NCE. A drug is an NCE if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. The FDCA also permits patent term restoration of up to five years as compensation for a patent term lost during product development and FDA regulatory review process to the first applicant to obtain approval of an NDA for a new chemical entity in the United States. Patent-term restoration, however, cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. During the NCE exclusivity period, the FDA may not approve or even accept for review an ANDA or an NDA submitted under Section 505(b)(2) (505(b)(2) NDA), submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed in the FDA's publication *Approved Drug Products with Therapeutic Equivalence Evaluations*, which we refer to as the Orange Book, with the FDA by the innovator NDA holder. Upon approval of an NDA, each of the patents listed in the application for the drug is then published in the Orange Book. These products may be cited by potential competitors in support of approval of an ANDA or 505(b)(2) NDA. Any competitor who files an ANDA seeking approval of a generic equivalent version of a drug listed in the Orange Book or a 505(b)(2) NDA referencing a drug listed in the Orange Book must make patent certifications to the FDA that (1) no patent information on the drug or method of use that is the subject of the application has been submitted to the FDA; (2) the patent has expired; (3) the date on which the patent has expired and approval will not be sought until after the

patent expiration; or (4) the patent is invalid or will not be infringed upon by the manufacture, use, or sale of the drug product for which the application is submitted. Generally, the ANDA or 505(b)(2) NDA cannot be approved until all listed patents have expired, except where the ANDA or 505(b)(2) NDA applicant challenges a listed patent through the last type of certification, also known as a paragraph IV certification. If the applicant does not challenge the listed patents or indicates that it is not seeking approval of a patented method of use, the ANDA or 505(b)(2) NDA application will not be approved until all of the listed patents claiming the referenced product have expired. If the ANDA or 505(b)(2) NDA applicant has provided a paragraph IV certification the applicant must send notice of the paragraph IV certification to the NDA and patent holders once the application has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the paragraph IV certification. If the paragraph IV certification is challenged by an NDA holder or the patent owner(s) asserts a patent challenge to the paragraph IV certification, the FDA may not approve that application until the earlier of 30 months from the receipt of the notice of the paragraph IV certification, the expiration of the patent, when the infringement case concerning each such patent was favorably decided in the applicant's favor or settled, or such shorter or longer period as may be ordered by a court. This prohibition is generally referred to as the 30-month stay. In instances where an ANDA or 505(b)(2) NDA applicant files a paragraph IV certification, the NDA holder or patent owner(s) regularly take action to trigger the 30-month stay, recognizing that the related patent litigation may take many months or years to resolve. Thus, approval of an ANDA or 505(b)(2) NDA could be delayed for a significant period of time depending on the patent certification the applicant makes and the reference drug sponsor's decision to initiate patent litigation. If the drug has NCE exclusivity and the ANDA is submitted four years after approval, the 30-month stay is extended so that it expires 7 ½ years after approval of the innovator drug, unless the patent expires or there is a decision in the infringement case that is favorable to the ANDA applicant before then.

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

Pediatric exclusivity is another type of marketing exclusivity available in the United States. Pediatric exclusivity provides for an additional six months of marketing exclusivity attached to another period of exclusivity if a sponsor conducts clinical trials in children in response to a written request from the FDA. The issuance of a written request does not require the sponsor to undertake the described clinical trials. The indications the Company is currently pursuing for its product candidates will not be eligible for pediatric exclusivity because they are age-related degenerative diseases and disorders that do not occur in the pediatric population. In addition, orphan drug exclusivity, as described above, may offer a seven-year period of marketing exclusivity, except in certain circumstances.

Other Healthcare Laws

Our activities are subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal civil False Claims Act, and laws and regulations pertaining to limitations on and reporting of healthcare provider payments (physician sunshine laws). These laws and regulations are interpreted and enforced by various federal, state and local authorities including CMS, the Office of Inspector General for the U.S. Department of Health and Human Services, the U.S. Department of Justice, individual U.S. Attorney offices within the Department of Justice, and state and local governments. These laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, lease, order, or arranging for or recommending the purchase, lease or order of, any good or service, for which payment may be made, in whole or in part, under federal healthcare programs such as

Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- the U.S. civil False Claims Act (which can be enforced through “qui tam,” or whistleblower actions, by private citizens on behalf of the federal government), prohibits any person from, among other things, knowingly presenting, or causing to be presented false or fraudulent claims for payment of government funds or knowingly making, using or causing to be made or used, a false record or statement material to an obligation to pay money to the government or knowingly and improperly avoiding, decreasing or concealing an obligation to pay money to the U.S. federal government;
- U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal liability and amends provisions on the reporting, investigation, enforcement, and penalizing of civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for healthcare benefits, items or services by a healthcare benefit program, which includes both government and privately funded benefits programs; similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- state laws and regulations, including state anti-kickback and false claims laws, that may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payer, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry’s voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities; and
- the Physician Payments Sunshine Act, implemented as the Open Payments program, and its implementing regulations, requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children’s Health Insurance Program to report annually to CMS information related to certain payments made in the preceding calendar year and other transfers of value to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; beginning in 2022, applicable manufacturers are required to report such information regarding payments and transfers of value provided, as well as ownership and investment interests held, during the previous year to physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives.

Violations of any of these laws or any other governmental regulations that may apply to us, may subject us to significant civil, criminal and administrative sanctions including penalties, damages, fines, imprisonment, and exclusion from government funded healthcare programs, such as Medicare and Medicaid, and/or adverse publicity. Moreover, government entities and private litigants have asserted claims under state consumer protection statutes against pharmaceutical companies for alleged false or misleading statements in connection with the marketing, promotion and/or sale of pharmaceutical products.

Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or 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 industry is heavily regulated and therefore involves significant interaction

with public officials, including officials of non-U.S. governments. Additionally, in many other countries, the health care providers who prescribe pharmaceuticals are employed by their government, and the purchasers of pharmaceuticals are government entities; therefore, our dealings with these prescribers and purchasers are subject to regulation under the FCPA. Recently, the SEC and Department of Justice have increased their FCPA enforcement activities with respect to pharmaceutical companies. Violations could result in fines, criminal sanctions against us, our officers, or our employees, the closing down of our facilities, requirements to obtain export licenses, cessation of business activities in sanctioned countries, implementation of compliance programs, and prohibitions on the conduct of our business. Enforcement actions may be brought by the Department of Justice or the Securities and Exchanges Commission (“SEC”), and recent enacted legislation has expanded the SEC’s power to seek disgorgement in all FCPA cases filed in federal court and extended the statute of limitations in SEC enforcement actions in intent-based claims such as those under the FCPA from five years to ten years.

Coverage and Reimbursement

Sales of any pharmaceutical product depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance, and managed healthcare organizations, and the level of reimbursement for such product by third-party payors. Significant uncertainty exists as to the coverage and reimbursement status of any newly approved product. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. One third-party payor’s decision to cover a particular product does not ensure that other payors will also provide coverage for the product. As a result, the coverage determination process can require manufacturers to provide scientific details, information on cost-effectiveness, and clinical support for the use of a product to each payor separately. This can be a time-consuming process, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

In addition, third-party payors are increasingly reducing reimbursements for pharmaceutical products and related services. The U.S. government and state legislatures have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. Third-party payors are increasingly challenging the prices charged, examining the medical necessity and reviewing the cost effectiveness of pharmaceutical products, in addition to questioning their safety and efficacy. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product. 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.

At the state level, there are also new laws and ongoing ballot initiatives that create additional pressure on drug pricing and may affect how pharmaceutical products are covered and reimbursed. A number of states have adopted or are considering various pricing actions, such as those requiring pharmaceutical manufacturers to publicly report proprietary pricing information, limit price increases or to place a maximum price ceiling or cap on certain products. Existing and proposed state pricing laws have added complexity to the pricing of pharmaceutical drug products.

In international markets, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. Pharmaceutical products may face competition from lower-priced products in foreign countries that have placed price controls on pharmaceutical products and may also compete with imported foreign products. Furthermore, there is no assurance that a product will be considered medically reasonable and necessary for a specific indication, that it will be considered cost-effective by third-party payors, that an adequate level of reimbursement will be established even if coverage is available, or that the third-party payors’ reimbursement policies will not adversely affect the ability for manufacturers to sell products profitably.

Healthcare Reform

The United States and many foreign jurisdictions have enacted or proposed legislative and regulatory changes affecting the healthcare system. The United States government, state legislatures and foreign governments also have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription products. In recent years, Congress has considered reductions in Medicare reimbursement levels for products administered by physicians. CMS, the agency that administers the Medicare and Medicaid programs, also has authority to revise reimbursement rates and to implement coverage restrictions for some products. Cost reduction initiatives and changes in coverage implemented through legislation or regulation could decrease utilization of and reimbursement for any approved products. While Medicare regulations apply only to drug benefits for Medicare beneficiaries, private payers often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from federal legislation or regulation may result in a similar reduction in payments from private payers.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively the Affordable Care Act substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacts the pharmaceutical industry. The Affordable Care Act is intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against healthcare fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on pharmaceutical and medical device manufacturers, and impose additional health policy reforms. Among other things, the Affordable Care Act expanded manufacturers' rebate liability under the Medicaid Drug Rebate Program by increasing the minimum Medicaid rebate for both branded and generic products, expanded the 340B program, and revised the definition of average manufacturer price, or AMP, which could increase the amount of Medicaid rebates manufacturers are required to pay to states. The legislation also extended Medicaid rebates, previously due only on fee-for-service Medicaid utilization, to include the utilization of Medicaid managed care organizations as well and created an alternative rebate formula for certain new formulations of certain existing products that is intended to increase the amount of rebates due on those products. On February 1, 2016, CMS issued final regulations to implement the changes to the Medicaid Drug Rebate program under the Affordable Care Act. These regulations became effective on April 1, 2016. Since that time, there have been significant ongoing efforts to modify or eliminate the Affordable Care Act. The Tax Act, enacted on December 22, 2017, repealed the shared responsibility payment for individuals who fail to maintain minimum essential coverage under section 5000A of the Internal Revenue Code of 1986, as amended, or the Code, commonly referred to as the individual mandate.

Other legislative changes have been proposed and adopted since the passage of the Affordable Care Act. The Budget Control Act of 2011, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve its targeted deficit reduction of an amount greater than \$1.2 trillion for the fiscal years 2012 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions included aggregate reductions to Medicare payments to healthcare providers of up to 2.0% per fiscal year, which went into effect in April 2013. Subsequent legislation extended the 2% reduction, on average, to 2030 unless additional Congressional action is taken. However, pursuant to the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, the 2% Medicare sequester reductions were suspended from May 1, 2020 through December 31, 2021 due to the COVID-19 pandemic. The sequester will remain in place through 2030. On January 2, 2013, the American Taxpayer Relief Act was signed into law, which, among other things, reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

The Affordable Care Act has also been subject to challenges in the courts. On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. On December 18, 2019, the Fifth Circuit U.S. Court of Appeals held that the individual mandate is unconstitutional and remanded the case to the Texas District Court to reconsider its earlier invalidation of the entire Affordable Care Act. An appeal was taken to the U.S. Supreme Court. On June 17, 2021, the Supreme Court ruled that the plaintiffs lacked standing to challenge the law as they had not alleged personal injury

traceable to the allegedly unlawful conduct. As a result, the Supreme Court did not rule on the constitutionality of the ACA or any of its provisions.

Further changes to and under the Affordable Care Act remain possible but it is unknown what form any such changes or any law proposed to replace or revise the Affordable Care Act would take, and how or whether it may affect our business in the future. We expect that changes to the Affordable Care Act, the Medicare and Medicaid programs, changes allowing the federal government to directly negotiate prices and changes stemming from other healthcare reform measures, especially with regard to healthcare access, financing or other legislation in individual states, could have a material adverse effect on the healthcare industry.

At the state level, legislatures have increasingly passed legislation and implemented 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.

We expect that additional federal, state and foreign healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in limited coverage and reimbursement and reduced demand for our products, once approved, or additional pricing pressures.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this Annual Report, including our consolidated financial statements and the related notes and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” before deciding whether to invest in our common stock. We have listed below (not necessarily in order of importance or probability of occurrence) what we believe to be the most significant risk factors applicable to us. The occurrence of any of the events or developments described below could materially and adversely affect our business, financial condition, results of operations and prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. Some of the statements in the following risk factors constitute forward-looking statements. Please see the section titled “Special Note Regarding Forward-Looking Statements.”

Risks Related to Our Financial Position and Capital Needs

We are a clinical-stage biopharmaceutical company with no products approved for commercial sale and have incurred significant losses since our inception in 2007. We expect to incur significant losses over the foreseeable future and may never achieve or maintain profitability.

Since our inception, we have incurred significant net losses, and we expect to continue to incur significant expenses and operating losses for the foreseeable future. Our net losses were \$11.7 million and \$7.8 million for the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of \$94.0 million. Our clinical trials have been funded by approximately \$168.9 million in cumulative nondilutive grants, awarded primarily by the National Institute of Aging, or NIA, a division of the National Institutes of Health. On October 13, 2021, we closed our initial public offering, or IPO, whereby we received net proceeds of \$37.9 million, excluding net proceeds from the overallotment exercise. On November 12, 2021, the Company received \$6.3 million of net proceeds resulting from the exercise of the overallotment option. We have no products approved for commercialization and have never generated any revenue from product sales.

We have devoted substantially all of our financial resources and efforts to the development of our product candidates, including conducting preclinical studies and clinical trials. We expect to continue to incur significant expenses and operating losses over the next several years. We expect that it could be several years, if ever, before we have a commercialized product. Our net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase substantially for the foreseeable future as we:

- conduct our ongoing and planned clinical trials of CT1812, as well as initiate and complete additional clinical trials;
- pursue regulatory approval of CT1812 for the treatment of mild-to-moderate Alzheimer’s disease, or AD, dry age-related macular degeneration, or dry AMD, and Parkinson’s disease, or PD, and dementia with Lewy bodies, or DLB, and other age-related degenerative diseases and disorders of the central nervous system, or CNS, and retina;
- seek to discover and develop additional clinical and preclinical product candidates using Novel Improved Conditioned Extraction, or NICE, screening platform;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed products;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, manufacturing and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts;
- incur additional legal, accounting and other expenses in operating as a public company;
- scale up our clinical and regulatory capabilities; and

- establish a commercialization infrastructure and scale up external manufacturing and distribution capabilities to commercialize any product candidates for which we may obtain regulatory approval, including CT1812.

To become and remain profitable, we must succeed in developing and eventually commercializing product candidates that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical testing and clinical trials of our product candidates, obtaining regulatory approval, and manufacturing, marketing and selling any product candidates for which we may obtain regulatory approval, as well as discovering and developing additional product candidates. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate any revenue or revenue that is significant enough to achieve profitability. Even if we achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our development efforts, obtain product approvals, diversify our offerings or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We have not yet completed Phase 2 clinical trials and have no history of commercializing products, which may make it difficult for an investor to evaluate the success of our business to date and to assess our future viability.

We commenced operations in 2007, and our operations to date have been largely focused on developing our clinical and preclinical product candidates and our Novel, Improved Conditioned Extraction, or NICE, screening platform, or NICE screening platform. To date, we have not yet demonstrated our ability to successfully complete pivotal clinical trials, obtain regulatory approvals, manufacture a product on a commercial scale, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing products.

We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives. We may also need to transition from a company with a research focus to a company capable of supporting commercial activities. Our inability to adequately address these risks and difficulties or successfully make such a transition could adversely affect our business, financial condition, results of operations and growth prospects.

We will need substantial additional capital to meet our financial obligations in the future and to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to curtail our planned operations and the pursuit of our growth strategy.

Our operations have required substantial amounts of capital since inception, and we expect our expenses to increase significantly in the foreseeable future. Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. We expect to continue to incur significant expenses and operating losses over the next several years as we complete our ongoing clinical trials of our product candidates, initiate future clinical trials of our product candidates, seek marketing approval for CT1812 for the treatment of age-related degenerative diseases and disorders of the CNS and retina, such as AD, dry AMD, PD and DLB, and advance any of our other product candidates we may develop or otherwise acquire. In addition, our product candidates, if approved, may not achieve commercial success. Our revenue, if any, will be derived from sales of products that we do not expect to be commercially available for the foreseeable future, if at all. If we obtain marketing approval for CT1812 or any other product candidates that we develop or otherwise acquire, we expect to incur significant commercialization expenses related to product sales, marketing, distribution and manufacturing. We also expect an increase in our expenses associated with creating additional infrastructure to support operations as a public company.

As of December 31, 2021, we had \$54.7 million in cash and cash equivalents and have not generated positive cash flows from operations. Based on our current business plans, we believe that the net proceeds from our IPO, together with our existing cash and cash equivalents and income from our non-dilutive grants, will be sufficient for us to fund our operating expenses and capital expenditures requirements into the second half of 2023. We have based these estimates on assumptions that may prove to be incorrect or require adjustment as a result of business decisions, and we could utilize our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including, but not limited to:

- the scope, progress, costs and results of our ongoing and planned clinical trials of CT1812, as well as the associated costs, including any unforeseen costs we may incur as a result of preclinical study or clinical trial delays due to the COVID-19 pandemic or other delays;
- the scope, progress, costs and results of preclinical development, laboratory testing and clinical trials for any future product candidates we may decide to pursue;
- the extent to which we develop, in-license or acquire other product candidates and technologies;
- the costs and timing of process development and manufacturing scale-up activities associated with our product candidates and other programs we advance them through preclinical and clinical development;
- the availability, timing and receipt of any future NIA Grants;
- the number and development requirements of other product candidates that we may pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- our ability to establish collaborations to commercialize CT1812 or any of our other product candidates outside the United States;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims; and
- the additional costs we may incur as a result of operating as a public company, including our efforts to enhance operational systems and hire additional personnel, including enhanced internal controls over financial reporting.

We believe the net proceeds from our IPO will not be sufficient to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of C1812 and our product candidates. If we receive regulatory approval for any of these product candidates, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize. Additional funds may not be available on a timely basis, on favorable terms, or at all, and such funds, if raised, 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 recent volatility in the equity markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic. If we are unable to raise sufficient additional capital, we could be forced to curtail our planned operations and the pursuit of our growth strategy.

To date, we have partially relied on non-dilutive grants to cover certain of our capital requirements for our clinical trials, and we may fail to continue to receive non-dilutive funding.

To date, we have partially relied on the availability of non-dilutive grants from the NIA, or NIA Grants. Although we currently anticipate applying for and potentially receiving additional NIA Grants, we cannot be certain that our grant applications will be successful, that additional NIA Grants will be made available to support our clinical trials or that we will continue to satisfy the award criteria of prior NIA Grants that have already been awarded to us. If we fail to continue to receive NIA Grants, our ability to continue our clinical programs for CT1812 may be impaired and delayed, and we may otherwise need to seek additional financing through dilutive methods, such as through equity or debt financings. Such dilutive financings could have an adverse effect on the price of our common stock.

We could be subject to audit and repayment of our non-dilutive NIA Grants.

In addition, in connection with the NIA Grants, we may be subject to routine audits by certain government agencies. As part of an audit, these agencies may review our performance, cost structures and compliance with applicable laws, regulations, policies and standards and the terms and conditions of the applicable NIA Grant. If any of our expenditures are found to be unallowable or allocated improperly or if we have otherwise violated terms of such NIA Grant, the expenditures may not be reimbursed and/or we may be required to repay funds already disbursed. Any audit by the NIA could require significant financial and management resources and may result in a material adjustment to our results of operations and financial condition and harm our ability to operate in accordance with our business plan. Additionally, negative results in any of our ongoing and planned clinical trials of CT1812 that are funded with NIA Grants may result in our failure to receive additional NIA Grants to fund future clinical trials.

The NIA recently issued guidance providing extensions and flexibility for certain NIA Grant recipients conducting NIA-funded clinical trials and human subject studies that are impacted by the declared public health emergency for the COVID-19 pandemic. The ultimate impact of the COVID-19 pandemic on our clinical trials is highly uncertain and subject to change. We have not made a formal assessment with respect to the NIA's current and expanded flexibilities in light of the COVID-19 pandemic, but we continue to monitor the situation closely and are prepared to take all necessary steps to ensure the safety of all human participants and research staff involved in our clinical trials.

Due to the significant resources required for the development of our product candidates, we must prioritize development of certain product candidates and/or certain disease indications. We may expend our limited resources on candidates or indications that do not yield a successful product and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

We are currently focused on developing product candidates to address age-related degenerative diseases and disorders of the CNS and retina. We seek to maintain a process of prioritization and resource allocation among our programs to maintain a balance between aggressively advancing our lead product candidate, CT1812, in identified indications and exploring additional indications or mechanisms as well as developing future product candidates. However, due to the significant resources required for the development of our product candidates, we must focus on specific diseases and disease pathways and decide which product candidates to pursue and the amount of resources to allocate to each such product candidate.

Our decisions concerning the allocation of research, development, collaboration, management and financial resources toward particular product candidates or therapeutic areas may not lead to the development of any viable commercial product and may divert resources away from better opportunities. Similarly, any decision to delay, terminate or collaborate with third parties with respect to certain programs may subsequently also prove to be suboptimal and could cause us to miss valuable opportunities. If we make incorrect determinations regarding the viability or market potential of any of our programs or product candidates or misread trends in the market of age-related degenerative diseases and disorders of the CNS and retina or pharmaceutical, biopharmaceutical or biotechnology industry, our business, financial condition and results of operations could be materially adversely affected. As a result, we may fail to capitalize on viable commercial products or profitable market opportunities, be required to forego or delay pursuit of opportunities with other product candidates or other diseases and disease pathways that may later prove to have greater commercial potential than those we choose to pursue, or relinquish valuable rights to such product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been advantageous for us to invest additional resources to retain development and commercialization rights.

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

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

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

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

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

Our business has been, and could continue to be adversely affected by, the ongoing COVID-19 global pandemic and the efforts to mitigate it in regions where we or third parties on which we rely have significant manufacturing facilities, concentrations of clinical trial sites or other business operations. The COVID-19 pandemic could adversely affect our business and our financial results and could cause a disruption to the development of our product candidates, as well as the business or operations of our manufacturers or other third parties with whom we conduct business.

Our business has been and could continue to be adversely affected by the effects of the evolving and ongoing COVID-19 pandemic, which was declared by the World Health Organization as a global pandemic.

As COVID-19, including any new strains or variants of COVID-19, continue to spread, we may experience ongoing disruptions that could severely impact our business and clinical trials, including:

- delays or difficulties in enrolling and retaining patients in our clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials, interruption of, or delays in receiving, supplies of our product candidates from our contract manufacturing organizations due to staffing shortages, production slowdowns, or stoppages and disruptions in materials and reagents or interruptions in global shipping that may affect the transport of clinical trial materials;

- changes in federal and local regulations as part of a response to the COVID-19 outbreak which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;
- the diversion of healthcare resources away from the conduct of clinical trials, including the diversion of healthcare professionals and other staff involved in our clinical trials and healthcare facilities serving as clinical trial sites;
- the interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others, or interruption of clinical trial subject visits and study procedures, the occurrence of which could affect the integrity of clinical trial data;
- limitations on employee resources that would otherwise be focused on the conduct of our preclinical studies and clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people, an increased reliance on working from home, school closures, or mass transit disruptions;
- limitations on maintaining our corporate culture that facilitates the transfer of institutional knowledge within our organization and fosters innovation, teamwork, and a focus on execution;
- interruption of or delays in the operations of the FDA or other regulatory authorities, which may impact review and approval timelines;
- delays in necessary interactions with regulators, ethics committees, and other important agencies and contractors due to limitations in employee resources or forced furlough of government or contractor personnel;
- additional delays, difficulties or interruptions as a result of current or future shutdowns due to the COVID-19 pandemic in countries where we or our third-party service providers operate; and
- the risk that participants enrolled in our clinical trials or study staff conducting the clinical trial visits will acquire COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events, or the ability to complete study visits and collect data.

These and other disruptions in our operations and the global economy could negatively impact our business, operating results and financial condition.

Our clinical trials have been, and may in the future be, affected by the COVID-19 pandemic. For example, the COVID-19 pandemic may impact patient enrollment in our ongoing and future clinical trials of CT1812. In particular, some sites have in the past or may in the future pause enrollment to focus on, and direct resources to, COVID-19, while at other sites, patients may choose not to enroll or continue participating in the clinical trial as a result of the pandemic. In addition, patient visits to medical providers in the United States have slowed as a result of the COVID-19 pandemic. Further, according to the Centers for Disease Control and Prevention, people who have serious chronic medical conditions are at higher risk of getting very sick from COVID-19. As a result, potential patients in our ongoing and future clinical trials of CT1812 may choose to not enroll, not participate in follow-up clinical visits or drop out of the trial as a precaution against contracting COVID-19. Further, some patients may not be able or willing to comply with clinical trial protocols if quarantines impede patient movement or interrupts healthcare services.

We are unable to predict with confidence the duration of such patient enrollment delays and difficulties. If patient enrollment is delayed for an extended period of time, our ongoing or future clinical trials could be delayed or otherwise adversely affected. Similarly, our ability to recruit and retain principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19, including any new strains or variants of COVID-19, may be adversely impacted.

Ongoing or planned clinical trials may also be impacted by interruptions or delays in the operations of the FDA and comparable foreign regulatory authorities. For example, we have made certain adjustments to the

operation of our trials in an effort to ensure the monitoring and safety of patients and minimize risks to trial integrity during the pandemic in accordance with the guidance issued by the FDA, and may need to make further adjustments in the future. We have also initiated our clinical trial protocols to enable remote visits to mitigate any potential impacts as a result of the COVID-19 pandemic. Many of these adjustments are new, may not be effective, may affect the integrity of data collected, and may have unforeseen effects on the progress and completion of our clinical trials and the findings from such clinical trials.

In addition, we may encounter a shortage in supplies of, or in delays in shipping, our study drug or other components of the clinical trial vital for successful conduct of the trial. Further, the successful conduct of our ongoing and future clinical trials depends on retrieving laboratory, imaging and other data from patients. Any failure by the vendors with which we work with to send us such data could impair the progress of such clinical trials. These events could delay our clinical trials, increase the cost of completing our clinical trials and negatively impact the integrity, reliability or robustness of the data from our clinical trials.

Furthermore, quarantines, shelter-in-place and similar government orders, or the perception that such orders, shutdowns or other restrictions on the conduct of business operations could occur, related to COVID-19, including any new strains or variants of COVID-19, or other infectious diseases, could impact personnel at our study sites or third-party manufacturing facilities upon which we rely, or the availability or cost of materials, which could disrupt the supply chain for our drug and combination therapy candidates. To the extent our suppliers and service providers are unable to comply with their obligations under our agreements with them or they are otherwise unable to deliver or are delayed in delivering goods and services to us due to the COVID-19 pandemic, our ability to continue meeting clinical supply demand for our product candidates or otherwise advancing development of our product candidates may become impaired.

The spread of COVID-19, including any new strains or variants of COVID-19, and actions taken to reduce such spread may also materially affect us economically. While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, there could be a significant disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity and financial position. In addition, the trading prices for other pharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our common stock or such sales may be on unfavorable terms.

COVID-19, including any new strains or variants of COVID-19, and actions taken to reduce its spread continue to rapidly evolve. The extent to which COVID-19 may impede the development of our product candidates, reduce the productivity of our employees, disrupt our supply chains, delay our clinical trials, reduce our access to capital or limit our business development activities, will depend on future developments, which are highly uncertain and cannot be predicted with confidence.

To the extent the ongoing COVID-19 pandemic adversely affects our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described in this “Risk Factors” section.

Risks Related to Discovery, Development and Regulatory Approval of Our Product Candidates

Our business is heavily dependent on the successful development, regulatory approval and commercialization of CT1812 and any future product candidates that we may develop or acquire.

We currently have no products approved for sale, and our lead product candidate is in early stages of clinical development. The success of our business, including our ability to finance our company and generate revenue in the future, will primarily depend on the successful development, regulatory approval and commercialization of our product candidates and, in particular, the advancement of CT1812, currently our only clinical-stage product candidate. However, given our stage of development, it may be many years, if we succeed at all, before we have demonstrated the safety and efficacy of a product candidate sufficient to warrant approval for commercialization.

We cannot be certain that our product candidates will receive regulatory approval or be successfully commercialized even if we receive regulatory approval.

The clinical and commercial success of CT1812 and any future product candidates that we may develop or acquire will depend on a number of factors, including the following:

- our ability to raise any additional required capital on acceptable terms, or at all;
- our ability to complete an investigational new drug application, or IND, enabling studies and successfully submit INDs or comparable applications;
- timely completion of our preclinical studies and clinical trials, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the performance of third-party contractors;
- delays or difficulties in enrolling and retaining patients in our clinical trials;
- whether we are required by the U.S. Food and Drug Administration, or FDA, or similar foreign regulatory agencies to conduct additional clinical trials or other studies beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;
- acceptance of our proposed indications and primary endpoint assessments relating to the proposed indications of our product candidates by the FDA and similar foreign regulatory authorities;
- our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities the safety, efficacy and acceptable risk to benefit profile of our product candidates or any future product candidates;
- the prevalence, duration and severity of potential side effects or other safety issues experienced with our product candidates or future approved products, if any;
- achieving and maintaining, and, where applicable, ensuring that our third-party contractors achieve and maintain, compliance with our contractual obligations and with all regulatory requirements applicable to our product candidates or any future product candidates or approved products, if any;
- the ability of third parties with whom we contract to manufacture adequate clinical trial and commercial supplies of our product candidates or any future product candidates remain in good standing with regulatory agencies and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices, or cGMPs;
- the convenience of our treatment or dosing regimen;
- the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;
- acceptance by physicians, payors and patients of the benefits, safety and efficacy of our product candidates or any future product candidates, if approved, including relative to alternative and competing treatments;
- the willingness of physicians, operators of clinics and patients to utilize or adopt any of our product candidates or any future product candidates, if approved;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- the COVID-19 pandemic, which may result in clinical site closures, delays to patient enrollment, patients discontinuing their treatment or follow up visits or changes to trial protocols;
- our ability to successfully develop a commercial strategy and thereafter commercialize our product candidates or any future product candidates in the United States and internationally, if approved for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others;
- patient demand for our product candidates, if approved, including patients' willingness to pay out-of-pocket for any approved products in the absence of coverage and/or adequate reimbursement from third-party payors;

- our ability to establish and enforce intellectual property rights in and to our product candidates or any future product candidates; and
- our ability to avoid third-party patent interference, intellectual property challenges or intellectual property infringement claims.

In addition, the FDA or other regulatory agencies may not agree with our clinical development plan and require that we conduct additional clinical trials to support our regulatory submissions. We have not yet conducted an end of Phase 2 meeting with the FDA to discuss the registration pathway for CT1812, and our current clinical development plans for CT1812 in mild-to-moderate AD may change as a result of future interactions with the FDA. For example, the FDA may not accept the results of the ongoing CT1812 clinical trials and may require that we conduct additional trials, including more than one pivotal trial, in order to gain approval in AD. Furthermore, any approval of CT1812 for AD may be limited to CT1812 in combination with the existing standard of care.

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

We may not successfully expand our pipeline of product candidates, including by pursuing additional indications for CT1812 or by in-licensing or acquiring additional product candidates for other diseases.

A key element of our strategy is to build and expand our pipeline of product candidates, including by developing CT1812 for the treatment of dry AMD and age-related degenerative diseases and disorders of the CNS beyond indications in AD, and by identifying other product candidates using our NICE platform. In addition, we may in-license or acquire additional product candidates for other diseases. We may not be able to identify or develop additional product candidates that are safe, tolerable and effective. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify, in-license or acquire may not be suitable for clinical development. For example, our research methodology may be unsuccessful in identifying potential drug candidates or those we identify may be shown to have harmful side effects or other characteristics that make them unmarketable or unlikely to receive regulatory approval. We have devoted significant resources to discovery efforts through our proprietary NICE platform, and we cannot guarantee that we will be successful in identifying additional potential drug candidates, or that we will be able to successfully identify and in-license new and valuable product candidates from other parties.

Research and development of pharmaceuticals is inherently risky. We cannot give any assurance that any of our product candidates will receive regulatory approval.

We are at an early stage of clinical development of our only clinical stage product candidate, CT1812. Our future success is dependent on our ability to successfully develop, obtain regulatory approval for and then successfully commercialize our product candidates, and we may fail to do so for many reasons, including the following:

- our product candidates may not successfully complete preclinical studies or clinical trials;
- a product candidate may on further study be shown to have harmful side effects or other characteristics that indicate it does not meet applicable regulatory criteria;
- our competitors may develop therapeutics that render our product candidates obsolete or less attractive;
- the market for a product candidate may change so that the continued development of that product candidate is no longer reasonable or commercially attractive;
- a product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all;
- if a product candidate obtains regulatory approval, we may be unable to establish sales and marketing capabilities, or successfully market such approved product candidate; and

- a product candidate may not be accepted as safe and effective by patients, the medical community or third-party payors.

If any of these events occur, we may be forced to abandon our development efforts for a product candidate or candidates, which would have a material adverse effect on our business and could potentially cause us to cease operations. Failure of a product candidate may occur at any stage of preclinical or clinical development, and we may never succeed in developing marketable products or generating product revenue.

We may not be successful in our efforts to further develop our current and future product candidates. Each of our product candidates will require significant clinical development, management of preclinical, clinical and manufacturing activities, regulatory approval, adequate manufacturing supply, a commercial organization and significant marketing efforts before we generate any revenue from product sales, if at all. Any clinical studies that we may conduct may not be acceptable to the FDA or other regulatory authorities or demonstrate the efficacy and safety necessary to obtain regulatory approval to market our product candidates. If the results of our ongoing or future clinical studies are inconclusive with respect to the efficacy of our product candidates, if we do not meet the clinical endpoints with statistical significance or if there are safety concerns or adverse events associated with our product candidates, we may be prevented or delayed in obtaining marketing approval for our product candidates.

In addition, to obtain regulatory approval in countries outside the United States, we must comply with numerous and varying regulatory requirements of such other countries regarding safety, efficacy, chemistry, manufacturing and controls, clinical trials, commercial sales, pricing and distribution of our product candidates. We may also rely on collaborators or partners to conduct the required activities to support an application for regulatory approval and to seek approval for one or more of our product candidates. We cannot be sure that any such collaborators or partners will conduct these activities successfully or do so within the timeframe we desire. Even if we or any future collaborators or partners are successful in obtaining approval in one jurisdiction, we cannot ensure that we will obtain approval in any other jurisdictions. If we are unable to obtain approval for our product candidates in multiple jurisdictions, our revenue and results of operations could be negatively affected.

We may encounter substantial delays in our preclinical studies and clinical trials or may not be able to conduct or complete our preclinical studies or clinical trials on the timelines we expect, if at all.

Clinical trials are expensive and can take many years to complete, and the outcome is inherently uncertain. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. A failure of one or more clinical trials can occur at any stage and our future clinical trials may not be successful. Clinical trials can be delayed or terminated for a variety of reasons, including delays or failures related to:

- the COVID-19 pandemic, which may result in clinical site closures, delays to patient enrollment, patients discontinuing their treatment or follow up visits or changes to trial protocols;
- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of our clinical trials;
- delays in obtaining, or failure to obtain, regulatory authorization to commence a trial;
- imposition of a temporary or permanent clinical hold by the FDA or comparable foreign regulatory authorities;
- reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- identifying, recruiting and training suitable clinical investigators;
- obtaining institutional review board, or IRB, approval at each trial site;
- new safety findings that present unreasonable risk to clinical trial participants;
- a negative finding from an inspection of our clinical trial operations or study sites;
- recruiting an adequate number of suitable patients to participate in a trial;

- having subjects complete a trial or return for post-treatment follow-up;
- clinical sites deviating from trial protocol or dropping out of a trial;
- addressing subject safety concerns that arise during the course of a trial;
- adding a sufficient number of clinical trial sites; or
- obtaining sufficient supply of product candidates for use in preclinical studies or clinical trials from third-party suppliers.

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

- we may receive feedback from regulatory authorities that requires us to modify the design of our clinical trials or require that we submit additional data or information before allowing a clinical trial to be initiated or continue;
- clinical studies of our product candidates may produce negative or inconclusive results, and we may decide, or regulators 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 these clinical trials may be slower than we anticipate or participants may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements, fail to maintain adequate quality controls or be unable to provide us with sufficient product supply to conduct and complete preclinical studies or clinical trials of our product candidates in a timely manner, or at all;
- we or our investigators might have to suspend or terminate clinical trials of our product candidates for various reasons, including non-compliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics or a finding 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;
- the quality of our product candidates or other materials necessary to conduct preclinical studies or clinical trials of our product candidates may be insufficient or inadequate;
- regulators may revise the requirements for approving our product candidates or such requirements may not be as we anticipate; and
- any future collaborators may conduct clinical trials in ways they view as advantageous to them but that are suboptimal for us.

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

- incur unplanned costs;
- be delayed in obtaining marketing approval for our product candidates or not obtain marketing approval at all;
- obtain marketing approval in some countries and not in others;
- obtain marketing approval for indications or patient populations that are not as broad as intended or desired;
- obtain marketing approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;

- be subject to additional post-marketing testing requirements; or
- have the product removed from the market after obtaining marketing approval.

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

We may not be able to initiate or continue clinical trials on a timely basis or at all for any product candidates we identify or develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in the trials as required by applicable regulations or as needed to provide appropriate statistical power for a given trial. The timely completion of clinical trials in accordance with their protocols depends on, among other things, our ability to enroll a sufficient number of patients who remain in the study until its conclusion. The enrollment of patients depends on many factors, including:

- clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating; the severity and difficulty of diagnosing the disease under investigation;
- the patient eligibility and exclusion criteria defined in the protocol;
- the size of the patient population required for analysis of the trial's primary endpoints;
- the proximity of patients to trial sites;
- competition with other companies for clinical trial sites or patients;
- the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- the existing body of safety and efficacy data with respect to the study drug and safety concerns;
- patient referral practices of physicians;
- risk that enrolled subjects will drop out before completion of the trial, including as a result of contracting COVID-19 or other health conditions or being forced to quarantine;
- ability to monitor patients adequately during and after treatment;
- availability and efficacy of approved medications or therapies, or other clinical trials, for the disease or condition under investigation;
- our ability to obtain and maintain patient consents.

In addition, our clinical trials may compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us, because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. Delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our product candidates.

Our product candidates may cause undesirable and unforeseen side effects or have other properties that could halt their clinical development, delay or prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

Adverse events or other undesirable side effects caused by our product candidates or related to procedures conducted as part of the clinical trials could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. Results of our planned clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. If unacceptable side effects arise in the development of our product candidates, we, the FDA, the IRBs at the institutions in which our studies are conducted or the Data Safety Monitoring Board, or DSMB, could suspend or terminate our clinical trials or the FDA or comparable foreign regulatory authorities could order us to cease clinical trials or deny approval of our product candidates for any or all targeted indications. Treatment-related side effects may not be appropriately

recognized or managed by the treating medical staff. We expect to have to train medical personnel using our product candidates to understand the side effect profiles for our clinical trials and upon any commercialization of any of our product candidates. Inadequate training in recognizing or managing the potential side effects of our product candidates could result in patient injury or death. Any of these occurrences may materially and adversely affect our business, financial condition, results of operations and prospects.

In addition, early clinical trials may only include a limited number of subjects and limited duration of exposure to our product candidates. In particular, we are pursuing a new approach to inhibiting the synaptic binding and signaling of soluble A β oligomers through the use of small molecule receptor antagonists, like CT1812. As a result, our product candidates may cause unforeseen safety events when evaluated in larger patient populations. Further, clinical trials may not be sufficient to determine the effect and safety consequences of taking our product candidates over a multi-year period.

If any of our product candidates receives marketing approval, and we or others later identify undesirable and unforeseen side effects caused by such product, a number of potentially significant negative consequences could result, including but not limited to:

- regulatory authorities may suspend, limit or withdraw approvals of such product, or seek an injunction against its manufacture or distribution;
- we may be required to conduct additional clinical trials or post-approval studies;
- we may be required to recall a product or change the way such product is administered to patients;
- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product or any component thereof;
- regulatory authorities may require the addition of labeling statements, such as a “black box” warning or a contraindication, or issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- we may be required to implement a Risk Evaluation and Mitigation Strategy, or REMS, or create a Medication Guide outlining the risks of such side effects for distribution to patients, a communication plan for healthcare providers and/or other elements to assure safe use;
- we could be sued and held liable for harm caused to patients;
- we may be subject to fines, injunctions or the imposition of criminal penalties;
- the product may become less competitive; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and result in the loss of significant revenues to us, which would materially and adversely affect our business, financial condition, results of operations and prospects.

Preclinical and clinical development involves a lengthy and expensive process with an uncertain outcome, and the results of preclinical studies and early clinical trials are not necessarily predictive of future results. We have not tested any of our product candidates in pivotal clinical trials and our product candidates may not have favorable results in future clinical trials.

Preclinical and clinical development is expensive and can take many years to complete, and its outcome is inherently uncertain. We cannot guarantee that any preclinical studies or clinical trials will be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the preclinical study or clinical trial process. Despite promising preclinical or clinical results, any product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates in our industry is high.

The results from preclinical studies or clinical trials of a product candidate may not predict the results of later clinical trials of the product candidate, and interim, topline, or preliminary results of a clinical trial are not

necessarily indicative of final results. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy characteristics despite having progressed through preclinical studies and initial clinical trials. In particular, while we have conducted certain Phase 2 clinical trials of CT1812 targeting mild-to-moderate AD, we do not know whether CT1812 will perform in future clinical trials as it has performed in these prior trials. The positive results we have observed for CT1812 in past clinical trials may not be predictive of our ongoing and future clinical trials in humans. It is not uncommon to observe results in clinical trials that are unexpected based on preclinical studies and early clinical trials, and many product candidates fail in clinical trials despite very promising early results. Moreover, preclinical and clinical data may be susceptible to varying interpretations and analyses. In addition, changes to the design of our current or future clinical trials may be necessary if there are new developments in the field of Alzheimer's research. A number of companies in the biopharmaceutical, pharmaceutical and biotechnology industries have suffered significant setbacks in clinical development even after achieving promising results in earlier studies.

For the foregoing reasons, we cannot be certain that any of our ongoing and planned preclinical studies or clinical trials will be successful or acceptable to the FDA or other regulatory authorities.

Interim “top-line” and preliminary data from studies or trials that we announce or publish from time to time may change as more data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publish interim “top-line” or preliminary data from preclinical studies or clinical trials. Interim data are subject to the risk that one or more of the outcomes may materially change as more data become available. 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 when we publish such data. As a result, the “top-line” 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. Preliminary or “top-line” data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, interim and preliminary data should be viewed with caution until the final data are available. Additionally, interim data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between preliminary or interim data and final data could significantly harm our business, financial condition, results of operations and prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate 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 significant by you or others with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product candidate or our business. If the top-line data that we report differ from final 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, financial condition, results of operations and prospects.

We have initially concentrated our research and development efforts on the treatment of AD, a disease that has seen limited success in drug development.

Efforts by biopharmaceutical and pharmaceutical companies in treating AD have seen limited success in drug development. Only one disease-modifying therapeutic option has been approved by the FDA. Biogen's Aduhelm, a monoclonal antibody administered via infusion, received accelerated approval from the FDA on June 7, 2021. We cannot be certain that our oral, small-molecule approach will lead to the development of approvable or marketable

products. With the exception of Aduhelm, the only drugs approved by the FDA to treat patients with AD address the symptoms of the disease. Since 2003, over 500 clinical studies have been completed and only Aduhelm has been approved by the FDA, compared to a success rate of 50% to 80% for all other drug candidates. As a result, the FDA has a limited set of products to rely on in evaluating CT1812. This could result in a longer than expected regulatory review process, increased expected development costs or the delay or prevention of commercialization of CT1812 for the treatment of AD.

We have never conducted pivotal clinical trials, and we may be unable to do so for any product candidates we may develop.

We will need to successfully complete pivotal clinical trials in order to obtain the approval of the FDA, EMA or other regulatory agencies to market CT1812 or any future product candidate. Carrying out pivotal clinical trials is a complicated process that requires significant financial resources. As an organization, we have not previously conducted any later stage or pivotal clinical trials. In order to do so, we will need to expand our clinical development and regulatory capabilities, and we may be unable to recruit and train qualified personnel. We also expect to continue to rely on third parties to conduct our pivotal clinical trials. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to NDA submission and approval of CT1812 or future product candidates. We may require more time and incur greater costs than our competitors and 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 our product candidates.

A Breakthrough Therapy designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We may seek a “breakthrough therapy” designation for our product candidates if the clinical data support such a designation for one or more product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, in our case, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under non-expedited FDA review procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, 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.

A Fast Track designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process, and does not increase the likelihood that our product candidates will receive marketing approval.

The FDA granted CT1812 Fast Track designation in October 2017 for the treatment of mild-to-moderate AD, and, in the future, we may seek Fast Track designation for other of our product candidates. If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the drug sponsor may apply for Fast Track designation. The FDA has broad discretion whether or not to grant this designation. Even if we believe a particular product candidate is eligible for this designation, we cannot assure you that the FDA would decide to grant it. Fast Track designation may not result in a faster development

process, review or approval compared to conventional FDA procedures. The FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program. Many small molecule product candidates that have received Fast Track designation have failed to obtain marketing approval.

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

The ability of the FDA to review and/or approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, the FDA's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the FDA have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. On March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

We have conducted, and in the future plan to conduct, clinical trials for product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials.

We have conducted clinical trials of our product candidates outside the United States, and plan to continue to do so in the future. For example, we initially conducted our Phase 1b SNAP clinical trial of CT1812 in collaboration with the Karolinska Institute in Sweden. In addition, the Phase 1 single and multiple ascending dose studies of CT1812 in healthy volunteers (COG0101) as well as the first-in-patient study (COG0102) were conducted in Australia. The acceptance of study data from clinical trials conducted outside the United States or another jurisdiction by the FDA, any comparable foreign regulatory authority may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless:

- the data are applicable to the U.S. population and U.S. medical practice;
- the trials were performed pursuant to good clinical practice, or GCP, requirements; and
- if necessary, the FDA is able to validate the data through an on-site inspection.

Many foreign regulatory authorities have similar requirements. In addition, foreign trials are subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any comparable foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. If the FDA or any comparable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay

aspects of our business plan, and which may result in product candidates that we may develop not receiving approval or clearance for commercialization in the applicable jurisdiction.

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

Although a substantial amount of our effort will focus on the continued development and potential approval of our current product candidates, a key element of our strategy is to identify, develop and commercialize a portfolio of products that help restore normal cellular damage responses in age-related degenerative diseases and disorders of the CNS and retina. A component of our strategy is to evaluate our product candidates in multiple indications based, in part, on our evaluation of certain biomarkers in a disease area. For example, we intend to evaluate CT1812 and other product candidates discovered through our NICE platform in other diseases beyond indications in AD, such as dry AMD, geographic atrophy, or GA, and synucleinopathies, including PD and DLB. However we may find that while we have seen promising results in one neurodegenerative disease, that effect is not replicated across other indications with promising similarities. Even if we successfully identify additional product candidates, we may still fail to yield additional product candidates for development and commercialization for many reasons, including the following:

- the research methodology used may not be successful in identifying potential product candidates;
- we may be unable to identify viable product candidates through our NICE platform;
- competitors may develop alternatives that render our additional product candidates obsolete;
- additional product candidates we develop may be covered by third parties' patents or other exclusive rights;
- an additional product candidate may be shown to have harmful side effects or other characteristics that indicate it is unlikely to be effective or otherwise does not meet applicable regulatory criteria;
- an additional product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all; and
- an additional product candidate may not be accepted as safe and effective by physicians and patients.

We therefore cannot provide any assurance that we will be able to successfully identify or acquire additional product candidates, advance any of these additional product candidates through the development process, successfully commercialize any such additional product candidates, if approved, or assemble sufficient resources to identify, acquire, develop or, if approved, commercialize additional product candidates. If we are unable to successfully identify, acquire, develop and commercialize additional product candidates, our commercial opportunities may be limited.

Even if the product candidates that we develop receive regulatory approval in the United States or another jurisdiction, they may never receive approval in other jurisdictions, which would limit market opportunities for our product candidates and adversely affect our business.

Approval of a product candidate in the United States by the FDA or by the requisite regulatory agencies in any other jurisdiction does not ensure approval of such product candidate by regulatory authorities in other countries or jurisdictions. The approval process varies among countries and may limit our or any future collaborators' ability to develop, manufacture, promote and sell product candidates internationally. Failure to obtain marketing approval in international jurisdictions would prevent the product candidates from being marketed outside of the jurisdictions in which regulatory approvals have been received. In order to market and sell product candidates in the European Union, or EU, and many other jurisdictions, we and any future collaborators must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and may involve additional preclinical studies or clinical trials both before and after approval. In many countries, any product candidate for human use must be approved for reimbursement before it can be approved for sale in that country. In some cases, the intended price for such product is also subject to approval. Further, while regulatory approval of a product candidate in one country does not ensure approval in any other country, a failure or delay in obtaining regulatory approval in one

country may have a negative effect on the regulatory approval process in others. If we or any future collaborators fail to comply with the regulatory requirements in international markets or to obtain all required marketing approvals, the target market for a particular potential product will be reduced, which would limit our ability to realize the full market potential for the product and adversely affect our business.

Risks Related to Our Business and Industry

We are heavily dependent on the success of CT1812, our lead product candidate, which is still under clinical development, and if CT1812 does not receive regulatory approval or is not successfully commercialized, our business may be harmed.

The success of our business, including our ability to finance our company and generate revenue in the future, will primarily depend on the successful development, regulatory approval and commercialization of CT1812, currently our only clinical-stage product candidate. To date, we have invested a significant portion of our efforts and financial resources in the development of CT1812 for the treatment of AD. Our future success is substantially dependent on our ability to successfully complete clinical development for, obtain regulatory approval for and successfully commercialize CT1812, which may never occur. We expect that a substantial portion of our efforts and expenditures over the next few years will be devoted to CT1812, which will require additional clinical development, management of clinical and manufacturing activities, regulatory approval in multiple jurisdictions, obtaining manufacturing supply, building of a commercial organization, substantial investment and significant marketing efforts before we can generate any revenues from any commercial sales. We cannot be certain that we will be able to successfully complete any of these activities.

Furthermore, while inhibition of A β oligomers has been validated as a therapeutic approach, the use of small molecule receptor antagonists, such as CT1812, to inhibit the synaptic binding and signaling of soluble A β oligomers is an innovative therapeutic approach, which exposes us to certain risks. For example, we may discover unforeseen safety events or that CT1812 does not possess certain properties required for therapeutic effectiveness. Even if found to be effective in one type of disease, CT1812, or the associated therapeutic approach, may not be effective in other diseases. In addition, given our therapeutic approach, designing preclinical studies and clinical trials to demonstrate its effect is complex and exposes us to risks.

The research, testing, manufacturing, labeling, approval, sale, marketing and distribution of drug products are subject to extensive regulation by the FDA and comparable regulatory authorities in other countries. We are not permitted to market CT1812 in the United States until we receive approval of an NDA from the FDA, or in any foreign countries until we receive the requisite approval from such countries. We have not submitted an NDA to the FDA or comparable applications to other regulatory authorities for CT1812 and may not be in a position to do so for several years, if ever. If we are unable to obtain the necessary regulatory approvals for CT1812, we will not be able to commercialize CT1812 in AD, dry AMD, PD and DLB or other age-related degenerative diseases and disorders of the CNS and retina, and our financial position will be materially adversely affected and we may not be able to generate sufficient revenue to continue our business.

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

As of March 1, 2022, we had 19 full-time and 2 part-time employees. We will need to continue to expand our managerial, operational, finance and other resources in order to manage our operations and clinical trials, continue our development activities and commercialize CT1812, our lead product candidate, or any future product candidates. Our management and personnel, systems and facilities currently in place may not be adequate to support this future growth. Our need to effectively execute our growth strategy requires that we:

- manage our clinical trials effectively;
- identify, recruit, retain, incentivize and integrate additional employees, including personnel focused on research and development and, if our product candidates receive marketing approval, sales;

- manage our internal development and operational efforts effectively while carrying out our contractual obligations to third parties; and
- continue to improve our operational, financial and management controls, reports systems and procedures.

Our future financial performance and our ability to develop, manufacture and commercialize CT1812 and our product candidates, if approved, will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert financial and other resources, and a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time, to managing these growth activities.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize CT1812, if approved, and our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

If we fail to attract and retain senior management and key scientific personnel, our business may be materially and adversely affected.

Our success depends in part on our continued ability to attract, retain and motivate highly qualified management and clinical and scientific personnel. We are highly dependent upon members of our senior management, particularly our President and Chief Executive Officer, Lisa Ricciardi, as well as our senior scientists and other members of our management team. The loss of services of any of these individuals could delay or prevent the successful development of our product pipeline, initiation or completion of our planned clinical trials or the commercialization of our product candidates or any future product candidates.

Competition for qualified personnel in the biopharmaceutical field is intense due to the limited number of individuals who possess the skills and experience required by our industry. We will need to hire additional personnel as we expand our clinical development and if we initiate commercial activities. We may not be able to attract and retain quality personnel on acceptable terms, or at all. In addition, to the extent we hire personnel from competitors, we may be subject to allegations that they have been improperly solicited or that they have divulged proprietary or other confidential information, or that their former employers own their research output.

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

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

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

- loss of revenue; and
- the inability to commercialize our current or any future product candidates.

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

We may explore strategic collaborations that may never materialize or may fail.

We may attempt to broaden the global reach of our platform by selectively collaborating with leading therapeutic companies and other organizations. As a result, we may periodically explore a variety of possible additional strategic collaborations in an effort to gain access to additional product candidates or resources. At the current time, we cannot predict what form such a strategic collaboration might take. In the event we do form such collaborations, we intend to retain significant economic and commercial rights to our programs in key geographic areas that are core to our long-term strategy. We are likely to face significant competition in seeking appropriate strategic collaborators, and strategic collaborations can be complicated and time consuming to negotiate and document. We may not be able to negotiate strategic collaborations on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any additional strategic collaborations because of the numerous risks and uncertainties associated with establishing them.

We may seek to grow our business through acquisitions of complementary businesses, and the failure to manage acquisitions, or the failure to integrate them with our existing business, could harm our financial condition and operating results.

From time to time, we may consider opportunities to acquire other companies, products or technologies that may enhance our manufacturing capabilities, expand the breadth of our markets or customer base, or advance our business strategies. Potential acquisitions involve numerous risks, including: problems assimilating the acquired service offerings, products or technologies; issues maintaining uniform standards, procedures, quality control and policies; unanticipated costs associated with acquisitions; diversion of management's attention from our existing business; risks associated with entering new markets in which we have limited or no experience; increased legal and accounting costs relating to the acquisitions or compliance with regulatory matters; and unanticipated or undisclosed liabilities of any target.

We have no current commitments with respect to any acquisition. We do not know if we will be able to identify acquisitions we deem suitable, whether we will be able to successfully complete any such acquisitions on favorable terms or at all, or whether we will be able to successfully integrate any acquired service offerings, products or technologies. Our potential inability to integrate any business, products or technologies effectively may adversely affect our business, results of operations and financial condition.

Significant disruptions of information technology systems, breaches of data security and other incidents could materially adversely affect our business, results of operations and financial condition.

We collect and maintain information in digital and other forms that is necessary to conduct our business, and we are increasingly dependent on information technology systems and infrastructure to operate our business. In the

ordinary course of our business, we collect, store and transmit large amounts of confidential information, including intellectual property, proprietary business information and personal information. It is critical that we do so in a secure manner to maintain the privacy, security, confidentiality and integrity of such confidential information. We have established physical, electronic and organizational measures designed to safeguard and secure our systems to prevent a data compromise, and rely on commercially available systems, software, tools and monitoring to provide security for our information technology systems and the processing, transmission and storage of digital information. We have also outsourced elements of our information technology infrastructure, and as a result a number of third-party vendors may have access to our confidential information. Our internal information technology systems and infrastructure, and those of any future collaborators and our contractors, consultants, vendors and other third parties on which we rely, are vulnerable to damage or unauthorized access or use resulting from computer viruses, malware, natural disasters, terrorism, war, telecommunication and electrical failures, cyber-attacks or cyber-intrusions over the Internet, denial or degradation of service attacks, ransomware, hacking, phishing schemes intended to cause an unauthorized transfer of funds and other social engineering attacks, 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 cyber-attacks 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. The prevalent use of mobile devices that access confidential information also increases the risk of lost or stolen devices, security incidents and data security breaches, which could lead to the loss of confidential information or other intellectual property. As a result of the COVID-19 pandemic, we may face increased risks of a security breach or disruption due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. The costs to us to investigate, mitigate and remediate security incidents, breaches, disruptions, network security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant.

In November 2021 we were the subject of a phishing scheme involving a fraudulent email and wire instructions, resulting in the loss of approximately \$0.5 million in corporate funds. We took immediate action to contain and eradicate the security breach, including the implementation of control enhancements to prevent a similar situation from occurring again. We also subsequently submitted a claim for the loss under our cyber-security insurance policy whereby we received net proceeds of \$0.5 million. We believe this was an isolated event and do not believe our technology systems have been compromised. While we have not experienced any other losses relating to cyber-attacks or other information security breaches such as the one that occurred in November 2021, there can be no assurance (i) that we will ever recover the funds lost, (ii) that our insurance carriers will honor our claim and make a payment to us under our cyber-security policy, or (iii) that we will not suffer additional losses in the future.

Additionally, while we have implemented security measures to protect our data security and information technology systems, our efforts to address these problems may not be successful, and these problems could result in unexpected interruptions, delays, cessation of service, negative publicity and other harm to our business and our competitive position. 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 or 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. Any security compromise affecting us, our partners or our industry, whether real or perceived, could harm our reputation, erode confidence in the effectiveness of our security measures and lead to regulatory scrutiny.

Moreover, if a computer security breach affects our systems or results in the unauthorized access to or unauthorized use, disclosure, release or other processing of personally identifiable information or clinical trial data, it may be necessary to notify individuals, governmental authorities, supervisory bodies, the media and other parties pursuant to privacy and security laws, and our reputation could be materially damaged. We would also be exposed to a risk of loss, governmental investigations or enforcement, or litigation and potential liability, which could materially adversely affect our business, results of operations and financial condition.

Failure to comply with health and data protection laws and regulations could lead to government enforcement actions and civil or criminal penalties, private litigation or adverse publicity and could negatively affect our operating results and business.

We are subject to or affected by federal, state and foreign data protection laws and regulations which address privacy and data security. In the United States, numerous federal and state laws and regulations, including the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and its implementing regulations, or HITECH, state data breach notification laws, state health information privacy laws and federal and state consumer protection laws, including Section 5 of the Federal Trade Commission Act, which govern the collection, use, disclosure and protection of health-related and other personal information, may apply to our operations and the operations of any future collaborators. In addition, we may obtain health information from third parties, including research institutions from which we obtain clinical trial data, that are subject to privacy and security requirements under HIPAA, as amended by HITECH, and other privacy and data security laws. Depending on the facts and circumstances, we could be subject to significant administrative, civil and criminal penalties if we obtain, use or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA. Further, various states have implemented similar privacy laws and regulations. For example, California also recently enacted the California Consumer Privacy Act of 2018, or CCPA. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing and receive detailed information about how their personal information is used. The CCPA also 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. The CCPA went into effect on January 1, 2020 and grants the California Attorney General the power to bring enforcement actions for violations beginning July 1, 2020. The CCPA has been amended from time to time, and it remains unclear what, if any, further modifications will be made to this legislation or how it will be interpreted. As currently written, the CCPA may impact our business activities and as a result may increase our compliance costs and potential liability. Many similar privacy laws have been proposed at the federal level and in other states.

Foreign data protection laws, including Regulation 2016/679, known as the General Data Protection Regulation, or GDPR, may also apply to health-related and other personal information data subjects in the EU or the United Kingdom, or UK. The GDPR went into effect on May 25, 2018. Companies that must comply with the GDPR face increased compliance obligations and risk, including robust regulatory enforcement of data protection requirements as well as potential fines for noncompliance of up to €20 million or 4% of annual global revenue of the noncompliance company, whichever is greater. The GDPR imposes numerous requirements for the collection, use, storage and disclosure of personal information of EU or UK data subjects, including requirements relating to providing notice to and obtaining consent from data subjects, personal data breach notification, cross-border transfers of personal information, and honoring and providing for the rights of EU or UK individuals in relation to their personal information, including the right to access, correct and delete their data.

Compliance with U.S. and foreign data protection laws and regulations could require us to take on more onerous obligations in our contracts, require us to engage in costly compliance exercises, restrict our ability to collect, use and disclose data, or in some cases, impact our or our partners' or suppliers' ability to operate in certain jurisdictions. Failure to comply with U.S. and foreign data protection laws and regulations could result in government investigations and/or enforcement actions, fines, civil or criminal penalties, private litigation or adverse publicity and could negatively affect our operating results and business.

Moreover, clinical trial subjects about whom we or any of our potential collaborators obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws or breached our contractual obligations, even if we are not found liable, could be expensive and time consuming to defend and could result in adverse publicity that could materially and adversely affect our business, financial condition, results of operations and prospects.

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

We are exposed to the risk that our employees and independent contractors, including principal investigators, consultants, any future commercial collaborators, service providers and other vendors may engage in misconduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or other unauthorized activities that violate the laws and regulations of the FDA and other similar regulatory bodies, including those laws that require the reporting of true, complete and accurate information to such regulatory bodies; manufacturing standards; U.S. federal and state healthcare fraud and abuse, data privacy laws and other similar non-U.S. laws; or laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical trials, the creation of fraudulent data in our preclinical studies or clinical trials, or illegal misappropriation of product, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with such laws or regulations. In addition, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and financial results, including, without limitation, the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid and other U.S. healthcare programs, other sanctions, imprisonment, contractual damages, reputational harm, diminished profits and future earnings and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent protection for our technology and product candidates including our lead product candidate, CT1812, or if the scope of the patent protection obtained is not sufficiently broad, we may not be able to compete effectively in our markets.

We rely, and will continue to rely, upon a combination of patents, trademarks, trade secret protection and confidentiality agreements with employees, consultants, collaborators, advisors and other third parties to protect the intellectual property related to our current and future drug development programs and product candidates. Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our technology and product candidates. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our current and future drug development programs and product candidates, successfully defend our intellectual property rights against third-party challenges and successfully enforce our intellectual property rights to prevent third-party infringement. The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute 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. We may choose not to seek patent protection for certain innovations or products and may choose not to pursue patent protection in certain jurisdictions, and under the laws of certain jurisdictions, patents or other intellectual property rights may be unavailable or limited in scope and, in any event, any patent protection we obtain may be limited. As a result, some of our product candidates are not, and in the future may not be, protected by patents. We generally apply for patents in those countries where we intend to make, have made, use, offer for sale, or sell products and where we assess the risk of infringement to justify the cost of seeking patent protection. However, we do not seek protection in all countries where we intend to sell products and we may not accurately predict all the countries where patent protection would ultimately be desirable. If we fail to timely file a patent application in any such country, we may be precluded from doing so at a later date. The patent applications that we own may fail to result in issued patents with claims that cover any of our product

candidates in the United States or in other foreign countries. We may also inadvertently make statements to regulatory agencies during the regulatory approval process that may be inconsistent with positions that have been taken during prosecution of our patents, which may result in such patents being narrowed, invalidated or held unenforceable, and vice versa that may affect the regulatory approval process.

The patents and patent applications that we own may fail to result in issued patents with claims that protect any of our product candidates in the United States or in other foreign countries. We cannot guarantee any current or future patents will provide us with any meaningful protection or competitive advantage. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, which can prevent a patent from issuing from a pending patent application, or be used to invalidate a patent. The examination process may require us to narrow our claims, which may limit the scope of patent protection that we may obtain. Even if patents do successfully issue based on our patent applications, and even if such patents cover our product candidates, uses of our product candidates, or other aspects related to our product candidates, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed, invalidated or held unenforceable, any of which could limit our ability to prevent competitors and other third parties from developing and marketing similar products or limit the length of terms of patent protection we may have for our products and technologies. Other companies may also design around technologies we have patented or developed. Any successful opposition to these patents or any other patents owned by us in the future could deprive us of rights necessary for the successful commercialization of any of our product candidates, if approved. Further, if we encounter delays in regulatory approvals, the period of time during which we could market a product candidate under patent protection could be reduced. If any of our patents are challenged, invalidated, circumvented by third parties or otherwise limited or expire prior to the commercialization of our products, and if we do not own or have exclusive rights to other enforceable patents protecting our products or other technologies, competitors and other third parties could market products and use processes that are substantially similar to, or superior to, ours and our business would suffer.

If the patent applications we hold with respect to our development programs and product candidates fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for any of our product candidates, it could dissuade companies from collaborating with us to develop product candidates, and threaten our ability to commercialize, future products. Our pending applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Any such outcome could harm our business.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has in recent years been the subject of much litigation. The standards that the USPTO and its foreign counterparts use to grant patents are not always applied predictably or uniformly. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. For example, European patent law restricts the patentability of methods of treatment of the human body more than U.S. law does. Publications of discoveries in scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our owned patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or product candidates, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection.

Patent reform legislation in the United States, including the Leahy-Smith America Invents Act, or the Leahy-Smith Act, could increase those uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. The Leahy-Smith Act was signed into law on September 16, 2011

and includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review, and derivation proceedings. After March 15, 2013, under the Leahy-Smith Act, the United States transitioned to a first inventor to file system in which, assuming that the other statutory requirements are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. The Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications, our ability to obtain future patents, and the enforcement or defense of our issued patents, all of which could harm our business, financial condition, results of operations and prospects.

Moreover, we may be subject to a third-party pre-issuance submission of prior art to the USPTO or become involved in opposition, derivation, reexamination, *inter partes* review, post-grant review or interference proceedings challenging our owned patent rights. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. Moreover, patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after it is filed. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Without patent protection for our current or future product candidates, we may be open to competition from generic versions of such products. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

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

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

We do not have patent rights in certain foreign countries in which a market may exist. Moreover, in foreign jurisdictions where we do have patent rights, proceedings to enforce such rights could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, and our patent applications at risk of not issuing. Additionally, such

proceedings 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. Thus, we may not be able to stop a competitor from marketing and selling in foreign countries products and services that are the same as or similar to our products and services, and our competitive position in the international market would be harmed.

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

Patent terms may be inadequate to protect our competitive position on our product candidates including our lead product candidate, CT1812 for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office, or USPTO, in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier filed patent. Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including generics or biosimilars.

Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. We expect to seek extensions of patent terms in the United States and, if available, in other countries where we are prosecuting patents.

Depending upon the timing, duration and specifics of FDA marketing approval of our drug candidates, one or more of our U.S. patents may be eligible for limited patent term extension, or PTE, under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years beyond the normal expiration of the patent as compensation for patent term lost during development and the FDA regulatory review process, which is limited to the approved indication (and potentially additional indications approved during the period of extension) covered by the patent. This extension is limited to only one patent that covers the approved product, the approved use of the product, or a method of manufacturing the product. However, the applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. We may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the applicable time-period or the scope of patent protection afforded could be less than we request. Even if we are able to obtain an extension, the patent term may still expire before or shortly after we receive FDA marketing approval.

If we are unable to extend the expiration date of our existing patents or obtain new patents with longer expiry dates, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data to obtain approval of competing products following our patent expiration and launch their product earlier than might otherwise be the case.

If we do not obtain protection under the Hatch-Waxman Amendments by obtaining data exclusivity, our business may be harmed.

Our commercial success will largely depend on our ability to obtain market exclusivity in the United States and other countries with respect to our drug candidates and their target indications. Depending upon the timing, duration and specifics of FDA marketing approval of our drug candidates, certain of our product candidates may be eligible for marketing exclusivity. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain approval of an NDA for a new chemical entity, or NCE. A drug is an NCE if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. If market exclusivity is granted for an NCE, during the exclusivity period, the FDA may not accept for review or approve an abbreviated new drug application, or ANDA, or a 505(b)(2) NDA submitted by another company for another version of such drug where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed in the FDA's publication *Approved Drug Products with Therapeutic Equivalence Evaluations*, which we refer to as the Orange Book, with the FDA by the innovator NDA holder. The FDCA also provides three years of marketing exclusivity for an NDA, or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages, dosage forms or strengths of an existing drug. This three-year exclusivity covers only the conditions associated with the new clinical investigations and prohibits the FDA from approving an ANDA, or a 505(b)(2) NDA submitted by another company with overlapping conditions associated with the new clinical investigations for the three-year period. Clinical investigation exclusivity does not prohibit the FDA from approving ANDAs for drugs containing the original active agent. Five-year and three-year exclusivity will not delay the submission or approval of an NDA for the same drug. However, an applicant submitting an NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

If we are unable to obtain such marketing exclusivity for our product candidates, our competitors may be able to take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data to obtain approval of competing products and launch their product earlier than might otherwise be the case.

The validity, scope and enforceability of any patents listed in the Orange Book that cover our product candidates including our lead product candidate CT1812 can be challenged by third parties.

If one of our product candidates is approved by the FDA, one or more third parties may challenge the current patents, or patents that may issue in the future, within our portfolio which could result in the invalidation of, or render unenforceable, some or all of the relevant patent claims or a finding of non-infringement. For example, if a third party files an application under Section 505(b)(2) or an ANDA for a generic drug containing any of our product candidates, and relies in whole or in part on studies conducted by or for us, the third party will be required to certify to the FDA that either: (1) there is no patent information listed in the Orange Book with respect to our NDA for the applicable approved drug candidate; (2) the patents listed in the Orange Book have expired; (3) the listed patents have not expired, but will expire on a particular date and approval is sought after patent expiration; or (4) the listed patents are invalid or will not be infringed by the manufacture, use or sale of the third party's generic drug. A certification that the new drug will not infringe the Orange Book-listed patents for the applicable approved drug candidate, or that such patents are invalid, is called a paragraph IV certification. If the third party submits a paragraph IV certification to the FDA, a notice of the paragraph IV certification must also be sent to us

once the third party's ANDA is accepted for filing by the FDA. We may then initiate a lawsuit to defend the patents identified in the notice. The filing of a patent infringement lawsuit within 45 days of receipt of the notice automatically prevents the FDA from approving the third party's ANDA until the earliest of 30 months or the date on which the patent expires, the lawsuit is settled, or the court reaches a decision in the infringement lawsuit in favor of the third party. If we do not file a patent infringement lawsuit within the required 45-day period, the third party's ANDA will not be subject to the 30-month stay of FDA approval.

Moreover, a third party may challenge the current patents, or patents that may issue in the future, within our portfolio which could result in the invalidation of some or all of the patents that might otherwise be eligible for listing in the Orange Book for one of our products. If a third party successfully challenges all of the patents that might otherwise be eligible for listing in the Orange Book for one of our products, we will not be entitled to the 30-month stay of FDA approval upon the filing of an ANDA for a generic drug containing any of our product candidates, and relies in whole or in part on studies conducted by or for us.

Litigation or other proceedings to enforce or defend intellectual property rights are often very complex in nature, may be very expensive and time-consuming, may divert our management's attention from our core business, and may result in unfavorable results that could limit our ability to prevent third parties from competing with our drug candidates.

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 noncompliance with these requirements.

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and other foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign national or international patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of patent rights include, but are not limited to, failure to timely file national and regional stage patent applications based on our international patent application, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we fail to maintain the patents and patent applications covering any of our product candidates, our competitors might be able to enter the market earlier than anticipated, which would harm our business.

We may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.

The issuance of a patent does not give us the right to practice the patented invention. A third party may hold intellectual property, including patent rights, that are important or necessary to the development of our product candidates. Third parties may also have blocking patents that could prevent us from marketing our products or practicing our own patented technology. It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our drug candidates, in which case we would be required to obtain a license from these third parties on commercially reasonable terms. Such a license may not be available, or it may not be available on commercially reasonable terms, in which case our business would be harmed.

The risks described elsewhere pertaining to our intellectual property rights also apply to any intellectual property rights that we may in-license, and any failure by us or our potential licensors to obtain, maintain, defend and enforce these rights could harm our business. In some cases we may not have control over the prosecution, maintenance or enforcement of the patents that we may license, and may not have sufficient ability to provide input into the patent prosecution, maintenance and defense process with respect to such patents, and our potential

licensors may fail to take the steps that we believe are necessary or desirable in order to obtain, maintain, defend and enforce the licensed patents.

Third-party claims or litigation alleging infringement of patents or other proprietary rights, or seeking to invalidate patents or other proprietary rights, may delay or prevent the development and commercialization of any of our product candidates including our lead product candidate, CT1812.

Our commercial success depends in part on our avoiding infringement and other violations of the patents and proprietary rights of third parties. However, while certain research, development and commercialization activities may be protected by the safe harbor provision of the Hatch Waxman Act, other activities may subject to claims that we infringe or otherwise violate patents or other intellectual property rights owned or controlled by third parties. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, derivation and administrative law proceedings, *inter partes* review and post-grant review before the USPTO, as well as oppositions and similar processes in foreign jurisdictions. Numerous United States and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we and our collaborators are developing product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, and as we gain greater visibility and market exposure as a public company, the risk increases that our product candidates or other business activities may be subject to claims of infringement of the patent and other proprietary rights of third parties. Third parties may assert that we are infringing their patents or employing their proprietary technology without authorization.

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 candidates. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our product candidates, any molecules formed during the manufacturing process or any final product itself, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire. Similarly, if any third-party patent was to be held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or methods of use, including combination therapy, the holders of any such patent may be able to block our ability to develop and commercialize the applicable product candidate unless we obtained a license or until such patent expires. In either case, such a license may not be available on commercially reasonable terms or at all. In addition, we may be subject to claims that we are infringing other intellectual property rights, such as trademarks or copyrights, or misappropriating the trade secrets of others, and to the extent that our employees, consultants or contractors use intellectual property or proprietary information owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful infringement or other intellectual property claim against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our affected 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. Furthermore, 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 candidates, and we have done so from time to time. 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 one or more of our product candidates, which could harm our business significantly. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

Some of our competitors may be able to sustain the costs of complex intellectual property litigation more effectively than we can because they have substantially greater resources. In addition, intellectual property litigation, regardless of its outcome, may cause negative publicity, adversely impact prospective customers, cause product shipment delays, or prohibit us from manufacturing, marketing or otherwise commercializing our products, services and technology. Any uncertainties resulting from the initiation and continuation of any litigation could adversely impact our ability to raise additional funds or otherwise harm our business, results of operation, financial condition or cash flows.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments, which could adversely impact the price of our common shares. If securities analysts or investors perceive these results to be negative, it could adversely impact the price of our common shares. The occurrence of any of these events may harm our business, results of operation, financial condition or cash flows.

We cannot provide any assurances that third-party patents do not exist which might be enforced against our drugs or product candidates, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties or other forms of compensation to third parties.

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

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States and abroad that is or may be relevant to or necessary for the commercialization of our product candidates in any jurisdiction. Patent applications in the United States and elsewhere are not published until approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. In addition, U.S. patent applications filed before November 29, 2000 and certain U.S. patent applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Therefore, patent applications covering our products could have been filed by others without our knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our product candidates or the use of our products.

The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, and our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products.

If we fail to identify and correctly interpret relevant patents, we may be subject to infringement claims. We cannot guarantee that we will be able to successfully settle or otherwise resolve such infringement claims. If we fail in any such dispute, in addition to being forced to pay damages, we may be temporarily or permanently prohibited from commercializing any of our products that are held to be infringing. We might, if possible, also be forced to redesign products or services so that we no longer infringe the third-party intellectual property rights. Any of these events, even if we were ultimately to prevail, could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business.

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

Competitors may infringe or otherwise violate our patents or our other intellectual property rights. To counter infringement or unauthorized use, we may be required to file legal claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. As a result, we cannot predict with certainty how much protection, if any, will be given to our patents if we attempt to enforce them and they are challenged in court. Further, even if we prevail against an infringer in U.S. district court, there is always the risk that the infringer will file an appeal and the district court judgment will be overturned at the appeals court and/or that an adverse decision will be issued by the appeals court relating to the validity or enforceability of our patents. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing. The initiation of a claim against a third party may also cause the third party to bring counter claims against us such as claims asserting that our patents are invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement or lack of written description or statutory subject matter. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant material information from the USPTO, or made a materially misleading statement, during prosecution. Third parties may also raise similar validity claims before the USPTO in post-grant proceedings such as ex parte reexaminations, *inter partes* review, or post-grant review, or oppositions or similar proceedings outside the United States, in parallel with litigation or even outside the context of litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable. We cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of any future patent protection on our current or future product candidates.

We may not be able to detect or prevent misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States. Our business could be harmed if in litigation the prevailing party does not offer us a license on commercially reasonable terms. Any litigation or other proceedings to enforce our intellectual property rights may fail, and even if successful, may result in substantial costs and distract our management and other employees.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could harm the price of our common shares.

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, any patents that may be issued as a result of our pending or future 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.

Changes in U.S. patent law or the patent law of other countries or jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our product including our lead product candidate, CT1812.

The United States has recently enacted and implemented wide-ranging patent reform legislation. In addition, patent reform legislation may pass in the future that could lead to additional uncertainties and increased costs surrounding the prosecution, enforcement and defense of our patents and pending patent applications. The United States Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on actions by the United States Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce patents that we own or that we might obtain in the future. Similarly, changes in patent law and regulations in other countries or jurisdictions or changes in the governmental bodies that enforce them or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we own or that we may obtain in the future. We cannot predict future changes in the interpretation of patent laws or changes to patent laws that might be enacted into law by United States and foreign legislative bodies. Those changes may materially affect our patents or patent applications and our ability to obtain additional patent protection in the future. The United States federal government retains certain rights in inventions produced with its financial assistance under the Bayh-Dole Act. The federal government retains a “nonexclusive, nontransferable, irrevocable, paid-up license” for its own benefit. The Bayh-Dole Act also provides federal agencies with “march-in rights.” March-in rights allow the government, in specified circumstances, to require the contractor or successors in title to the patent to grant a “nonexclusive, partially exclusive, or exclusive license” to a “responsible applicant or applicants.” If the patent owner refuses to do so, the government may grant the license itself.

We may not be able to protect our intellectual property rights throughout the world, which could impair our business.

Filing, prosecuting and defending patents covering any of our product candidates throughout the world would be prohibitively expensive. 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 may obtain patent protection, but where patent enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued patents and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing. We do not have patent rights in certain foreign countries in which a market may exist. Moreover, many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of some countries do not favor the enforcement of patents and other intellectual property protection, which could make it difficult for us to stop the infringement of our patents generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. Additionally, such proceedings 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. Thus, we may not be able to stop a competitor from marketing and selling in foreign countries products and services that are the same as or similar to our products and services, and our competitive position in the international market would be harmed.

Many countries, including European Union countries, India, Japan and China, have compulsory licensing laws under which a patent owner may be compelled under specified circumstances to grant licenses to third parties. 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 our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop.

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.

Because we expect to rely on third parties to manufacture our product candidates, and we expect to continue to collaborate with third parties on the development of our product candidates, we must, at times, share trade secrets with them. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information 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. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share our facilities or third-party consultants and vendors that we engage to perform research, clinical trials or manufacturing activities, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Further, adequate remedies may not exist in the event of unauthorized use or disclosure. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may harm our business and results of operations.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets, although our agreements may contain certain limited publication rights. Policing unauthorized use of our intellectual property is difficult, expensive and time-consuming, and we may be unable to determine the extent of any unauthorized use. Moreover, 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. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any of our third-party collaborators. A competitor's discovery of our trade secrets would impair our competitive position and have an adverse impact on our business.

We may be subject to claims that our employees, consultants, independent contractors or we have wrongfully used or disclosed confidential information of their former employers or other third parties.

We do and may employ individuals who were previously employed at universities or other biotechnology or pharmaceutical companies, competitors or potential competitors. Although we seek to protect our ownership of intellectual property rights by ensuring that our agreements with our employees, collaborators and other third parties with whom we do business include provisions requiring such parties to assign rights in inventions to us and to not use the confidential information of their former employer, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Such intellectual property rights could be awarded to a third party, and we could be required to obtain a license from such third party to commercialize our technology or product candidates. Such a license may not be available on commercially reasonable terms or at all. Even if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees. Moreover, any such litigation or the threat thereof may harm our reputation, our ability to form strategic alliances or sublicense our rights to collaborators, engage with scientific advisors or hire employees or consultants, each of which would harm our business, results of operations and financial condition.

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

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patents, trade secrets, or other intellectual property as an inventor or co-inventor. For example, we may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our product candidates. Litigation may be necessary to defend against these and other claims challenging inventorship or our ownership of our patents, trade secrets or other 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, intellectual property that is important to our product candidates. 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. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

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

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to management.

Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities, and have a harmful effect on the success of our business.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could adversely impact the price of our common shares. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating our intellectual property. In addition, the uncertainties associated with litigation could compromise our ability to raise the funds necessary to continue our clinical trials and internal research programs. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace, including compromising our ability to raise the funds necessary to continue our clinical trials, continue our research programs, license necessary technology from third parties, or enter into development collaborations that would help us commercialize our product candidates, if approved.

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

In addition to seeking patents for our product candidates, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. We seek to protect our trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. Despite these efforts, any of these parties may

breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Monitoring unauthorized uses and disclosures of our intellectual property is difficult, and we do not know whether the steps we have taken to protect our intellectual property will be effective. In addition, we may not be able to obtain adequate remedies for any such breaches. 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. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

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

We expect to rely on trademarks as one means to distinguish any of our drug candidates that are approved for marketing from the products of our competitors. Once we select new trademarks and apply to register them, our trademark applications may not be approved. Third parties may oppose or attempt to cancel our trademark applications or trademarks, or otherwise challenge our use of the trademarks. In the event that our trademarks are successfully challenged, we could be forced to rebrand our drugs, which could result in loss of brand recognition and could require us to devote resources to advertising and marketing new brands. Our competitors may infringe our trademarks and we may not have adequate resources to enforce our trademarks. If we attempt to enforce our trademarks and 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.

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

Certain provisions in our intellectual property agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could affect the scope of our rights to the relevant intellectual property or technology, or affect financial or other obligations under the relevant agreement, either of which could harm our business, financial condition, results of operations and prospects. For example, the NIA has provided grants to fund certain of our preclinical activities and clinical trials. If the United States or another jurisdiction decides that the NIA grant bestows rights to our patent applications, that could affect our ability to obtain valid and enforceable patent claims protecting our rights as they relate to our lead product candidate, CT1812, our other product candidates and our NICE platform. As a consequence of these and other factors, our patent applications may fail to result in issued patents with claims that cover our product candidates in the United States or in other countries. Such a loss of patent protection could harm our business.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage.

Once granted, patents may remain open to invalidity challenges including opposition, interference, re-examination, post-grant review, *inter partes* review, nullification or derivation action in court or before patent offices or similar proceedings for a given period after allowance or grant, during which time third parties can raise objections against such grant. In the course of such proceedings, which may continue for a protracted period of time, the patent owner may be compelled to limit the scope of the allowed or granted claims thus attacked, or may lose the allowed or granted claims altogether.

In addition, the degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, provide a barrier to entry against our competitors or potential competitors, or permit us to maintain our competitive advantage. Moreover, if a third party has intellectual property rights that cover the practice of our technology, we may not be able to fully exercise or extract value from our intellectual property rights. The following examples are illustrative:

- others may be able to make product that is similar to product candidates we intend to commercialize that is not covered by the patents that we own;
- we, or any collaborators might not have been the first to make or reduce to practice the inventions covered by the issued patents or pending patent applications that we own;
- we or any collaborators might not have been the first to file patent applications covering certain of our inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- it is possible that our pending patent applications will not lead to issued patents;
- issued patents that we own may not provide us with any competitive advantages, or may be held invalid or unenforceable as a result of legal challenges;
- our competitors might conduct research and development activities in the United States and other countries that provide a safe harbor from patent infringement claims for certain research and development activities, as well as in countries where we do not have patent rights, and then use the information learned from such activities to develop competitive products for sale in our major commercial markets; and we may not develop additional proprietary technologies that are patentable;
- third parties performing manufacturing or testing for us using our products or technologies could use the intellectual property of others without obtaining a proper license;
- parties may assert an ownership interest in our intellectual property and, if successful, such disputes may preclude us from exercising exclusive rights over that intellectual property;
- we may not develop additional proprietary technologies that are patentable;
- we may not be able to obtain and maintain necessary licenses on commercially reasonable terms, or at all; and
- the patents of others may harm our business.

Should any of these events occur, they could significantly harm our business and results of operations.

Risks Related to Commercialization, Manufacturing and Reliance on Third Parties

Even if our current or future product candidates obtain regulatory approval, they may fail to achieve the broad degree of adoption and use by physicians, patients, hospitals, healthcare payors and others in the medical community necessary for commercial success.

Even if one or more of our product candidates receive FDA or other regulatory approvals, they may nonetheless fail to gain sufficient market acceptance by physicians, patients, healthcare payors and others in the medical community. Most of our product candidates target mechanisms for which there are limited or no currently approved products, which may result in slower adoption by physicians, patients and payors. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant product 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 the product is approved and patient demand for approved products that treat those indications;
- the safety and efficacy of our product as compared to other available therapies;
- the availability of coverage and adequate reimbursement from governmental healthcare plans or third party payors for any of our product candidates that may be approved;
- acceptance by physicians, operators of clinics and patients of the product as a safe and effective treatment;
- physician and patient willingness to adopt a new therapy over other available therapies to treat approved indications;

- overcoming any biases physicians or patients may have toward particular therapies for the treatment of approved indications;
- proper training and administration of our product candidates by physicians and medical staff;
- public misperception regarding the use of our therapies, if approved for commercial sale;
- patient satisfaction with the results and administration of our product candidates and overall treatment experience, including, for example, the convenience of any dosing regimen;
- the cost of treatment with our product candidates in relation to alternative treatments and reimbursement levels, if any, and willingness to pay for the product, if approved, on the part of insurance companies and other third-party payors, physicians and patients;
- the revenue and profitability that our products may offer a physician as compared to alternative therapies;
- limitations or warnings contained in the FDA-approved labeling for our products;
- any FDA requirement to undertake a REMS;
- the effectiveness of our sales, marketing and distribution efforts;
- adverse publicity about our products or favorable publicity about competitive products; and
- potential product liability claims.

We cannot assure you that our current or future product candidates, if approved, will achieve broad market acceptance among physicians, patients, healthcare payors and others in the medical community. Even if we receive regulatory approval to market any of our product candidates, we cannot assure you that any such product candidate will be more effective than other commercially available alternatives or successfully commercialized. Any approval we may obtain could be for indications or patient populations that are not as broad as intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. We may also be required to perform additional or unanticipated clinical trials to obtain approval or be subject to additional post-marketing testing requirements to maintain approval. In addition, regulatory authorities may withdraw their approval of a product or impose restrictions on its distribution, such as in the form of a REMS. Any failure by our product candidates that obtain regulatory approval to achieve market acceptance or commercial success would adversely affect our reputation, ability to raise additional capital, financial condition, results of operations and business prospects.

The market opportunities for CT1812, if approved, may be smaller than we anticipate.

We expect to initially seek approval for CT1812 for AD, dry AMD, PD and DLB and other age-related degenerative diseases and disorders of the CNS and retina. Our estimates of market potential have been derived from a variety of sources, including scientific literature, patient foundations and market research and may prove to be incorrect. Even if we obtain significant market share for CT1812 after FDA approval, the potential target populations may be too small to consistently generate revenue, and we may never achieve profitability without obtaining marketing approval for additional indications.

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

We do not currently have nor do we plan to build or acquire the infrastructure or capability internally to manufacture supplies of our product candidates or the materials necessary to produce our product candidates for use in the conduct of our preclinical studies or clinical trials, and we lack the internal resources and the capability to manufacture any of our product candidates on a preclinical, clinical or commercial scale. The facilities used by our contract manufacturers to manufacture our product candidates are subject to various regulatory requirements and may be subject to the inspection of the FDA or other regulatory authorities. We do not control the manufacturing processes of, and are completely dependent on, our contract manufacturing partners for compliance with the regulatory requirements, known as cGMPs. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or comparable

regulatory authorities in foreign jurisdictions, we may not be able to rely on their manufacturing facilities for the manufacture of our product candidates. In addition, we have limited control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority finds these facilities inadequate for the manufacture of our product candidates or if such facilities are subject to enforcement action in the future or are otherwise inadequate, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates.

We currently rely on third parties at key stages in our supply chain. For instance, the supply chains for our lead product candidate involves several manufacturers that specialize in specific operations of the manufacturing process, specifically, raw materials manufacturing, drug substance manufacturing and drug product manufacturing. As a result, the supply chain for the manufacturing of our product candidates is complicated, and we expect the logistical challenges associated with our supply chain to grow more complex as our product candidates are further developed.

We do not have any control over the process or timing of the acquisition or manufacture of materials by our manufacturers. We generally do not begin preclinical or clinical trials unless we believe we have access to a sufficient supply of a product candidate to complete such study. In addition, any significant delay in, or quality control problems with respect to, the supply of a product candidate, or the raw material components thereof, for an ongoing study could considerably delay completion of our preclinical or clinical trials, product testing and potential regulatory approval of our product candidates.

We have not yet engaged any manufacturers for the commercial supply of our product candidates. Although we intend to enter into such agreements prior to commercial launch of any of our product candidates, we may be unable to enter into any such agreement or do so on commercially reasonable terms, which could have a material adverse impact upon our business. Moreover, if there is a disruption to one or more of our third-party manufacturers' or suppliers' relevant operations, or if we are unable to enter into arrangements for the commercial supply of our product candidates, we will have no other means of producing our product candidates until they restore the affected facilities or we or they procure alternative manufacturing facilities or sources of supply. Our ability to progress our preclinical and clinical programs could be materially and adversely impacted if any of the third-party suppliers upon which we rely were to experience a significant business challenge, disruption or failure due to issues such as financial difficulties or bankruptcy, issues relating to other customers such as regulatory or quality compliance issues, or other financial, legal, regulatory or reputational issues. Additionally, any damage to or destruction of our third-party manufacturers' or suppliers' facilities or equipment may significantly impair our ability to manufacture our product candidates on a timely basis.

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

Our product candidates have never been manufactured on a commercial scale, and there are risks associated with scaling up manufacturing to commercial scale. In particular, we will need to develop a larger scale manufacturing process that is more efficient and cost-effective to commercialize our potential products, which may not be successful.

Our product candidates have never been manufactured on a commercial scale, and there are risks associated with scaling up manufacturing to commercial scale including, among others, cost overruns, potential problems with

process scale-up, process reproducibility, stability issues, lot consistency and timely availability of raw materials. There is no assurance that our third-party manufacturers will be successful in establishing a larger-scale commercial manufacturing process for our product candidates which achieves our objectives for manufacturing capacity and cost of goods. In addition, there is no assurance that our third-party manufacturers will be able to manufacture our product candidates to specifications acceptable to the FDA or other regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential launch of such products or to meet potential future demand. Our failure to properly or adequately scale scaling up manufacturing for commercial scale would adversely affect our business, results of operations and financial condition.

We rely on third parties in the conduct of all of our clinical trials. If these third parties do not successfully carry out their contractual duties, fail to comply with applicable regulatory requirements or meet expected deadlines, we may be unable to obtain regulatory approval for our product candidates.

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

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

We face significant competition in an environment of rapid technological and scientific change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer, more advanced or more effective than ours, which may negatively impact our ability to successfully market or commercialize any product candidates we may develop and ultimately harm our financial condition.

The development and commercialization of new drug products is highly competitive. Moreover, the neurodegenerative field is characterized by strong and increasing competition, and a strong emphasis on intellectual property. We may face competition with respect to any of our 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.

There are a number of large pharmaceutical and biotechnology companies that are currently pursuing the development of product candidates for the treatment of the diseases and disorders for which we have research programs, including AD, dry AMD, PD and DLB. Companies developing therapeutics for similar indications include large companies with significant financial resources, such as AbbVie, AstraZeneca, Biogen, Celgene, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Novartis, Pfizer, Roche, Sanofi and Takeda. In addition to competition from other companies targeting neurodegenerative indications, any products we may develop may also face competition from other types of therapies.

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, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products 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 products that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop. Furthermore, currently approved products could be discovered to have application for treatment of age-related degenerative diseases and disorders, which could give such products significant regulatory and market timing advantages over any of our product candidates. Our competitors also may obtain FDA, EMA or other regulatory approval for their products more rapidly than we may obtain approval for ours and may obtain orphan product exclusivity from the FDA for indications our product candidates are targeting, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, products 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.

In addition, we could face litigation or other proceedings with respect to the scope, ownership, validity and/or enforceability of our patents relating to our competitors' products and our competitors may allege that our products infringe, misappropriate or otherwise violate their intellectual property. The availability of our competitors' products could limit the demand, and the price we are able to charge, for any products that we may develop and commercialize. See "Risks Related to Our Intellectual Property." The successful commercialization of our product candidates will depend in part on the extent to which governmental authorities and health insurers establish adequate coverage, reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our product candidates, if approved, could limit our ability to market those products and decrease our ability to generate revenue.

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

The availability and adequacy of coverage and reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford prescription medications such as our product candidates, if approved. Our ability to achieve acceptable levels of coverage and reimbursement for products by governmental authorities, private health insurers and other organizations will have an effect on our ability to successfully commercialize our product candidates. Even if we obtain coverage for our product candidates by a third-party payor, the resulting reimbursement payment

rates may not be adequate or may require co-payments that patients find unacceptably high. We cannot be sure that coverage and reimbursement in the United States, the European Union or elsewhere will be available for our product candidates or any product that we may develop, and any reimbursement that may become available may be decreased or eliminated in the future.

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

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

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

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other foreign jurisdictions have and will continue to put pressure on the pricing and usage of our product candidates. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amounts that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our product candidates may be reduced compared with the United States and may be insufficient to generate commercially-reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products, and, as a result, they may not cover or provide adequate payment for our product candidates. We expect to experience pricing pressures in connection with the sale of our product candidates due to the trend toward managed health care, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and biologics and surgical procedures and other treatments, has become intense. As a result, increasingly high barriers are being erected to the entry of new products.

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

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

Risks Related to Government Regulation

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

If our product candidates are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing studies and submission of safety, efficacy and other post-market information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMPs and adherence to commitments made in any approved marketing application. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

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

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

- issue warning letters, untitled letters, or Form 483s;
- impose civil or criminal penalties;
- suspend or withdraw regulatory approval;
- suspend any of our clinical trials;
- refuse to approve pending applications or supplements to approved applications submitted by us;
- impose restrictions on our operations, including closing our contract manufacturers' facilities; or
- seize or detain products, or require a product recall.

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

Healthcare legislation, including potentially unfavorable pricing regulations or other healthcare reform initiatives, may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates.

The United States and many foreign jurisdictions have enacted or proposed legislative and regulatory changes affecting the healthcare system. The United States government, state legislatures and foreign governments also have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription products. In recent years, Congress has considered reductions in Medicare reimbursement levels for products administered by physicians. CMS, the agency that administers the Medicare and Medicaid programs, also has authority to revise reimbursement rates and to implement coverage restrictions for some products. Cost reduction initiatives and changes in coverage implemented through legislation or regulation could decrease utilization of and reimbursement for any approved products. While Medicare regulations apply only to drug benefits for Medicare beneficiaries, private payers often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from federal legislation or regulation may result in a similar reduction in payments from private payers.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively the Affordable Care Act substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacts the pharmaceutical industry. The Affordable Care Act is intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against healthcare fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on pharmaceutical and medical device manufacturers, and impose additional health policy reforms. Among other things, the Affordable Care Act expanded manufacturers' rebate liability under the Medicaid Drug Rebate Program by increasing the minimum Medicaid rebate for both branded and generic products, expanded the 340B program, and revised the definition of average manufacturer price, or AMP, which could increase the amount of Medicaid rebates manufacturers are required to pay to states. The legislation also extended Medicaid rebates, previously due only on fee-for-service Medicaid utilization, to include the utilization of Medicaid managed care organizations as well and created an alternative rebate formula for certain new formulations of certain existing products that is intended to increase the amount of rebates due on those products. On February 1, 2016, CMS issued final regulations to implement the changes to the Medicaid Drug Rebate program under the Affordable Care Act. These regulations became effective on April 1, 2016. Since that time, there have been significant ongoing efforts to modify or eliminate the Affordable Care Act. The Tax Act, enacted on December 22, 2017, repealed the shared responsibility payment for individuals who fail to maintain minimum essential coverage under section 5000A of the Internal Revenue Code of 1986, as amended, or the Code, commonly referred to as the individual mandate.

Other legislative changes have been proposed and adopted since the passage of the Affordable Care Act. The Budget Control Act of 2011, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve its targeted deficit reduction of an amount greater than \$1.2 trillion for the fiscal years 2012 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions included aggregate reductions to Medicare payments to healthcare providers of up to 2.0% per fiscal year, which went into effect in April 2013. Subsequent legislation extended the 2% reduction, on average, to 2030 unless additional Congressional action is taken. However, pursuant to the Coronavirus Aid, Relief and Economic Security Act, or CARES Act, the 2% Medicare sequester reductions were suspended from May 1, 2020 through December 31, 2021 due to the COVID-19 pandemic. The sequester will remain in place through 2030. On January 2, 2013, the American Taxpayer Relief Act was signed into law, which, among other things, reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

The Affordable Care Act has also been subject to challenges in the courts. On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. On December 18, 2019, the Fifth Circuit U.S. Court of Appeals held that the individual mandate is unconstitutional and remanded the case to the Texas District Court to reconsider its earlier invalidation of the entire Affordable Care Act. An appeal was taken to the U.S. Supreme Court. On June 17, 2021, the Supreme Court ruled that the plaintiffs lacked standing to challenge the law as they had not alleged personal injury traceable to the allegedly unlawful conduct. As a result, the Supreme Court did not rule on the constitutionality of the ACA or any of its provisions.

Further changes to and under the Affordable Care Act remain possible but it is unknown what form any such changes or any law proposed to replace or revise the Affordable Care Act would take, and how or whether it may affect our business in the future. We expect that changes to the Affordable Care Act, the Medicare and Medicaid programs, changes allowing the federal government to directly negotiate prices and changes stemming from other healthcare reform measures, especially with regard to healthcare access, financing or other legislation in individual states, could have a material adverse effect on the healthcare industry.

At the state level, legislatures have increasingly passed legislation and implemented 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.

We expect that additional federal, state and foreign healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in limited coverage and reimbursement and reduced demand for our products, once approved, or additional pricing pressures.

If we develop a small molecule product candidate that obtains regulatory approval, additional competitors could enter the market with generic versions of such drugs, which may result in a material decline in sales of affected products.

Under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, a pharmaceutical manufacturer may file an abbreviated new drug application, or ANDA, seeking approval of a generic version of an approved, small molecule innovator product. Under the Hatch-Waxman Act, a manufacturer may also submit an NDA, under section 505(b)(2) of the Federal Food, Drug, and Cosmetic Act that references the FDA's prior approval of the small molecule innovator product. A 505(b)(2) NDA product may be for a new or improved version of the original innovator product. The Hatch-Waxman Act also provides for certain periods of regulatory exclusivity, which preclude FDA approval (or in some circumstances, FDA filing and review) of an ANDA or 505(b)(2) NDA. In addition to the benefits of regulatory exclusivity, an innovator NDA holder may have patents claiming the active ingredient, product formulation or an approved use of the drug, which would be listed with the product in the FDA publication, "Approved Drug Products with Therapeutic Equivalence Evaluations,"

known as the Orange Book. If there are patents listed in the Orange Book for a product, a generic or 505(b)(2) applicant that seeks to market its product before expiration of the patents must include in their applications what is known as a “Paragraph IV” certification, challenging the validity or enforceability of, or claiming non-infringement of, the listed patent or patents. Notice of the certification must be given to the patent owner and NDA holder and if, within 45 days of receiving notice, either the patent owner or NDA holder sues for patent infringement, approval of the ANDA or 505(b)(2) NDA is stayed for up to 30 months.

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

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

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

Our activities are subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal civil False Claims Act, and laws and regulations pertaining to limitations on and reporting of healthcare provider payments (physician sunshine laws). These laws and regulations are interpreted and enforced by various federal, state and local authorities including CMS, the Office of Inspector General for the U.S. Department of Health and Human Services, the U.S. Department of Justice, individual U.S. Attorney offices within the Department of Justice, and state and local governments. These laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, lease, order, or arranging for or recommending the purchase, lease or order of, any good or service, for which payment may be made, in whole or in part, under federal healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the U.S. civil False Claims Act (which can be enforced through “qui tam,” or whistleblower actions, by private citizens on behalf of the federal government), prohibits any person from, among other things, knowingly presenting, or causing to be presented false or fraudulent claims for payment of government funds or knowingly making, using or causing to be made or used, a false record or statement material to an obligation to pay money to the government or knowingly and improperly avoiding, decreasing or concealing an obligation to pay money to the U.S. federal government;
- U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal liability and amends provisions on the reporting, investigation, enforcement, and penalizing of civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for healthcare benefits, items or services by a healthcare benefit program, which includes both government and privately funded benefits programs; similar to the U.S. federal Anti-Kickback Statute, a

person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- state laws and regulations, including state anti-kickback and false claims laws, that may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payer, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities;
- the Physician Payments Sunshine Act, implemented as the Open Payments program, and its implementing regulations, requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to CMS information related to certain payments made in the preceding calendar year and other transfers of value to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; beginning in 2022, applicable manufacturers are required to report such information regarding payments and transfers of value provided, as well as ownership and investment interests held, during the previous year to physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives;
- the U.S. Foreign Corrupt Practices Act of 1977, as amended, which prohibits, among other things, U.S. companies and their employees and agents from authorizing, promising, offering or providing, directly or indirectly, corrupt or improper payments or anything else of value to foreign government officials, employees of public international organizations and foreign government owned or affiliated entities, candidates for foreign political office and foreign political parties or officials thereof; and
- similar data protection and healthcare laws and regulations in the European Union and other jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers and laws governing the privacy and security of personal data, including the GDPR, which imposes obligations and restrictions on the collection and use of personal data relating to individuals located in the European Union and European Economic Area (including with regard to health data).

Violations of any of these laws or any other governmental regulations that may apply to us, may subject us to significant civil, criminal and administrative sanctions including penalties, damages, fines, imprisonment, and exclusion from government funded healthcare programs, such as Medicare and Medicaid, and/or adverse publicity. Moreover, government entities and private litigants have asserted claims under state consumer protection statutes against pharmaceutical companies for alleged false or misleading statements in connection with the marketing, promotion and/or sale of pharmaceutical products. Further, defending against any such actions can be costly and time-consuming and may require significant personnel resources. Even if we are successful in defending against any such actions that may be brought against us, our business may be impaired.

Changes in tax laws and regulations may have a material adverse effect on our business, financial condition and results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could affect the tax treatment of any of our future domestic and foreign earnings. Any new taxes could adversely affect our domestic and international business operations, and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, the U.S. government enacted significant tax reforms in the past, and certain provisions of any new laws may adversely affect us. Changes in recent years include, but are not limited to, a federal corporate tax rate decrease to 21% for tax years beginning after December 31, 2017, a reduction to the maximum deduction allowed for net operating losses generated in tax years after December 31, 2017, eliminating carrybacks of net operating losses, and providing for indefinite carryforwards for losses generated in tax years after

December 31, 2017. The legislation is unclear in many respects and could be subject to potential amendments and technical corrections, and will be subject to interpretations and implementing regulations by the Treasury and Internal Revenue Service, any of which could mitigate or increase certain adverse effects of the legislation. In addition, it is unclear how these U.S. federal income tax changes will affect state and local taxation. Generally, future changes in applicable U.S. tax laws and regulations, or their interpretation and application could have an adverse effect on our business, financial conditions and results of operations.

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

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

Risks Related to Our Common Stock

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

The trading price of our common stock could be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. In particular, the trading prices for biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. These factors include those discussed in this "Risk Factors" section and others such as:

- results from, and any delays in, our current and future clinical trials with CT1812 or any other future clinical development programs, including any delays related to the COVID-19 pandemic;
- announcements of regulatory approval or disapproval of CT1812 or any future product candidates;
- failure or discontinuation of any of our research and development programs;
- the termination of any future collaborations or license agreements;
- delays in the commercialization of CT1812 or any future product candidates;
- public misperception regarding the use of our product candidates;
- acquisitions and sales of new products or product candidates, technologies or businesses;
- manufacturing and supply issues related to our product candidates for clinical trials or future product candidates for commercialization;
- quarterly variations in our results of operations or those of our competitors;
- changes in coverage and recommendations by securities analysts;
- announcements by us or our competitors of new products or product candidates, significant contracts, commercial relationships, acquisitions or capital commitments;

- developments with respect to intellectual property rights;
- our commencement of, or involvement in, litigation;
- changes in financial estimates or guidance;
- any major changes in our board of directors or management;
- new legislation or regulation in the United States relating to the sale or pricing of pharmaceuticals;
- FDA or other U.S. or foreign regulatory actions affecting us or our industry;
- product liability claims or other litigation or public concern about the safety of our product candidates;
- market conditions in the biopharmaceutical sectors; and
- general economic conditions in the United States and abroad.

In addition, the stock markets in general, and the markets for biopharmaceutical stocks in particular, have experienced extreme volatility that may have been unrelated to the operating performance of the issuer. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock.

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 Jumpstart Our Business Startups Act of 2012, or 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 (1) the last day of the fiscal year (a) following the fifth anniversary of the closing of our IPO, (b) in which we have total annual gross revenue of at least \$1.07 billion, or (c) 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 (2) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

Under Section 107(b) of the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. Even after we no longer qualify as an emerging growth company, we may, under certain circumstances, still qualify as a “smaller reporting company,” which would allow us to take advantage of many of the same exemptions from disclosure requirements, including reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements.

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

Because we expect our expenses to increase significantly in the foreseeable future and because, based on our current business plans, we believe that the net proceeds from our IPO, together with our cash, cash equivalents, and marketable securities prior to the IPO, will be sufficient for us to fund our operating and capital expenditures into the second half of 2023. We may from time to time issue additional shares of common stock or other securities. These issuances may be at a discount from the current trading price of our common stock. As a result, our stockholders would experience dilution upon the purchase of any shares of our common stock sold at such discount. In addition, as opportunities present themselves, we may enter into financing or similar arrangements in the future, including the issuance of debt securities, preferred stock or common stock. If we issue common stock or securities convertible into common stock, our common stockholders will experience additional dilution and, as a result, our stock price may decline.

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.

As of March 23, 2022, our executive officers, directors and current beneficial owners of 5% or more of our common stock and their respective affiliates beneficially owned approximately 41.4% 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 current market price of our common stock 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.

Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

If our stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale in connection with our IPO terminate, the trading price of our common stock could decline.

The lock-up agreements pertaining to our IPO will expire April 5, 2022 (the 180th day after the effectiveness of the registration statement on Form S-1 relating to our IPO). Based upon the number of shares outstanding as of December 31, 2021, after the lock-up agreements expire, up to approximately 10,931,039 additional shares of common stock will be eligible for sale in the public market, all of which shares are held by directors, executive officers, affiliates, and certain significant stockholders and will be subject to Rule 144 under the Securities Act. The underwriters may, however, in their sole discretion, permit our officers, directors and other stockholders who are subject to these lock-up agreements to sell shares prior to the expiration of the lock-up agreements.

In addition, following the closing of our IPO, we filed a registration statement on Form S-8 (File No. 333-260686) under the Securities Act, registering the issuance of 7,334,485 shares of our common stock subject to options or other equity awards issued or reserved for future issuance under our equity incentive plans. Shares registered under the registration statement on Form S-8 will be available for sale in the public market subject to vesting arrangements and exercise of options, the lock-up agreements described above and the restrictions of Rule 144 in the case of our affiliates.

Subsequent to the IPO, holders of approximately 3,377,925 shares of our common stock, or approximately 15.8% of our total outstanding shares of common stock, were entitled to rights with respect to the registration of their shares under the Securities Act, subject to the lock-up agreements described above (as applicable) and certain exceptions. Registration of these shares under the Securities Act would result in the shares becoming freely

tradable without restriction under the Securities Act, except for shares purchased by affiliates. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

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

As of December 31, 2021, we had federal net operating loss, or NOL, carryforwards of approximately \$44.6 million and state NOL carryforwards of approximately \$44.6 million available to offset future taxable income. Of the federal NOL carryforwards, \$26.2 million begin to expire in 2027, and \$18.4 million can be carried forward indefinitely. State NOL carryforwards will begin to expire in 2027. As of December 31, 2021, we had a foreign NOL carryforward of \$1.2 million in Australia that can be carried forward indefinitely. As of December 31, 2021, we also had \$5.0 million of federal research and development tax credit carryforwards available to reduce future income taxes. The federal research and development tax credits will begin to expire in 2027, if not utilized. Utilization of NOL carryforwards and credits may be subject to an annual limitation due to the “ownership change” provisions under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code. An “ownership change” is generally defined as a cumulative change in the ownership interest of significant stockholders over a rolling three-year period in excess of 50 percentage points. Similar provisions under state tax law may also apply. If finalized, Treasury Regulations currently proposed under Section 382 of the Code may further limit our ability to utilize our pre-change NOLs or credits if we undergo a future ownership change. We may experience an ownership change in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. Such ownership changes could result in the expiration of our NOL carryforwards and other tax attributes before they can be utilized and, if we are profitable, our future cash flows could be adversely affected due to our increased tax liability.

Additionally, under the Tax Cuts and Jobs Act, or the TCJA, as modified by the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, NOL carryforwards arising in tax years beginning after December 31, 2021 are limited to 80% of taxable income. Under the TCJA, federal NOL carryforwards arising in tax years beginning after December 31, 2017 may be carried forward indefinitely. Under the CARES Act, federal NOL carryforwards arising in tax years beginning after December 31, 2017 and before January 1, 2021 may be carried back to each of the five tax years preceding the tax year of such loss and temporarily suspends the 80% limitation mentioned above for this period. The changes in the carryforward and carryback periods as well as the limitation on use of NOL carryforwards may significantly impact our ability to use NOL carryforwards, particularly for tax years beginning after December 31, 2021, as well as the timing of any such use, and could adversely affect our results of operations.

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

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

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to elect a director to fill a vacancy, however occurring, including by an expansion of the board of directors, which prevents stockholders from being able to fill vacancies on our board of directors;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including voting or other rights or preferences, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the ability of our board of directors to alter our amended and restated bylaws without obtaining stockholder approval;

- the required approval of at least 66 2/3% of the shares entitled to vote at an election of directors to adopt, amend or repeal our amended and restated bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

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

Our third amended and restated certificate of incorporation and amended and restated bylaws provide that the Court of Chancery of the State of Delaware will be the exclusive forum for certain 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 third amended and restated certificate of incorporation and amended and restated bylaws provide that the Court of Chancery of the State of Delaware (or, in the event that the Court of Chancery does not have jurisdiction, the United States District Court for the District of Delaware or other state courts of the State of Delaware) is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our third amended and restated certificate of incorporation or our amended and restated bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine; provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act of 1934, as amended, or the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction; and provided further that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware.

Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Our third amended and restated certificate of incorporation and amended and restated bylaws, however, provide that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, employees or agents and arising under the Securities Act. The Supreme Court of Delaware has held that this type of exclusive federal forum provision is enforceable. There may be uncertainty, however, as to whether courts of other jurisdictions would enforce this provision, if applicable.

These choice of 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 any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims, although our stockholders will not be deemed to have waived our compliance with federal securities laws and the rules and regulations thereunder. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions,

and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find the choice of forum provision contained in our third amended and restated certificate of incorporation and amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

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

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

General Risk Factors

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

Our business is susceptible to general conditions in the global economy and in the global financial markets. Further, the impacts of political unrest, including as a result geopolitical tension, such as a deterioration in the relationship between the U.S. and China or escalation in conflict between Russia and Ukraine, including any additional sanctions, export controls or other restrictive actions that may be imposed by the U.S. and/or other countries against governmental or other entities in, for example, Russia, also could lead to disruption, instability and volatility in the global markets, which may have an adverse impact on our business or ability to access the capital markets. A severe or prolonged economic downturn, including a recession or depression resulting from the ongoing COVID-19 pandemic, or political disruption 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 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 materially and adversely affect our business, financial condition, results of operations and prospects, and we cannot anticipate all of the ways in which the political or economic climate and financial market conditions could adversely impact our business.

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

The trading market for our common stock may be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have, and may never obtain, research coverage by securities and industry analysts. If no or few securities or industry analysts commence coverage of us, the trading price for our stock could be negatively impacted. In the event we obtain securities or industry analyst coverage, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our clinical trials and operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We may be subject to securities litigation, which is expensive and could divert our management's attention.

In the past, companies that have experienced volatility in the market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Regardless of the

merits or the ultimate results of such litigation, securities litigation brought against us could result in substantial costs and divert our management's attention from other business concerns.

We have incurred, and will continue to incur, significant costs as a result of operating as a public company, and our management will devote substantial time to new compliance initiatives. We may fail to comply with the rules that apply to public companies, including Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, which could result in sanctions or other penalties that could materially and adversely affect our business, financial condition, results of operations and prospects.

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

We are subject to Section 404 and the related rules of the SEC, which generally require our management and independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting. Beginning with the second annual report that we will be required to file with the SEC, Section 404 requires an annual management assessment of the effectiveness of our internal control over financial reporting. However, for so long as we remain an emerging growth company as defined in the JOBS Act, we intend to take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not emerging growth companies, including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404. Once we are no longer an emerging growth company or, if prior to such date, we opt to no longer take advantage of the applicable exemption, we will be required to include an opinion from our independent registered public accounting firm on the effectiveness of our internal control over financial reporting.

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

We have incurred, and will continue to 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 The Nasdaq Stock Market LLC, 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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters is located in Purchase, New York where we currently occupy 2,864 square feet of office space under a lease that expires in May of 2029. We lease approximately 6,068 square feet of laboratory and office space located in Pittsburgh, Pennsylvania under leases that expire in June of 2023. We believe that our current facilities are adequate to meet our ongoing needs, and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

Item 3. Legal Proceedings

We are not aware of any pending legal actions that would, if determined adversely to us, have a material adverse effect on our business and operations.

We may, from time to time, become involved in disputes and proceedings arising in the ordinary course of business. In addition, as a public company, we are also potentially susceptible to litigation, such as claims asserting violations of securities laws. Any such claims, with or without merit, if not resolved, could be time-consuming and result in costly litigation. There can be no assurance that an adverse result in any future proceeding would not have a potentially material adverse effect on our business, results of operations, and financial condition.

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

Our common stock began trading on the Nasdaq Global Market under the symbol "CGTX" on October 8, 2021. Prior to that time, there was no public market for our common stock.

Holders

As of March 23, 2022, there were approximately 22,578,584 shares of our common stock outstanding held by approximately 118 holders of record. The actual number of holders of our common stock is greater than this number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers or held by 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 declared or paid any cash dividends on our common stock, and we do not currently intend to pay any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Any future determination to pay dividends will be made at the discretion of our board of directors subject to applicable laws and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. Our future ability to pay cash dividends on our common stock may be limited by any future debt instruments or preferred securities.

Recent Sales of Unregistered Securities: Purchases of Equity Securities by the Issuer or Affiliated Purchaser

From January 1, 2021 through December 31, 2021, we sold and issued the following unregistered securities, which share numbers have been adjusted, as appropriate, to reflect the 1-for-3.2345 reverse stock split which became effective on October 1, 2021:

- we granted stock options to employees, directors, and consultants covering an aggregate of 67,232 shares of common stock, at a weighted-average exercise price of \$2.25 per share;
- we issued an aggregate of 24,465 shares of common stock to employees for cash consideration in the aggregate amount of \$20 pursuant to stock option exercises;
- we issued an aggregate of 52,333 shares of common stock to consultants pursuant to exercise of the common stock warrants; and
- in May 2021, we issued an aggregate of 10,926,089 shares of Series B-1 convertible preferred stock at a conversion price per share of \$1.385. In connection with the completion of our IPO, all shares of Series B-1 convertible preferred-stock automatically converted into 3,377,925 shares of our common stock.

The sales and issuances of the securities described in this Item 5 were deemed to be exempt from registration under the Securities Act under either (i) Rule 701 promulgated under the Securities Act as offers and sale of securities pursuant to certain compensatory benefit plans and contracts relating to compensation in compliance with Rule 701 or (ii) Section 4(a)(2) of the Securities Act (and Regulation D or Regulation S promulgated thereunder) as transactions by an issuer not involving any public offering.

Use of Proceeds from our Initial Public Offering of Common Stock

On October 13, 2021, we completed our IPO. Our registration statements on Form S-1 (File Nos. 333- 257999 and 333-260128), each relating to the IPO were declared effective by the SEC on October 7, 2021. We issued 3,768,116 shares of our common stock at a price of \$12.00 per share for aggregate net cash proceeds of \$37.9 million, after deducting underwriting discounts and commissions and other offering related costs. None of the expenses associated with the IPO were paid to directors, officers, persons owning 10% or more of any class of equity securities, or to their associates, or to our affiliates. B. Riley Securities, Inc., or the Representative, acted as lead book running manager of the offering and as representative of the underwriters.

On November 10, 2021, the Representative provided notice to us that it had elected to exercise its over-allotment option in full to purchase 565,217 shares of our common stock. The Representative's exercise of the over-allotment option closed on November 12, 2021, resulting in net proceeds of \$6.3 million to us, after deducting underwriting discounts and commissions and other offering related expenses.

There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus, or the Prospectus, for our IPO, dated October 7, 2021, filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act.

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 conditions and results of operations should be read together with our consolidated financial statements and related notes included elsewhere in this Annual Report and our Prospectus for our IPO, dated October 7, 2021 and filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act. Some of the information with respect to our plans and strategy for our business, including forward-looking statements, involve risks and uncertainties. As a result of many factors, including those set forth in the section entitled "Risk Factors" in Part I, Item 1A of this Annual Report, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis. You should carefully read the section entitled "Risk Factors" in Part I, Item 1A of this Annual Report to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company engaged in the discovery and development of innovative, small molecule therapeutics targeting age-related degenerative diseases and disorders of the central nervous system, or CNS, and retina. Currently available therapies for these diseases are limited, with many diseases having no approved therapies or treatments. Our goal is to develop disease modifying treatments for patients with these degenerative disorders by initially leveraging our expertise in the σ -2 (sigma-2) receptor, or S2R, which is expressed by multiple cell types, including neuronal synapses, and acts as a key regulator of cellular damage commonly associated with certain age-related degenerative diseases of the CNS and retina. We believe that targeting the S2R complex represents a mechanism that is functionally distinct from other current approaches in clinical development for the treatment of degenerative diseases.

Since our inception in 2007, we have incurred significant operating losses and devoted substantially all of our time and resources to developing our lead product candidate, CT1812, building our intellectual property portfolio, raising capital and recruiting management and technical staff to support these operations. As of December 31, 2021, we had an accumulated deficit of \$94.0 million. We incurred net losses of \$11.7 million and \$7.8 million for the years ended December 31, 2021 and 2020, respectively.

To date, we have funded our operations primarily with proceeds from grants awarded by the National Institute of Aging, or NIA, a division of the National Institutes of Health, or NIH, and proceeds from our IPO, the sales of our convertible promissory notes, convertible preferred stock, Simple Agreements for Future Equity, or SAFEs, and stock option exercises. Since our inception, we have received approximately \$168.9 million in cumulative grant awards to fund our clinical trials, primarily from the NIA, and we have raised approximately \$102.0 million in net proceeds from sales of our equity securities, convertible notes, SAFEs, stock option exercises, and our IPO. As of December 31, 2021, we had cash and cash equivalents of \$54.7 million. On October 13, 2021, we completed our IPO, pursuant to which we issued and sold 3,768,116 shares of our common stock at a public offering price of \$12.00 per share. Additionally, on November 12, 2021, the underwriters exercise of their over-allotment option in full to purchase 565,217 shares of our common stock closed. In connection with the IPO, we received net proceeds of approximately \$44.2 million, after deducting underwriting discounts and commissions and other offering related expenses payable by us, which includes net proceeds of approximately \$6.3 million from the over-allotment exercise. We expect to continue to incur significant and increasing expenses and net losses for the foreseeable future, as we advance our current and future product candidates through preclinical and clinical development, manufacture drug product and drug supply, seek regulatory approval for our current and future product candidates, maintain and expand our intellectual property portfolio, hire additional research and development and business personnel and operate as a public company. 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, debt financings or other sources, such as potential collaboration agreements and strategic alliances, licensing or similar arrangements with third parties. To the extent available, we expect to continue our pursuit of non-dilutive research contributions, or grants, including additional NIA grant funding. However, we may fail to receive additional NIA grants, or 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 obtain additional NIA grants or 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.

Because of the numerous risks and uncertainties associated with product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to raise capital, maintain our research and development efforts, expand our business or continue our operations at planned levels, and as a result we may be forced to substantially reduce or terminate our operations.

We do not own or operate manufacturing facilities. We rely, and expect to continue to rely, on third parties for the manufacture of CT1812 for preclinical studies and clinical trials, as well as for commercial manufacture if CT1812 obtains marketing approval. We also rely, and expect to continue to rely, on third parties to manufacture, package, label, store, and distribute CT1812, if marketing approval is obtained. We believe that this strategy allows us to maintain a more efficient infrastructure by eliminating the need for us to invest in our own manufacturing facilities, equipment, and personnel while also enabling us to focus our expertise and resources on the development of CT1812.

Impact of COVID-19 on Our Business

Our business has been and could continue to be adversely affected by the effects of the recent and evolving COVID-19 pandemic, which was declared by the World Health Organization as a global pandemic. Our clinical trials have been, and may in the future be, affected by the COVID-19 pandemic. For example, the COVID-19 pandemic may impact patient enrollment in our ongoing and future clinical trials of CT1812. In particular, some sites have in the past or may in the future pause enrollment to focus on, and direct resources to, COVID-19, while at other sites, patients may choose not to enroll or continue participating in the clinical trial as a result of the pandemic. In addition, patient visits to medical providers in the United States have slowed as a result of the COVID-19 pandemic. Further, according to the Centers for Disease Control and Prevention, people who have serious chronic medical conditions are at higher risk of getting very sick from COVID-19. As a result, potential patients in our ongoing and future clinical trials of CT1812 may choose to not enroll, not participate in follow-up clinical visits or drop out of the trial as a precaution against contracting COVID-19. Further, some patients may not be able or willing to comply with clinical trial protocols if quarantines impede patient movement or interrupts healthcare services.

Our ongoing or planned clinical trials may also be impacted by interruptions or delays in the operations of the FDA and comparable foreign regulatory authorities. For example, we have made certain adjustments to the operation of our trials in an effort to ensure the monitoring and safety of patients and minimize risks to trial integrity during the pandemic in accordance with the guidance issued by the FDA and may need to make further adjustments in the future. We have also initiated our clinical trial protocols to enable remote visits to mitigate any potential impacts as a result of the COVID-19 pandemic. Many of these adjustments are new and untested, may not be effective, may affect the integrity of data collected, and may have unforeseen effects on the progress and completion of our clinical trials and the findings from such clinical trials.

The spread of COVID-19, including the spread of new strains and variants of COVID-19, and actions taken to reduce such spread may also materially affect us economically. While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, there could be a significant disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity and financial position. In addition, the trading prices for other pharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our common stock or such sales may be on unfavorable terms.

Components of Our Results of Operations

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of direct and indirect costs incurred for our research activities, including development of our drug discovery efforts and the development of our product candidates. Direct costs include laboratory materials and supplies, contracted research and manufacturing, clinical trial costs, consulting fees, and other expenses incurred to sustain our research and development program. Indirect costs include personnel-related expenses, consisting of employee salaries, related benefits, and stock-based compensation expense for employees engaged in research and development activities, facilities, and other expenses consisting of direct and allocated expenses for rent and depreciation, and lab consumables.

We expense research and development costs as incurred. Non-refundable advance payments for goods and services that will be used over time for research and development are capitalized and recognized as goods are delivered or as the related services are performed. In-licensing fees and other costs to acquire technologies used in research and development that have not yet received regulatory approval and that are not expected to have an alternative future use are expensed when incurred. We track direct costs by stage of program, clinical or preclinical. However, we do not track indirect costs on a program specific basis because these costs are deployed across multiple programs and, as such, are not separately classified.

We cannot reasonably determine the nature, timing, and estimated costs of the efforts that will be necessary to complete the development of, and obtain regulatory approval for, any of our product candidates. Product candidates in later stages of development generally have higher development costs than those in earlier stages. We expect that our research and development expenses will increase substantially for the foreseeable future as we continue to invest in research and development activities related to developing our product candidates, as our product candidates advance into later stages of development, as we begin to conduct larger clinical trials, as we seek regulatory approvals for any product candidates that successfully complete clinical trials, as we expand our product pipeline, as we maintain, expand, protect and enforce our intellectual property portfolio, and as we incur expenses associated with hiring additional personnel to support our research and development efforts.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel-related costs, including employee salaries, related benefits, and stock-based compensation expense for our employees in the executive, finance and accounting, and other administrative functions. General and administrative expenses also include third-party costs such as legal costs, insurance costs, accounting, auditing and tax related fees, consulting fees and facilities and other expenses not otherwise included as research and development expenses. We expense general and administrative costs as incurred.

We expect that our general and administrative expenses will increase substantially for the foreseeable future as we increase our headcount to support our continued research activities and development of our programs. Following the completion of our IPO on October 13, 2021, we will incur substantially increased expenses as a result of operating as a public company, including expenses related to compliance with the rules and regulations of the SEC, and those of any national securities exchange on which our securities are traded, legal, auditing, additional insurance expenses, investor relations activities, and other administrative and professional services.

Other Income (Expense)

Grant Income

Grant income relates to the grants awarded from governmental bodies that are conditional cost reimbursement grants and are recognized as grant income as allowable costs are incurred and the right to payment is realized. The grants awarded relate to agreed upon direct and indirect costs for specific studies or clinical trials, which may include personnel

and consulting costs, costs paid to contract research organizations, or CROs, research institutions and /or consortiums involved in the grant, as well as facilities and administrative costs. These grants are cost plus fixed fee arrangements in which we are reimbursed for eligible direct and indirect costs over time, up to the maximum amount of each specific grant award. Only costs that are allowable under the grant award, certain government regulations and the NIH's supplemental policy and procedure manual may be claimed for reimbursement, and the reimbursements are subject to routine audits from governmental agencies from time to time. Our clinical trials have been funded by approximately \$168.9 million in cumulative grants awarded primarily by the NIA, which includes an approximately \$81.0 million grant from the NIA to fund our Phase 2 (COG0203) study of CT1812 in patients with early-stage AD.

Change in fair value of derivative liability

Change in fair value of our derivative liability consists of changes in the fair value of certain conversion and redemption features associated with our convertible notes that are required to be bifurcated and accounted for as free-standing derivative financial instruments. The derivative liability expired unexercised upon the conversion of the convertible notes into Series B-1 convertible preferred stock in May 2021.

Change in fair value of warrant liability

Change in fair value of our warrant liability consists primarily of the change in fair value of our unexercised Series A-1 convertible preferred stock warrants during the applicable periods. These warrants expired unexercised in October 2020 and were derecognized at that time.

Change in fair value of SAFEs

Change in fair value of our SAFEs consist of fair value adjustments to these instruments based primarily on the changes in the probability of occurrence and estimated timing of future event inputs in the valuation model. Upon the occurrence of our IPO on October 7, 2021, the SAFEs were converted into 931,485 shares of our common stock.

Interest expense, net

Interest expense, net primarily consists of interest expense from our convertible notes, partially offset by interest income from interest-bearing cash equivalents.

Other (expense) income, net

Other (expense) income, net consists primarily of research and development tax credits earned in the applicable period, as well as foreign currency transaction gains or losses.

Results of Operations

Comparison of the Years Ended December 31, 2021 and 2020

The following table summarizes our results of operations (in thousands):

(in thousands)	Year Ended December 31,		
	2021	2020	Change
Consolidated Statements of Operations Data:			
Operating Expenses:			
Research and development	\$ 18,572	\$ 12,887	\$ 5,685
General and administrative	10,026	4,520	5,506
Total operating expenses	28,598	17,407	11,191
Loss from operations	(28,598)	(17,407)	(11,191)
Other income (expense):			
Grant income	17,447	10,855	6,592
Change in the fair value of the derivative liability	2,209	18	2,191
Change in the fair value of the warrant liability	—	181	(181)
Change in the fair value of the Simple Agreements for Future Equity	(2,236)	—	(2,236)
Other (expense) income, net	(88)	394	(482)
(Gain) loss on debt extinguishment	443	(129)	572
Interest expense, net	(893)	(1,751)	858
Total other income, net	16,882	9,568	7,314
Net loss	\$ (11,716)	\$ (7,839)	\$ (3,877)

Research and Development Expenses

The following table summarizes our research and development expenses (in thousands):

	Year Ended December 31,		Change
	2021	2020	
Clinical programs	\$ 4,679	\$ 5,263	\$ (584)
Personnel	4,882	4,026	856
Manufacturing	7,465	1,798	5,667
Preclinical programs	1,426	1,693	(267)
Facilities and other costs	120	107	13
	\$ 18,572	\$ 12,887	\$ 5,685

Research and development expenses were \$18.6 million for the year ended December 31, 2021, compared to \$12.9 million for the year ended December 31, 2020. The increase of \$5.7 million was primarily due to the following:

- a decrease of \$0.6 million in clinical programs related to delays due to COVID 19, resulting in timing and scope changes to clinical studies; and
- an increase of \$0.9 million in personnel costs due to increased salaries and bonus expense, increased headcount associated with expanded research and development activities, and equity-based compensation expense; and
- an increase of \$5.7 million in manufacturing expense related to costs incurred with contract manufacturing organizations for production of pre-clinical and future clinical trial materials associated with our most advanced product candidates; and
- a decrease of \$0.3 million in preclinical programs due to decreased sponsored research spend under grants.

General and Administrative Expenses

General and administrative expenses were \$10.0 million for the year ended December 31, 2021, compared to \$4.5 million for the year ended December 31, 2020. The increase of \$5.5 million was primarily due to the following:

- an increase of \$0.5 million in insurance and employee benefits primarily due to the addition of director and officer liability insurance; and
- an increase of \$1.0 million in professional fees driven by increased audit, tax, valuation and legal services; and
- an increase of \$4.0 million in equity-based compensation primarily driven by option grants made subsequent to the IPO.

Other Income (Expense)

Grant Income

Grant income was \$17.4 million for the year ended December 31, 2021, compared to \$10.9 million for the year ended December 31, 2020. The change in grant income is correlated with the increase in eligible reimbursable costs incurred during 2021 as compared to 2020.

Change in Fair Value of the Derivative Liability

Changes in the fair value derivative liability resulted in a gain of \$2.2 million for the year ended December 31, 2021, compared to a gain of less than \$0.1 million for the year ended December 31, 2020. The increase in the gain recorded for the year ended December 31, 2021 relates to the derecognition of the derivative liability in May 2021 upon the conversion of the convertible notes into Series B-1 convertible preferred stock at that time.

Change in Fair Value of the Warrant Liability

Changes in the fair value of warrant liabilities resulted in no gain or loss for the year ended December 31, 2021, compared to a gain of \$0.2 million for the year ended December 31, 2020. The decrease of \$0.2 million was due to the expiration of warrants to purchase Series A-1 preferred stock in October 2020.

Change in Fair Value of the SAFEs

Changes in the fair value of the SAFEs resulted in a loss of \$2.2 million for the year ended December 31, 2021. There was no change in fair value for the year ended December 31, 2020 as the SAFEs were entered into in March 2021. The change in fair value was primarily driven by the conversion of the SAFE into common shares and the associated discount applied upon the occurrence of the IPO on October 7, 2021.

Other (Expense) Income, Net

Other expense, net was less than \$0.1 million for the year ended December 31, 2021, compared to other income, net of \$0.4 million for the year ended December 31, 2020. The decrease was primarily the result of a decrease in research and development incentive income of \$0.4 million.

Gain (Loss) on Debt Extinguishment

Gain on debt extinguishment was \$0.4 million for the year ended December 31, 2021, compared to a loss on debt extinguishment of \$0.1 million for the year ended December 31, 2020. The 2020 loss was the result of the execution of the second amendment to the convertible notes on February 27, 2020, which resulted in an extinguishment of the

existing notes for accounting purposes. The 2021 gain was the result of the forgiveness of the Paycheck Protection Program loan on January 21, 2021.

Interest Expense, Net

Interest expense, net was \$0.9 million for the year ended December 31, 2021 compared to interest expense, net of \$1.8 million for the year ended December 31, 2020. The change of \$0.9 million in interest expense, net was the result of a higher overall convertible note balance during 2020.

Liquidity and Capital Resources

Sources of Liquidity

To date, we have funded our operations primarily with proceeds from grants awarded by the NIA, and proceeds from the sales of our convertible promissory notes, convertible preferred stock, SAFEs, stock option exercises, and our IPO. Since our inception, we have received grant awards primarily from the NIA in the aggregate amount of approximately \$168.9 million and have raised approximately \$102.0 million in net proceeds from sales of our equity securities, convertible notes and SAFEs, stock option exercises, and our IPO. On March 25, 2021, we completed a SAFE offering with various investors, pursuant to which we received gross proceeds in an aggregate amount equal to \$8.9 million. On October 13, 2021, we closed our IPO, selling 3,768,116 shares of our common stock at a public offering price of \$12.00 per share. Additionally, on November 12, 2021, the underwriters exercise of their over-allotment option to purchase 565,217 shares of our common stock closed. The net proceeds were approximately \$44.2 million, after deducting underwriting discounts and commissions and other offering related expenses payable by the Company, which includes net proceeds of approximately \$6.3 million from the over-allotment exercise. As of December 31, 2021, we had \$54.7 million in cash and cash equivalents and have not generated positive cash flows from operations. Based on our current business plans, we believe that the net proceeds from the IPO, together with our existing cash and cash equivalents and income from non-dilutive grants, will be sufficient for us to fund our operating expenses and capital expenditures requirements into the second half of 2023. We have based these estimates on assumptions that may prove to be incorrect or require adjustment as a result of business decisions, and we could utilize our available capital resources sooner than we currently expect.

Future Funding Requirements

We expect to continue to incur significant and increasing expenses and net losses for the foreseeable future, as we advance our current and future product candidates through preclinical and clinical development, manufacture drug product and drug supply, seek regulatory approval for our current and future product candidates, maintain and expand our intellectual property portfolio, hire additional research and development and business personnel and operate as a public company. We anticipate that we will need to raise additional funding in the future to fund our operations, including the commercialization of any approved product candidates. We are subject to the risks typically related to the development of new products, and we may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may adversely affect our business. Even with the closing of our IPO, we will need to raise substantial additional capital to fund the development of our product candidates.

Our future funding requirements will depend on many factors, including, but not limited to:

- the scope, progress, costs and results of our ongoing and planned clinical trials of CT1812, as well as the associated costs, including any unforeseen costs we may incur as a result of preclinical study or clinical trial delays due to the COVID-19 pandemic or other delays;
- the scope, progress, costs and results of preclinical development, laboratory testing and clinical trials for any future product candidates we may decide to pursue;
- the extent to which we develop, in-license or acquire other product candidates and technologies;

- the costs and timing of process development and manufacturing scale-up activities associated with our product candidates and other programs as we advance them through preclinical and clinical development;
- the availability, timing, and receipt of any future NIA grants;
- the number and development requirements of other product candidates that we may pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- our ability to establish collaborations to commercialize CT1812 or any of our other product candidates outside the United States;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims; and
- the additional costs we may incur as a result of operating as a public company, including our efforts to enhance operational systems and hire additional personnel, including enhanced internal controls over financial reporting.

Until such time as we can generate significant revenue from product sales, we expect to finance our operations through a combination of public or private equity offerings, debt financings or other sources, such as potential collaboration agreements and strategic alliances, licensing or similar arrangements with third parties. To the extent available, we expect to continue our pursuit of non-dilutive research contributions, or grants, including additional NIA grant funding. However, we may fail to receive additional NIA grants, or 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 obtain additional NIA grants or 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.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise funds through collaborations, licenses and other similar arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us and/or may reduce the value of our common stock. Adequate funding may not be available when needed or on terms acceptable to us, or at all. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic and otherwise. If we fail to obtain necessary capital when needed on acceptable terms, or at all, it could force us to delay, limit, reduce or terminate our product development programs, commercialization efforts or other operations. Insufficient liquidity may also require us to relinquish rights to product candidates at an earlier stage of development or on less favorable terms than we would otherwise choose. We cannot assure you that we will ever be profitable or generate positive cash flows from operating activities.

Cash Flows

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

	Year Ended December 31,	
	2021	2020
Cash flows used in operating activities	\$ (3,631)	\$ (3,433)
Cash flows used in investing activities	(27)	(10)
Cash flows provided by financing activities	53,201	5,765
Effect of exchange rate changes on cash and cash equivalents	(11)	(23)
Net increase in cash and cash equivalents	<u>\$ 49,532</u>	<u>\$ 2,299</u>

Operating Activities

Net cash used in operating activities for the year ended December 31, 2021 was \$3.6 million, which consisted primarily of our net loss of \$11.7 million partially offset by net non-cash charges of \$5.2 million and a net change of \$2.8 million in our operating assets and liabilities. The non-cash charges primarily consisted of depreciation and amortization of \$0.1 million, amortization of debt discount of \$0.4 million, change in fair value of SAFE of \$2.2 million, and equity-based compensation of \$5.1 million, partially offset by a change in the fair value of the derivative liability of \$2.2 million. The net change in our operating assets and liabilities was primarily due to an increase in accounts payable of \$2.2 million, an increase in accrued expenses of \$1.3 million, and an increase in other current liabilities of \$0.5 million, partially offset by an increase in grant receivables of \$1.2 million.

Net cash used in operating activities for the year ended December 31, 2020 was \$3.4 million, which consisted primarily of our net loss of \$7.8 million partially offset by net non-cash charges of \$1.3 million and a net decrease of \$3.1 million in our operating assets and liabilities. The non-cash charges primarily consisted of depreciation and amortization of \$0.1 million, amortization of debt issuances costs of \$0.1 million, amortization of debt discounts of \$0.8 million, change in warrant liabilities of \$0.2 million, loss on debt extinguishment of \$0.1 million, and equity-based compensation of \$0.5 million. The net decrease in our net operating assets was primarily due to a net decrease in other receivables of \$0.9 million, a decrease in accounts payable of \$0.4 million, an increase in accrued expenses of \$0.6 million, a decrease in grant receivables of \$2.1 million, and an increase in other current liabilities of \$0.3 million.

Investing Activities

During the years ended December 31, 2021 and 2020, we used less than \$0.1 million of cash, respectively, for investing activities related to purchases of property and equipment.

Financing Activities

Net cash provided by financing activities was \$53.2 million and \$5.8 million for the years ended December 31, 2021 and 2020, respectively. The increase in cash provided by financing activities in 2021 relates primarily to proceeds received in connection with the IPO in the amount of \$44.2 million.

Contractual Obligations

The following table summarizes our contractual obligations as of December 31, 2021 (in thousands):

	Less than 1 Year	1 to 3 Years	3 to 5 Years	More than 5 years	Total
Operating lease obligations:	\$ 174	\$ 225	\$ 169	\$ 213	\$ 781
Total:	<u>\$ 174</u>	<u>\$ 225</u>	<u>\$ 169</u>	<u>\$ 213</u>	<u>\$ 781</u>

We have entered into an operating leases for office and laboratory facilities under agreements that run through May 31, 2029. The amounts reflected in the table above consist of the future minimum lease payments under the non-cancelable lease arrangements.

On July 1, 2021, we entered into an agreement to lease 2,864 square feet of office space in Purchase, New York. The lease has a term of 89 months and commenced on December 9, 2021. The annual base rent under the lease is less than \$0.1 million for the first lease year and is subject to annual increases of between 1.82% and 2.04%. We provided a security deposit in the form of a Letter of Credit in the amount of less than \$0.1 million pursuant to the terms of the lease.

In addition, in October 2021, we entered into an insurance premium financing arrangement with a lender. Under the agreement, we financed \$1.5 million of certain premiums at a 3.25% annual interest rate. Payments of \$0.1 million are due monthly from October 2021 through September 2022. As of December 31, 2021, the outstanding principal of the loan was \$1.2 million.

We enter into contracts in the normal course of business with contract research organizations and other vendors to assist in the performance of our research and development and other services and products for operating purposes. These contracts typically do not contain minimum purchase commitments and generally provide for termination on notice, and therefore are cancelable contracts and not included in the table of contractual obligations.

Critical Accounting Policies and Use of Estimates

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.

Research and Development Costs, Accrued Research and Development Costs and Related Prepaid Expenses

Research and development costs are expensed as incurred. Research and development expenses consist principally of personnel costs, including salaries, stock-based compensation, and benefits for employees, third-party license fees and other operational costs related to our research and development activities, including allocated facility-related expenses and external costs of outside vendors, and other direct and indirect costs. Non-refundable advance payments for research and development costs are deferred and expensed as the related goods are delivered or services are performed. Costs for external development activities are recognized based on an evaluation of the progress to completion of specific tasks. Costs for certain research and development activities are recognized based on the pattern of performance of the individual arrangements, which may differ from the pattern of billings incurred, and are reflected in the consolidated financial statements as prepaid expenses or as accrued research and development expenses.

Equity-Based Compensation

We maintain an equity-based compensation plan as a long-term incentive for employees, non-employee directors and consultants. The plan allows for the issuance of incentive stock options, non-qualified stock options, restricted stock units, and other forms of equity awards.

We recognize equity-based compensation expense for stock options subject to time-based vesting on a straight-line basis over the requisite service period and account for forfeitures as they occur. To the extent any stock option grants are made subject to the achievement of a performance condition, management evaluates when the achievement of any such performance-based milestone is probable based on the relative satisfaction of the performance conditions as of the reporting date. Our stock-based compensation costs are based upon the grant date fair value of options estimated using the Black-Scholes option pricing model.

The Black-Scholes option pricing model utilizes inputs which are highly subjective assumptions and generally require significant judgment. These assumptions include:

- *Expected Term.* The expected term represents the period that the stock-based awards are expected to be outstanding. As we do not have sufficient historical experience for determining the expected term of the stock option awards granted, expected term has been calculated using the simplified method.
- *Risk-Free Interest Rate.* The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the date of grant for zero-coupon U.S. Treasury constant maturity notes with terms approximately equal to the stock-based awards' expected term.
- *Expected Volatility.* Up until October 13, 2021, the Company was privately held and did not have a trading history of common stock. As such, the expected volatility was derived from the average historical stock volatilities of the common stock of several public companies within the industry that the Company considers to be comparable to our business over a period equivalent to the expected term of the stock-based awards. The Company will continue to derive expected volatility from average historical stock volatilities of industry peers until the Company has compiled a trading history of its own for a sufficient period of time.
- *Expected Dividend Yield.* The expected dividend yield is zero as we have not paid and do not anticipate paying any dividends in the foreseeable future.
- *Fair Value of Common Stock.* — Prior to the IPO, the fair value of the shares of common stock underlying the stock-based awards had historically been determined by the board of directors with input from management. Because there was no public market for the common stock, the board of directors has determined the fair value of the common stock at the time of grant of the stock-based award by considering a number of objective and subjective factors, including having contemporaneous valuations of the common stock performed by a third-party valuation specialist. Subsequent to the IPO, the board of directors will determine the fair value of the shares of common stock underlying the stock-based awards based off of the closing price as reported on the Nasdaq Stock Market LLC on the grant date.

See Note 12 to our audited financial statements for more information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options. Certain of such assumptions involve inherent uncertainties and the application of significant judgment.

As of December 31, 2021, the total unrecognized compensation expense related to unvested time-based vesting awards was \$11.8 million, which is expected to be recognized over weighted-average remaining vesting period of approximately 3.2 years. As of December 31, 2021, total unrecognized compensation expense related to un-vested performance-based awards was \$0.3 million.

Recent Accounting Pronouncements

For a description of recent accounting pronouncements, see Note 2 of the notes to our audited consolidated financial statements for the year ended December 31, 2021 included elsewhere in this Annual Report.

Emerging Growth Company Status

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that we (1) are no longer an emerging growth company or (2) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest to occur of: (1) the last day of the fiscal year in which we have at least \$1.07 billion in annual revenue; (2) the last day of the fiscal year in which we are deemed to be a “large accelerated filer,” as defined in Rule 12b-2 under the Securities Exchange Act, which would occur if the market value of our common stock held by non-affiliates exceeded \$700.0 million as of the last business day of the second fiscal quarter of such year; (3) the date on which we have issued more than \$1.0 billion in non-convertible debt securities during the prior three-year period; and (4) the last day of the fiscal year ending after the fifth anniversary of our IPO.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

As a “smaller reporting company,” as that term is defined in Rule 229.10(f)(1), we are not required to provide the information required by this Item.

Item 8. Financial Statements and Supplementary Data

The financial statements required to be filed pursuant to this Item 8 are appended to this Annual Report. An index of those financial statements can be found in Item 15 of Part IV of this Annual Report.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, including our President and Chief Executive Officer (principal executive officer) and our Chief Financial Officer (principal financial and accounting officer), do not expect that our disclosure controls or our internal control over financial reporting will prevent all error and all fraud. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. In designing and evaluating the disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives and our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Our President and Chief Executive Officer and our Chief Financial Officer have evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) of the Exchange Act) as of the end of the period covered by this Annual Report. Based on this evaluation, our President and Chief Executive Officer and our Chief Financial Officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our President and Chief Executive Officer and our Chief Financial Officer, to allow for timely decisions regarding required disclosures, and recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms.

Management's Report on Internal Controls over Financial Reporting

This Annual Report does not include a report of management's assessment regarding internal control over financial reporting or an attestation report of our independent registered public accounting firm due to a transition period established by rules of the SEC for new public companies.

Changes in Internal Control

There were no changes in our internal control over financial reporting identified in connection with the evaluation described above that occurred during the year ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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 is incorporated herein by reference to the information that will be contained in our definitive proxy statement related to the 2022 Annual Meeting of Stockholders, or the Proxy Statement, which we intend to file with the SEC within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 11. Executive Compensation

The information required by this Item is incorporated herein by reference to the information that will be contained in our Proxy Statement, which we intend to file with the SEC within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

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

The information required by this Item is incorporated herein by reference to the information that will be contained in our Proxy Statement, which we intend to file with the SEC within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

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

The information required by this Item is incorporated herein by reference to the information that will be contained in our Proxy Statement, which we intend to file with the SEC within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 14. Principal Accountant's Fees and Services

The information required by this Item is incorporated herein by reference to the information that will be contained in our Proxy Statement, which we intend to file with the SEC within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Part IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) Financial Statements.

The following documents are included on pages F-1 through F-28 attached hereto and are filed as part of this Annual Report on Form 10-K.

Index to Consolidated Financial Statements

	<u>Page</u>
Report of Independent Registered Public Accounting Firm (PCAOB ID 42)	F-2
Consolidated Balance Sheets as of December 31, 2021 and 2020	F-3
Consolidated Statements of Operations and Comprehensive Loss for the years ended December 31, 2021 and 2020	F-4
Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit) for the years ended December 31, 2021 and 2020	F-5
Consolidated Statements of Cash Flows for the years ended December 31, 2021 and 2020	F-6
Notes to Consolidated Financial Statements	F-7

(a)(2) Financial Statement Schedules.

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

(a)(3) Exhibits.

The following is a list of exhibits filed or incorporated by reference as part of this Annual Report on Form 10-K.

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Third Amended and Restated Certificate of Incorporation of Cognition Therapeutics, Inc.	8-K	001-40886	3.1	10/14/2021	
3.2	Amended and Restated Bylaws of Cognition Therapeutics, Inc.	8-K	001-40886	3.2	10/14/2021	
4.1	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934					X
10.2	Third Amended and Restated Investors' Rights Agreement	S-1	333-257999	10.2	07/19/2021	
10.3	First Amendment to Third Amended and Restated Investors' Rights Agreement	S-1	333-257999	10.3	07/19/2021	

10.4	Office Lease Agreement between RJ Equities LP and Cognition Therapeutics, Inc., dated July 1, 2017	S-1	333-257999	10.4	07/19/2021
10.5	First Amendment to Office Lease Agreement	S-1	333-257999	10.5	07/19/2021
10.6	Lease Agreement between 2500/2700 Westchester Avenue Owner SPE LLC and Cognition Therapeutics, Inc., dated July 1, 2021	S-1	333-257999	10.6	07/19/2021
10.7	Amended and Restated 2007 Equity Incentive Plan	S-1	333-257999	10.7	07/19/2021
10.8	Cognition Therapeutics, Inc. 2017 Equity Incentive Plan	S-1	333-257999	10.8	07/19/2021
10.9	Amendment to the Cognition Therapeutics, Inc. 2017 Equity Incentive Plan	S-1	333-257999	10.9	07/19/2021
10.10	Amendment to the Cognition Therapeutics, Inc. 2017 Equity Incentive Plan	S-1	333-257999	10.10	07/19/2021
10.11	Cognition Therapeutics, Inc. 2021 Equity Incentive Plan	S-1/A	333-257999	10.11	10/04/2021
10.12	Cognition Therapeutics, Inc. 2021 Employee Stock Purchase Plan	S-1/A	333-257999	10.12	10/04/2021
10.13	Form of Restricted Stock Unit Grant Notice and Award Agreement under the Cognition Therapeutics, Inc. 2021 Equity Incentive Plan	S-1	333-257999	10.13	07/19/2021
10.14	Form of Stock Option Grant Notice and Award Agreement under the Cognition Therapeutics, Inc. 2021 Equity Incentive Plan	S-1	333-257999	10.14	07/19/2021
10.15	Employment Agreement, dated June 1, 2020, between Cognition Therapeutics, Inc. and Lisa Ricciardi	S-1	333-257999	10.15	07/19/2021
10.16	Employment Agreement, dated June 1, 2020, between Cognition Therapeutics, Inc. and Lisa Ricciardi	S-1/A	333-257999	10.16	07/29/2021
10.21	Employee Restrictive Covenant Agreement	S-1/A	333-257999	10.21	07/29/2021
10.23	Board of Directors of Cognition Therapeutics, Inc. Nomination Letter of Mr. Brett Monia, Ph.D.	S-1/A	333-257999	10.23	07/29/2021
10.24	National Institute on Aging, Notice of Award, dated 08/14/2016	S-1	333-257999	10.24	07/19/2021
10.25	National Institute on Aging, Notice of Award, dated 09/12/2017	S-1	333-257999	10.25	07/19/2021
10.26	National Institute on Aging, Notice of Award, dated 04/18/2018	S-1	333-257999	10.26	07/19/2021
10.27	National Institute on Aging, Notice of Award, dated 09/08/2018	S-1	333-257999	10.27	07/19/2021
10.28	National Institute on Aging, Notice of Award, dated 08/28/2020	S-1	333-257999	10.28	07/19/2021
10.29	National Institute on Aging, Notice of Award, dated 09/05/2020	S-1	333-257999	10.29	07/19/2021
10.30	National Institute on Aging, Notice of Award, dated 09/18/2020	S-1	333-257999	10.30	07/19/2021
10.31	National Institute on Aging, Notice of Award, dated 02/03/2021	S-1	333-257999	10.31	07/19/2021
10.32	National Institute on Aging, Notice of Award, dated 04/30/2021	S-1	333-257999	10.32	07/19/2021
10.33	National Institute on Aging, Notice of Award, dated 05/06/2021	S-1	333-257999	10.33	07/19/2021

10.34	National Institute on Aging, Notice of Award, dated 05/10/2021	S-1	333-257999	10.34	07/19/2021	
21.1	Subsidiaries of Cognition Therapeutics, Inc.					X
23.1	Consent of Ernst & Young LLP, independent registered public accountant					X
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.					X
31.2	Certification of Principal Financial and Accounting 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.					X
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.					X
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.					X
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.					X
101.SCH	Inline XBRL Taxonomy Extension Schema Document					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document					X
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101).					X

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, on March 30, 2022.

COGNITION THERAPEUTICS, INC..

By: /s/ Lisa Ricciardi

Lisa Ricciardi

Chief Executive Officer, President and Director

(Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on March 30, 2022 by the following persons on behalf of the registrant and in the capacities indicated:

Signature	Title	Date
<u>/s/ Lisa Ricciardi</u> Lisa Ricciardi	Chief Executive Officer, President and Director (Principal Executive Officer)	March 30, 2022
<u>/s/ James M. O'Brien</u> James M. O'Brien	Chief Financial Officer (Principal Financial and Accounting Officer)	March 30, 2022
<u>/s/ Jack A. Khattar</u> Jack A. Khattar	Director (Chairman of the Board)	March 30, 2022
<u>/s/ Aaron Fletcher, Ph.D.</u> Aaron Fletcher, Ph.D.	Director	March 30, 2022
<u>/s/ Brett P. Monia, Ph.D.</u> Brett P. Monia, Ph.D.	Director	March 30, 2022
<u>/s/ Ellen B. Richstone</u> Ellen B. Richstone	Director	March 30, 2022
<u>/s/ Peggy Wallace</u> Peggy Wallace	Director	March 30, 2022

Index to Consolidated Financial Statements
As of and for the years ended December 31, 2021 and 2020

	<u>Page</u>
Report of Independent Registered Public Accounting Firm (PCAOB ID 42)	F-2
Consolidated Balance Sheets as of December 31, 2021 and 2020	F-3
Consolidated Statements of Operations and Comprehensive Loss for the years ended December 31, 2021 and 2020	F-4
Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit) for the years ended December 31, 2021 and 2020	F-5
Consolidated Statements of Cash Flows for the years ended December 31, 2021 and 2020	F-6
Notes to Consolidated Financial Statements	F-7

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cognition Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Cognition Therapeutics, Inc. and Subsidiary (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit) and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, 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 of 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 auditor since 2020.

Philadelphia, Pennsylvania

March 30, 2022

COGNITION THERAPEUTICS, INC. AND SUBSIDIARY
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	As of December 31,	
	2021	2020
Assets		
Current assets		
Cash and cash equivalents	\$ 54,721	\$ 5,189
Grant receivables	1,799	564
Prepaid expenses	1,994	544
Other receivables	467	588
Other current assets	11	23
Total current assets	58,992	6,908
Property and equipment, net	145	211
Total assets	<u>\$ 59,137</u>	<u>\$ 7,119</u>
Liabilities, Convertible Preferred Stock, and Stockholders' Equity (Deficit)		
Current liabilities		
Accounts payable	4,168	2,003
Accrued expenses	1,751	994
Other current liabilities	1,945	253
Total current liabilities	7,864	3,250
Paycheck protection program loan	—	443
Derivative liability	—	2,209
Convertible notes, net	—	12,409
Accrued interest	—	1,622
Total liabilities	<u>7,864</u>	<u>19,933</u>
Commitments and contingencies		
Convertible preferred stock:		
Series A convertible preferred stock, par value \$0.001 per share, 0 and 3,067,519 shares authorized at December 31, 2021 and 2020, respectively, 0 and 2,819,027 shares issued and outstanding as of December 31, 2021 and 2020, respectively; liquidation preference of \$0 as of December 31, 2021	—	4,616
Series A-1 convertible preferred stock, par value \$0.001 per share, 0 and 3,970,776 shares authorized at December 31, 2021 and 2020, respectively, 0 and 3,730,366 shares issued and outstanding as of December 31, 2021 and 2020, respectively; liquidation preference of \$0 as of December 31, 2021	—	5,398
Series A-2 convertible preferred stock, par value \$0.001 per share, 0 and 3,565,063 shares authorized at December 31, 2021 and 2020, respectively, 0 and 3,565,063 shares issued and outstanding as of December 31, 2021 and 2020, respectively; liquidation preference of \$0 as of December 31, 2021	—	5,809
Series B convertible preferred stock, par value \$0.001 per share, 0 and 30,450,000 shares authorized at December 31, 2021 and 2020, respectively, 0 and 30,409,890 shares issued and outstanding as of December 31, 2021 and 2020, respectively; liquidation preference of \$0 as of December 31, 2021	—	39,547
Total convertible preferred stock	<u>—</u>	<u>55,370</u>
Stockholders' equity (deficit):		
Preferred stock, \$0.001 par value, 10,000,000 and 0 shares authorized at December 31, 2021 and 2020, respectively; no shares issued and outstanding at December 31, 2021 and 2020, respectively	—	—
Common stock, \$0.001 par value, 250,000,000 and 58,000,000 shares authorized at December 31, 2021 and 2020, respectively; 22,230,032 and 538,793 shares issued and outstanding at December 31, 2021 and 2020, respectively	22	1
Additional paid-in capital	145,453	222
Accumulated deficit	(94,004)	(68,220)
Accumulated other comprehensive loss	(198)	(187)
Total stockholders' equity (deficit)	<u>51,273</u>	<u>(68,184)</u>
Total liabilities, convertible preferred stock, and stockholders' equity (deficit)	<u>\$ 59,137</u>	<u>\$ 7,119</u>

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

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

	For the Year Ended December 31,	
	2021	2020
Operating Expenses:		
Research and development	\$ 18,572	\$ 12,887
General and administrative	10,026	4,520
Total operating expenses	28,598	17,407
Loss from operations	(28,598)	(17,407)
Other income (expense):		
Grant income	17,447	10,855
Change in the fair value of the derivative liability	2,209	18
Change in the fair value of the warrant liability	—	181
Change in the fair value of the Simple Agreements for Future Equity	(2,236)	—
Other (expense) income, net	(88)	394
Gain (loss) on debt extinguishment	443	(129)
Interest expense, net	(893)	(1,751)
Total other income, net	16,882	9,568
Net loss	(11,716)	(7,839)
Cumulative preferred stock dividends	(4,532)	(4,234)
Net loss attributable to common stockholders	\$ (16,248)	\$ (12,073)
Unrealized loss on foreign currency translation	(11)	(2)
Total comprehensive loss	\$ (11,727)	\$ (7,841)
Net loss per share attributable to common stockholders, basic and diluted	\$ (3.13)	\$ (23.76)
Weighted-average common shares outstanding, basic and diluted	5,190,883	508,112

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

COGNITION THERAPEUTICS, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY
(DEFICIT)
(in thousands, except share amounts)

	Series A Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Series A-2 Convertible Preferred Stock		Series B Convertible Preferred Stock		Series B-1 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	Shares	Amount	Shares	Amount				
Balances as of December 31, 2019	2,819,027	\$ 4,413	3,730,366	\$ 5,160	3,565,063	\$ 5,552	30,409,890	\$ 37,802	—	\$ —	469,751	\$ 1	\$ 1	\$ (58,239)	\$ (185)	\$ (58,422)
Exercise of common stock warrants	—	—	—	—	—	—	—	—	—	—	50,497	—	34	—	—	34
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	18,545	—	13	—	—	13
Equity-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	475	—	—	475
Accretion of convertible preferred stock to redemption value	—	203	—	238	—	257	—	1,745	—	—	—	—	(301)	(2,142)	—	(2,443)
Other comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(2)	(2)
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(7,839)	—	(7,839)
Balances as of December 31, 2020	2,819,027	4,616	3,730,366	5,398	3,565,063	5,809	30,409,890	39,547	—	—	538,793	1	222	(68,220)	(187)	(68,184)
Issuance of Series B-1 convertible preferred stock upon conversion of debt	—	—	—	—	—	—	—	—	10,926,089	29,391	—	—	(397)	(14,068)	—	(14,465)
Conversion of convertible preferred stock into common stock	(2,819,027)	(4,616)	(3,730,366)	(5,398)	(3,565,063)	(5,809)	(30,409,890)	(39,547)	(10,926,089)	(29,391)	15,906,537	16	84,745	—	—	84,761
Issuance of common stock in initial public offering, net of discounts and issuance costs of \$7,783	—	—	—	—	—	—	—	—	—	—	4,333,333	4	44,213	—	—	44,217
Conversion of SAFE into common stock	—	—	—	—	—	—	—	—	—	—	931,485	1	11,177	—	—	11,178
Exercise of stock options	—	—	—	—	—	—	—	—	—	—	321,686	—	276	—	—	276
Exercise of common stock warrants	—	—	—	—	—	—	—	—	—	—	198,198	—	34	—	—	34
Equity-based compensation	—	—	—	—	—	—	—	—	—	—	—	—	5,183	—	—	5,183
Other comprehensive loss	—	—	—	—	—	—	—	—	—	—	—	—	—	—	(11)	(11)
Net loss	—	—	—	—	—	—	—	—	—	—	—	—	—	(11,716)	—	(11,716)
Balances as of December 31, 2021	—	\$ —	—	\$ —	—	\$ —	—	\$ —	—	\$ —	22,230,032	\$ 22	\$ 145,453	\$ (94,004)	\$ (198)	\$ 51,273

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

COGNITION THERAPEUTICS, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Year Ended December 31,	
	2021	2020
Cash flows from operating activities:		
Net loss	\$ (11,716)	\$ (7,839)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	93	98
Amortization of debt issuance costs	31	54
Amortization of debt discount	352	782
Change in the fair value of the derivative liability	(2,209)	(18)
Change in the fair value of the warrant liability	—	(181)
Change in the fair value of the Simple Agreements for Future Equity	2,236	—
(Gain) loss on debt extinguishment	(443)	129
Equity-based compensation	5,183	475
Changes in operating assets and liabilities:		
Grant receivables	(1,235)	2,097
Prepaid expenses and other current assets	21	(417)
Other receivables	121	904
Accounts payable	2,165	(364)
Accrued expenses and interest	1,269	595
Other current liabilities	501	252
Net cash used in operating activities	(3,631)	(3,433)
Cash flows from investing activities:		
Payments for property and equipment	(27)	(10)
Net cash used in investing activities	(27)	(10)
Cash flows from financing activities:		
Payments on capital lease obligation	—	(4)
Proceeds from issuance of common stock in initial public offering	44,217	—
Proceeds from issuance of Simple Agreements for Future Equity	8,942	—
Proceeds from the exercise of common stock options	276	13
Proceeds from the exercise of common stock warrants	34	34
Payments on loan payable	(268)	—
Proceeds from the paycheck protection program loan	—	443
Proceeds from the issuance of convertible notes	—	5,372
Debt issuance costs related to convertible notes	—	(93)
Net cash provided by financing activities	53,201	5,765
Effect of exchange rate changes on cash and cash equivalents	(11)	(23)
Net increase in cash and cash equivalents	49,532	2,299
Cash and cash equivalents		
Cash and cash equivalents – beginning of period	5,189	2,890
Cash and cash equivalents – end of period	\$ 54,721	\$ 5,189
Supplemental disclosures of non-cash financing activities:		
Conversion of convertible preferred stock into common stock in initial public offering	\$ 84,761	\$ —
Conversion of Simple Agreements for Future Equity into common stock in initial public offering	\$ 11,178	\$ —
Issuance of Series B-1 convertible preferred stock upon conversion of debt	\$ 29,391	\$ —
Prepayment of insurance through third-party financing	\$ 1,191	\$ —
Non-cash accretion of convertible preferred stock to redemption value	\$ —	\$ (2,443)

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

COGNITION THERAPEUTICS, INC. AND SUBSIDIARY
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share and per share amounts)

1. Description of Business and Financial Condition

Cognition Therapeutics, Inc. (the “Company”) was incorporated as a Delaware corporation on August 21, 2007. The Company is a biopharmaceutical company developing disease modifying therapies for central nervous system (“CNS”) disorders. The Company’s pipeline candidates were discovered using proprietary biology and chemistry platforms designed to identify novel drug targets and disease-modifying therapies that address dysregulated pathways specifically associated with neurodegenerative diseases. The Company was founded on the unique combination of biological expertise around these targets, including proprietary assays that emphasize functional responses, and proprietary medicinal chemistry intended to produce novel, high-quality small-molecule drug candidates.

On July 14, 2015, the Company formed Cognition Therapeutics PTY LTD, as its wholly owned subsidiary (the “Subsidiary”), primarily for the purpose of conducting research and development efforts at facilities located in Australia. Assets and liabilities of the Subsidiary, which uses the Australian dollar as its local functional currency, are translated to United States (U.S.) dollars at year-end exchange rates. Income statement accounts are translated using the average exchange rates prevailing during the month in which income and expenses are generated. Translation adjustments are recorded to accumulated other comprehensive income (loss) (“AOCI”) within stockholders’ deficit. Gains and losses from foreign currency transactions are included in net loss as a part of other income, net.

On October 13, 2021, the Company closed its initial public offering (“IPO”) of 3,768,116 shares of the Company’s common stock at a public offering price of \$12.00 per share. The gross proceeds from the IPO, excluding the overallotment exercise, were \$45,217 and the net proceeds were approximately \$37,909, after deducting underwriting discounts and commissions and other offering related expenses payable by the Company. Upon completion of the IPO, all of the Company’s then outstanding preferred stock was automatically converted into an aggregate of 15,906,537 shares of common stock and an aggregate amount of \$8,942 of simple agreements for future equity (“SAFEs”) was automatically converted into an aggregate of 931,485 shares of common stock.

On November 10, 2021, the representative of the underwriters for the IPO provided notice to the Company that it had elected to exercise its over-allotment option in full to purchase 565,217 shares of the Company’s common stock. The representative’s exercise of the over-allotment option closed on November 12, 2021, resulting in gross proceeds of \$6,783 and net proceeds to the Company of approximately \$6,308, after deducting underwriting discounts and commissions and other offering related expenses.

The Company held cash and cash equivalents of \$54,721 at December 31, 2021. The Company expects that its cash and cash equivalents, including the net proceeds from its IPO, will enable it to fund its operating expenses and capital expenditure requirements through at least the one year period subsequent to the filing date of this Annual Report on Form 10-K. However, additional funding will be necessary to fund future preclinical and clinical activities. The Company expects to finance its future cash needs through a combination of grant awards, equity or debt financings, collaboration agreements, strategic alliances and licensing arrangements.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements have been prepared in conformity with U.S. generally accepted accounting principles (“GAAP”). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification (“ASC”) and Accounting Standards Update (“ASU”) of the Financial Accounting Standards Board (“FASB”).

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of interest-bearing deposits at various financial institutions and money markets. The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Receivables

Grant Receivables

Grant receivables relate to outstanding amounts due for reimbursable expenditures of awarded grants issued by the National Institute of Health and are carried at their estimated collectible amounts. The Company expects all receivables to be collectible, and accordingly, there is no allowance for doubtful accounts required on these grant receivables.

Other Receivables

Other receivables consist of Australian research and development tax credit from the Australian Tax Authority, as well as other receivables from time to time. Historically, the Australian tax refund is paid directly to the Company by the Australian Tax Authority. Research and development tax refunds and credits are carried at their estimated collectible amounts. The Company expects all receivables to be collectible and accordingly, there is no allowance for doubtful accounts required on these other receivables.

Deferred Offering Costs

The Company capitalizes certain legal, accounting and other third-party fees that are directly associated with in-process equity financings, including the IPO, as deferred costs until such financings are consummated. After consummation of the equity financing, these costs are recorded in stockholders' deficit as a reduction of proceeds generated as a result of the offering.

Property and Equipment

Property and equipment is recorded at cost, less accumulated depreciation. Depreciation is computed on the straight-line basis over the estimated useful life of the asset. The Company estimates the useful life to be 5 and 6 years for equipment and furniture and fixtures, respectively. The cost of repairs and maintenance is charged to expense as incurred.

Property and equipment is evaluated for impairment whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable from the estimated future cash flows expected to result from its use and eventual disposition. If expected cash flows are less than the carrying value, an impairment loss is recognized equal to an amount by which the carrying value exceeds the fair value of the assets. There were no indicators of impairment of long-lived assets during the years ended December 31, 2021 or 2020.

Convertible Instruments

ASC 815, *Derivatives and Hedging Activities* ("ASC 815") requires companies to bifurcate certain conversion options and redemption features from their host instruments and account for them as free-standing derivative financial instruments should certain criteria be met.

The Company also follows ASC 480-10, *Distinguishing Liabilities from Equity* (“ASC 480-10”) when evaluating the accounting for its hybrid instruments. A financial instrument that embodies an unconditional obligation, or a financial instrument other than an outstanding share that embodies a conditional obligation, that the issuer must or may settle by issuing a variable number of its equity shares shall be classified as a liability (or an asset in some circumstances) if, at inception, the monetary value of the obligation is based solely or predominantly on any one of the following: (a) a fixed monetary amount known at inception; (b) variations in something other than the fair value of the issuer’s equity shares; or (c) variations inversely related to changes in the fair value of the issuer’s equity shares. Hybrid instruments meeting these criteria are not further evaluated for any embedded derivatives and are carried as a liability at fair value at each balance sheet date.

Debt Issuance Costs and Discounts

The Company incurred third-party costs in connection with the convertible notes as described in Note 8. These costs are classified on the balance sheet as a direct deduction from the convertible notes and amortized over the term of the agreement as interest expense using the effective interest rate method.

Discounts related to bifurcated derivatives resulting from the convertible note issuances are recorded as a reduction to the carrying value of the debt and amortized over the life of the debt using the effective interest method.

Warrants Issued in Connection with Financings

The Company generally accounts for warrants issued in connection with debt and equity financings as a component of equity, unless the warrants include specific features, such as if the warrants are exercisable for securities that are considered contingently redeemable. For warrants that are exercisable for securities that are considered contingently redeemable, the Company records the fair value of the warrants as a liability at each balance sheet date and records changes in fair value in other (income) expense in the consolidated statement of operations and comprehensive loss.

Convertible Preferred Stock

The Company has classified convertible preferred stock outside of stockholders’ deficit in the accompanying balance sheets due to the convertible preferred stock’s redemption features. Originally, the convertible preferred stock was eligible to become redeemable at the holder’s option at any time after March 20, 2021. This right was removed in connection with an amendment to the Company’s articles of incorporation on July 29, 2020. Pre-amendment, the convertible preferred stock was redeemable due to the passage of time, and therefore, the Company recorded changes in the redemption value and accreted the convertible preferred stock immediately to the redemption value during each period presented. These increases were affected through charges against retained earnings, if any, and then to additional paid-in capital. In the absence of additional paid-in capital, the accretion is charged to accumulated deficit. Post-amendment, the convertible preferred stock is considered to be contingently redeemable only upon the occurrence of a deemed liquidation event (Note 9). As a result, the Company ceased accreting the convertible preferred stock on July 29, 2020. To evaluate whether the changes to the terms of the preferred stock should be accounted for as a modification or extinguishment, the Company follows the qualitative approach, in which amendments to preferred shares are analyzed based on the expected economics as well as the business purpose of the amendment. The Company concluded that the amendment did not result in a significant change to the fundamental nature of the preferred stock, and accordingly, the amendment was accounted for as a modification, and there was no accounting impact for the modification.

Grant income

For the year ended December 31, 2021 and 2020, the Company generated grant income of \$17,447 and \$10,855 from reimbursements from the National Institute of Health (“NIH”) for aging research, respectively. The Company records grant income in other income (expense) in the period in which the reimbursable research and development services are incurred and the right to payment is realized. The grants awarded relate to agreed upon direct and indirect costs for specific studies or clinical trials, which may include personnel and consulting costs, costs paid to contract research organizations (“CROs”), research institutions and/or consortiums involved in the grant, as well as facilities and administrative costs. These grants are cost plus fixed fee arrangements in which the Company is reimbursed for its

eligible direct and indirect costs over time, up to the maximum amount of each specific grant award. Only costs that are allowable under the grant award, certain government regulations and the NIH's supplemental policy and procedure manual may be claimed for reimbursement, and the reimbursements are subject to routine audits from governmental agencies from time to time.

Research and Development Costs

The Company is involved in research and development aimed at the development of treatments for a variety of diseases related to the central nervous system, with a primary focus on Alzheimer's Disease. Research and development costs are expensed as incurred. Research and development expenses consist principally of personnel costs, including salaries, stock-based compensation, and benefits for employees, third-party license fees and other operational costs related to our research and development activities, including allocated facility-related expenses and external costs of outside vendors, and other direct and indirect costs. Non-refundable research and development costs are deferred and expensed as the related goods are delivered or services are performed. Costs for external development activities are recognized based on an evaluation of the progress to completion of specific tasks. Costs for certain research and development activities are recognized based on the pattern of performance of the individual arrangements, which may differ from the pattern of billings incurred, and are reflected in the consolidated financial statements as prepaid expenses or as accrued research and development expenses.

Income Taxes

The Company accounts for income taxes under the asset and liability method pursuant to authoritative guidance.

Under the asset and liability method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Under this authoritative guidance, the effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. If it is more likely than not that some portion or all of a deferred tax asset will not be recognized, a valuation allowance is recognized.

The Company accounts for uncertainty in income taxes using a recognition threshold of more-likely-than-not to be sustained upon examination by the appropriate taxing authority. Measurement of the uncertainty occurs if the recognition threshold is met. The Company has determined that there were no uncertainties as of December 31, 2021 and 2020 that met the recognition threshold.

Equity-based Compensation

Following the provisions of ASC 718, *Compensation — Stock Compensation*, the Company recognizes compensation expense for equity-based grants using the straight-line attribution method, in which the expense is recognized ratably over the requisite service period within operating expenses based on the grant date fair value. The Company also has granted awards subject to performance-based vesting. The Company would recognize compensation expense for these awards commencing in the period in which the vesting condition becomes probable of achievement. Grant date fair value is estimated on the date of grant using the Black-Scholes option pricing model. Forfeitures are recognized in the period in which they occur.

Black-Scholes requires inputs based on certain subjective assumptions, including (i) the expected stock price volatility, (ii) the expected term of the award, (iii) the risk-free interest rate and (iv) expected dividends. Due to a lack of sufficient public market data for the Company's common stock and lack of company-specific historical and implied volatility data, the Company has based its computation of expected volatility on the historical volatility of a representative group of public companies with similar characteristics to the Company, including stage of product development and life science industry focus. The historical volatility is calculated based on a period of time commensurate with expected term assumption. The Company uses the simplified method to calculate the expected term

for stock options granted to employees whereby the expected term equals the arithmetic average of the vesting term and the original contractual term of the stock options due to its lack of sufficient historical data. The risk-free interest rate is based on U.S. Treasury securities with a maturity date commensurate with the expected term of the associated award. The expected dividend yield is assumed to be zero as the Company has never paid dividends and has no current plans to pay any dividends on its common stock.

Prior to the IPO, due to the absence of an active market for the Company's common stock, the Company utilized methodologies in accordance with the framework of the American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. In determining the exercise prices for stock options granted, the Company has considered the estimated fair value of the common stock as of the measurement date. The estimated fair value of the common stock has been determined at each grant date based upon a variety of factors, including the illiquid nature of the common stock, arm's-length sales of the Company's capital stock (including convertible preferred stock), the effect of the rights and preferences of the preferred stockholders and the prospects of a liquidity event. Among other factors are the Company's financial position and historical financial performance, the status of technological developments within the Company's research, the composition and ability of the current research and management team, an evaluation or benchmark of the Company's competition and the current business climate in the marketplace. Significant changes to the key assumptions underlying the factors used could result in different fair values of common stock at each valuation date. Subsequent to the IPO, the board of directors will determine the fair value of the shares of common stock underlying the stock-based awards based off of the closing price as reported on the Nasdaq Stock Market LLC on the grant date.

Concentration of Credit Risk

The Company's financial instruments that are exposed to credit risks consist of cash and cash equivalents. The Company maintains its cash and cash equivalents in bank deposit accounts which, at times, may exceed the federally insured limit. The Company has not experienced any losses in these accounts and does not believe it is exposed to any significant credit risk related to these funds.

Fair Value of Financial Instruments

The Company applies ASC 820, *Fair Value Measurement* ("ASC 820"), which establishes a framework for measuring fair value and clarifies the definition of fair value within that framework. ASC 820 defines fair value as an exit price, which is the price that would be received for an asset or paid to transfer a liability in the Company's principal or most advantageous market in an orderly transaction between market participants on the measurement date. The fair value hierarchy established in ASC 820 generally requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. Observable inputs reflect the assumptions that market participants would use in pricing the asset or liability and are developed based on market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the entity's own assumptions based on market data and the entity's judgments about the assumptions that market participants would use in pricing the asset or liability and are to be developed based on the best information available in the circumstances.

The carrying value of the Company's cash and cash equivalents, grants receivable, prepaid expense, other receivables, other current assets, accounts payable, accrued expenses and other current liabilities approximate fair value because of the short-term maturity of these financial instruments. In addition, the Company records its warrant liability, derivative liability, and SAFEs at fair value.

The valuation hierarchy is composed of three levels. The classification within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement. The levels within the valuation hierarchy are described below:

- Level 1 — Assets and liabilities with unadjusted, quoted prices listed on active market exchanges. Inputs to the fair value measurement are observable inputs, such as quoted prices in active markets for identical assets or liabilities.

- Level 2 — Inputs to the fair value measurement are determined using prices for recently traded assets and liabilities with similar underlying terms, as well as direct or indirect observable inputs, such as interest rates and yield curves that are observable at commonly quoted intervals.
- Level 3 — Inputs to the fair value measurement are unobservable inputs, such as estimates, assumptions, and valuation techniques when little or no market data exists for the assets or liabilities.

Comprehensive Loss

The Company recorded \$11 and \$2 in other comprehensive loss related to foreign currency translation for the years ended December 31, 2021 and 2020, respectively. The Company presents comprehensive loss in a single statement within its consolidated financial statements.

Net Loss Per Share Attributable to Common Stockholders

Basic net loss attributable to common shares is computed by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during each period. Diluted net loss attributable to common shares includes the effect, if any, from the potential exercise or conversion of securities, such as convertible preferred stock and stock options, which would result in the issuance of incremental shares of common stock. For diluted net loss per share, the weighted-average number of shares of common stock is the same for basic net loss per share due to the fact that when a net loss exists, dilutive securities are not included in the calculation as the impact is anti-dilutive. The Company's convertible preferred stock entitles the holder to participate in dividends and earnings of the Company, and, if the Company were to recognize net income, it would have to use the two-class method to calculate earnings per share. The two-class method is not applicable during periods with a net loss, as the holders of the convertible preferred stock have no obligation to fund losses.

Segments

The Company has determined that it operates and manages one operating segment, which is the business of developing and commercializing therapeutics. The Company's chief operating decision maker, its chief executive officer, reviews financial information on an aggregate basis for the purpose of allocating resources.

Emerging Growth Company Status

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

Recent Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update (ASU) No. 2016-02, *Leases* (Topic 842). ASU No. 2016-02 requires lessees to recognize the assets and liabilities that arise from leases on the balance sheet. A lessee should recognize in the statement of financial position a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term. ASU No. 2016-02 is effective for the Company for annual periods beginning after December 15, 2021. Early adoption is permitted.

The Company adopted this standard on January 1, 2022. The Company expects to elect the package of practical expedients permitted under the transition guidance within the new standard, which, among other things, allows the Company to carry forward historical lease classification. The Company has substantially completed its evaluation of the

impact of the adoption of ASU 2016-02 on its consolidated financial statements and upon adoption, expects to recognize a lease liability and related right-of-use asset on its consolidated balance sheet. The Company does not expect the standard to have a material impact on its operations or cash flows. In addition, the Company is currently implementing changes to processes and controls to support lease accounting and related disclosures under the new standard.

In June 2018, the FASB issued ASU 2018-07, *Compensation — Stock Compensation (Topic 718) Improvements to Nonemployee Share-Based Payment Accounting*. The new ASU simplifies the accounting for share-based payments to non-employees by aligning it with the accounting for share-based payments to employees, with certain exceptions. The Company adopted the standard on January 1, 2020 and it did not have a material impact on the Company's financial condition, results of operations and cash flows.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820)*. This standard modifies disclosure requirements related to fair value measurement and is effective for all entities for fiscal years beginning after December 15, 2019. Among other things, ASU 2018-13 requires public entities to disclose the range and weighted average used to develop significant unobservable inputs for level 3 fair value measurements, while eliminating the requirement for public entities to disclose the amount of and reasons for transfers between level 1 and level 2 of the fair value hierarchy. Implementation on a prospective or retrospective basis varies by specific disclosure requirement. The standard also allows for early adoption of any removed or modified disclosures upon issuance while delaying adoption of the additional disclosures until their effective date. The Company adopted this guidance on January 1, 2020 and the adoption did not have a material impact on its financial statements.

In August 2020, the FASB issued ASU 2020-06, *Debt — Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging — Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. This ASU simplifies the accounting for certain convertible instruments. ASU 2020-06 will be effective for fiscal years beginning after December 15, 2021, with early adoption permitted for interim and annual reporting periods beginning after December 15, 2020. The Company adopted ASU 2020-06 on January 1, 2021, and the adoption of this update did not have a material effect on the Company's financial statements.

In October 2020, the FASB issued ASU 2020-10, *Codification Improvements*, which updates various codification topics by clarifying or improving disclosure requirements to align with the SEC's regulations. The Company adopted ASU 2020-10 as of the reporting period beginning January 1, 2021. The adoption of this update did not have a material effect on the Company's financial statements.

In May 2021, the FASB issued ASU 2021-04, *Earnings Per Share (Topic 260), Debt – Modifications and Extinguishments (Subtopic 470-50), Compensation – Stock Compensation (Topic 718), and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40): Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options*. This ASU clarifies and reduces diversity in an issuer's accounting for modifications or exchanges of freestanding equity-classified written call options (for example, warrants) that remain equity classified after modification or exchange. ASU 2021-04 is effective for fiscal years beginning after December 15, 2021, with early adoption permitted for all entities. The Company will adopt ASU 2021-04 as of the reporting period beginning January 1, 2022. The Company is currently evaluating the impact of the pending adoption of the new standard on the Company's consolidated financial statements.

In November 2021, the FASB issued ASU 2021-10, *Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance*. This ASU increases the transparency of government assistance including the disclosure of (1) the types of assistance, (2) an entity's accounting for the assistance, and (3) the effect of the assistance on an entity's financial statements. The Company will adopt ASU 2021-10 for the reporting period beginning on January 1, 2022. The Company is currently evaluating the impact of the pending adoption of the new standard on the Company's consolidated financial statements.

Reverse Stock Split

In July 2021, the Company's Board of Directors approved an amendment to the Company's second amended and restated certificate of incorporation to effect a 1-for-3.2345 reverse stock split of the Company's common stock, which was effected on October 1, 2021 with a filing made with the Secretary of State of the State of Delaware. Stockholders entitled to fractional shares as a result of the reverse stock split received a cash payment in lieu of receiving fractional shares. The par value of the common stock was not adjusted as a result of the reverse stock split. Shares of common stock underlying outstanding stock options and other equity instruments were proportionately reduced and the respective exercise prices, if applicable, were proportionately increased in accordance with the terms of the appropriate securities agreements. Shares of common stock reserved for issuance upon the conversion of our convertible preferred stock were proportionately reduced and the respective conversion prices were proportionately increased. All common share and per share data have been retrospectively revised to reflect the reverse stock split.

3. Financial Instruments and Fair Value Measurements

Financial assets and liabilities measured at fair value are summarized below:

As of December 31, 2021				
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	\$ 46,687	\$ —	\$ —	\$ 46,687
Total assets	\$ 46,687	\$ —	\$ —	\$ 46,687
As of December 31, 2020				
	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Money market funds	\$ 2,853	\$ —	\$ —	\$ 2,853
Total assets	\$ 2,853	\$ —	\$ —	\$ 2,853
Liabilities:				
Derivative liability	\$ —	\$ —	\$ 2,209	\$ 2,209
Total liabilities	\$ —	\$ —	\$ 2,209	\$ 2,209

The following table sets forth a summary of the changes in fair value of the Level 3 liabilities for the years ended December 31, 2021 and 2020:

	Warrant Liability	Derivative Liability	SAFE	Total
Balance at December 31, 2019	\$ 181	\$ 1,493	\$ —	\$ 1,674
Change in the fair value of the warrant liability	(181)	—	—	(181)
Fair value recognized upon the issuance of convertible notes	—	734	—	734
Change in the fair value of the derivative liability	—	(18)	—	(18)
Balance at December 31, 2020	—	2,209	—	2,209
Fair value recognized upon the issuance of SAFE	—	—	8,942	8,942
Change in the fair value of the liability	—	(2,209)	2,236	27
Fair value recognized upon conversion of SAFE into common stock	—	—	(11,178)	(11,178)
Balance at December 31, 2021	\$ —	\$ —	\$ —	\$ —

Derivative Liability — The Company recognizes derivative liabilities as a result of the issuance of the convertible notes that contain conversion and redemption features that are required to be bifurcated. The fair value measurement of

the derivative liability is classified as Level 3 under the fair value hierarchy as it has been valued using certain unobservable inputs. These inputs include: (1) probability of occurrence of future events (such as a qualified financing or a sale), and (2) discount rate for implied return required by investor. Significant increases or decreases in any of those inputs in isolation could result in a significantly lower or higher fair value measurement.

The fair value of the derivative liability was determined by calculating the fair value of the notes with the conversion and redemption features as compared to the fair value of the notes without such features, with the difference representing the value of the conversion and redemption features, or the derivative liability. The conversion and redemption features are measured at fair value as of each reporting date and the change in the fair value for the period is recorded in the consolidated statements of operations as a change in the fair value of the derivative liability. The fair value of the derivative liability is based on Level 3 unobservable inputs. Changes in fair value are recognized as a gain or loss within other income (expense) on the consolidated statements of operations and comprehensive loss. The derivative liability expired unexercised upon the conversion of the convertible notes into Series B-1 Convertible Preferred Stock in May of 2021 (Note 9).

Warrant Liability — The Company issued 180,724 Series A-1 preferred stock warrants in December 2010. The Company recorded a change in fair value adjustment of \$181 in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2020. The warrants expired unexercised in October 2020.

Simple Agreement for Future Equity — On March 25, 2021, the Company entered into SAFEs with existing investors, pursuant to which the Company received gross proceeds in an aggregate amount equal to \$8,942. The fair value of the SAFE liability is estimated using a fair value model that includes inputs such as: (1) probability of occurrence of future events (such as a change of control or public offering), and (2) discount rate for implied return required by investor. The Company recorded a change in fair value adjustment of \$2,236 in the consolidated statement of operations and comprehensive loss for the year ended December 31, 2021. Upon the occurrence of the Company's IPO on October 7, 2021, the SAFEs converted into 931,485 shares of common stock.

The fair value of the SAFEs was determined using a probability weighted expected return method (PWERM), in which the probability and timing of potential future events is considered in order to estimate the fair value of the SAFEs as of each valuation date. Management determined the fair value of the SAFEs using the following significant unobservable inputs:

	October 7, 2021 (Conversion)	March 25, 2021 (Issuance)
Expected term (in years)	—	0.35
Discount upon conversion	20.0%	20.0%
Discount upon implied return	18.9%	18.9%
Probability of initial public offering occurrence	100.0%	45.0%
Probability of dissolution event occurrence	0.0%	15.0%
Probability of equity financing occurrence	0.0%	37.0%
Probability of change of control occurrence	0.0%	3.0%

In addition, the Company recorded the Series B-1 convertible preferred stock within mezzanine equity at fair value on the date of issuance, May 1, 2021 (Note 10). This non-recurring fair value measure was based on level 3 unobservable inputs.

4. Property and Equipment

Property and equipment, net, consisted of the following:

	As of December 31,	
	2021	2020
Equipment	\$ 1,014	\$ 987
Furniture and fixtures	1	1
Property and equipment, gross	1,015	988
Less: Accumulated depreciation	(870)	(777)
Property and equipment, net	<u>\$ 145</u>	<u>\$ 211</u>

Depreciation expense for the years ended December 31, 2021 and 2020 was \$93 and \$60, respectively, which includes amortization expense of \$38 and \$38 for the years ended December 31, 2021 and 2020, respectively, for assets under a capital lease. Equipment cost includes an asset under a capital lease totaling \$190 on December 31, 2021 and 2020, respectively. Accumulated amortization of the leased equipment as of December 31, 2021 and 2020 was \$190 and \$152, respectively.

5. Accrued Expenses

Accrued expense consists of the following:

	As of December 31,	
	2021	2020
Employee compensation, benefits, and related accruals	\$ 1,285	\$ 732
Research and development costs	250	143
Professional fees	216	114
Other accrued	—	5
Total	<u>\$ 1,751</u>	<u>\$ 994</u>

6. Other Current Liabilities

In October 2021, the Company entered into an insurance premium financing agreement with a lender. Under the agreement, the Company financed \$1,453 of certain premiums at a 3.25% annual interest rate. Payments of approximately \$134 are due monthly from October 2021 through September 2022. As of December 31, 2021, the outstanding principal of the loan was \$1,191 included in other current liabilities on the consolidated balance sheet.

7. Commitments and Contingencies

The Company's corporate headquarters is located in Purchase, New York where we currently occupy 2,864 square feet of office space under a lease that expires in May of 2029. The Company also leases approximately 6,068 square feet of laboratory and office space located in Pittsburgh, PA under leases that expire in June of 2023.

Minimum lease commitments consisted of the following as of December 31, 2021:

For the Years Ended December 31,	Operating Leases
2022	\$ 174
2023	142
2024	83
2025	84
Thereafter	298
Total lease commitments	<u>\$ 781</u>

Rent expense was \$163 and \$179 for the years ended December 31, 2021 and 2020, respectively.

From time to time, the Company may be involved in disputes or regulatory inquiries that arise in the ordinary course of business. When the Company determines that a loss is both probable and reasonably estimable, a liability is recorded and disclosed if the amount is material to the financial statements taken as a whole. When a material loss contingency is only reasonably possible, the Company does not record a liability, but instead discloses the nature and the amount of the claim, and an estimate of the loss or range of loss, if such an estimate can reasonably be made.

As of December 31, 2021 and 2020, there was no litigation or contingency with at least a reasonable possibility of a material loss.

8. Debt

On March 8, 2018, the Company entered into a Convertible Note Purchase Agreement (the “Original Agreement”) with existing investors of the Company. Under the terms of the Original Agreement, the Company agreed to issue up to \$5,000 in principle Convertible Notes (the “Original Notes”). The Original Notes accrued interest at 4.0% per annum from the date of issuance with a maturity date of February 27, 2020 (subsequently extended — see below). The Company issued \$2,965 in Original Notes in March and April 2018. Under the terms of the Original Agreement, the following features were included:

- i. Automatic conversion into equity securities upon the closing of an equity financing with aggregate gross proceeds of at least \$10,000, at the conversion price equal to 90.0% of the lowest price per share of the equity financing securities sold (a “Automatic Conversion Upon a Qualified Financing”);
- ii. Optional conversion into equity securities upon the closing of an equity financing that does not constitute a Qualified Financing at a conversion price equal to 90.0% of the price per share of the equity financing securities sold (a “Optional Conversion Upon a Non-Qualified Financing”);
- iii. Optional conversion of the unpaid principal balance plus accrued and unpaid interest to into B-1 Convertible Preferred Stock at a conversion price of \$1.385 per share or redemption of the unpaid principal balance plus accrued and unpaid interest if (i) a transaction results in any person or group with over 50.0% voting power, (ii) any consolidation or merger transaction, or (iii) a sale or transfer of substantially all of the Company’s assets (“Option Conversion or Redemption”) Optional conversion of the unpaid principal balance plus accrued and unpaid interest to into Series B 1 convertible preferred stock at a conversion price of \$1.385 per share or redemption of the unpaid principal balance plus accrued and unpaid interest if (i) a transaction results in any person or group with over 50.0% voting power, (ii) any consolidation or merger transaction, or (iii) a sale or transfer of substantially all of the Company’s assets (“Option Conversion or Redemption”); and
- iv. Automatic redemption of unpaid principal and all accrued and unpaid interest upon maturity, liquidation, dissolution, winding up, or event of default (“Automatic Redemption”).

On November 15, 2018, the Company entered into a Convertible Note Purchase Agreement (the “Additional Agreement”) with existing investors of the Company. Under the terms of the Additional Agreement, the Company agreed to issue up to an aggregate of \$8,000 in principle Convertible Notes (the “Additional Notes”). In connection with

the Additional Agreement, the Company amended the Original Notes (the “Amendment”). The Amendment resulted in the following changes to the Original Notes:

- i. the interest rate of the Original Notes accrue interest at 4.0% from issuance to November 15, 2018, and accrue interest at 8.0% from November 15, 2018 to maturity or conversion;
- ii. the conversion price was amended to 80.0% of the price per share in connection with conversion of the notes upon a Qualified or Non-Qualified Financing;
- iii. the holder’s option upon a sale event to receive repayment, at two times the principal plus accrued and unpaid interest, (“Optional Redemption Upon a Sales Transaction”); and
- iv. a condition that each holder of \$1,000 in aggregate principal must be included in the 66 2/3% of the holders of the principal amount of the Notes to provide consent to make any further amendments or waivers.

On February 27, 2020, the Company entered into a Convertible Note Purchase Agreement (the “Second Amendment”) with existing investors of the Company. Under the terms of the Second Amendment, the Company agreed to issue up to an aggregate of \$10,035 in principle Convertible Notes (the “Second Amendment Notes”). In connection with the Second Amendment, the Company amended the Original Notes and Additional Notes. The Second Amendment resulted in the following changes:

- i. extend the maturity date to June 30, 2021;
- ii. add a cap for a conversion in connection with a Qualified Financing;
- iii. provide for mandatory conversion of the Combined Notes into Series B-1 Preferred Convertible Stock of the Company if the Company has not completed a Qualified Financing on or before June 30, 2021.

The Company applied extinguishment accounting to the Original Notes upon execution of the Amendment in 2018 on the basis that the present value of the cash flows under the terms of the Amendment of the Original notes were determined to be substantially different. The Company applied extinguishment accounting upon execution of the Second Amendment as the addition of the conversion features are substantive and recorded a loss on debt extinguishment of \$129 in the consolidated statement of operations and comprehensive loss during 2020.

Each Additional Note and Second Amendment Note (collectively with the Original Notes, the “Convertible Notes” or the “Notes”) included the features set forth above. The Company issued \$2,965 Original Notes in 2018, \$4,661 Additional Notes in 2018 and 2019, and \$5,372 Second Amendment Notes in 2020.

The total issuance costs incurred in connection with all closings of the Convertible Notes was \$205.

The Convertible Notes were considered to be a hybrid financial instrument consisting of a fixed interest rate host with certain embedded features requiring evaluation for bifurcation and separate accounting. The Company determined that the Automatic Conversion Upon a Qualified Financing, Optional Conversion Upon a Non-Qualified Financing and the Optional Redemption Upon a Sales Transaction were considered freestanding financial instruments which required bifurcation from the host debt instruments.

The resulting debt discount from the derivative liabilities was presented as a direct deduction from the carrying amount of the Convertible Notes and amortized to interest expense using the effective interest rate method.

The Convertible Notes as of December 31, 2021 and 2020 consist of the following:

	Year Ended December 31,	
	2021	2020
Convertible notes principal	\$ —	\$ 12,998
Less: unamortized note issuance costs	—	(45)
Less: debt discount	—	(544)
	<u>\$ —</u>	<u>\$ 12,409</u>

Interest expense on the convertible notes, including amortization of debt issuance costs, consisted of the following for the year ended December 31, 2021 and 2020:

	Year Ended December 31,	
	2021	2020
Coupon interest	\$ 512	\$ 922
Issuance costs amortization	31	54
Discount amortization	352	782
	<u>\$ 895</u>	<u>\$ 1,758</u>

In May 2021, the convertible notes and accrued interest thereon were converted into shares of the Company's Series B-1 convertible preferred stock (Note 10).

In April 2020, the Company received a \$443 unsecured loan, bearing interest at 1.0%, pursuant to the Paycheck Protection Program (the "PPP"), a program implemented by the U.S. Small Business Administration (the "SBA") under the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act") (the "PPP Loan"). The PPP provides for loans to qualifying businesses for amounts up to 2.5 times of the average monthly payroll expenses of the qualifying business. The loan and accrued interest are forgivable after eight weeks if the borrower uses the loan proceeds for eligible purposes, including payroll, benefits, rent and utilities. The amount of loan forgiveness may be reduced if the borrower terminates employees or reduces salaries during the eight-week period. The unforgiven portion of the PPP loan is payable over two years at an interest rate of 1.0%, with a deferral of payments for the first six months. The Company used the proceeds for purposes consistent with the PPP.

On January 21, 2021, the Company received confirmation from the SBA that the PPP Loan had been forgiven in full, including all interest incurred. Accordingly, the Company recognized \$443 of income for the debt extinguishment pursuant to ASC 470-50-15-4 for the year ended December 31, 2021.

9. Preferred Stock

On May 1, 2021, the holders of all of our outstanding convertible promissory notes agreed to an acceleration of the date of the automatic conversion from June 30, 2021 to May 1, 2021 for all convertible promissory notes. Accordingly, on May 1, 2021, all of the outstanding convertible promissory notes were converted into 10,926,089 shares of our Series B-1 convertible preferred stock, at a conversion price equal to \$1.385 per share. The Series B-1 convertible preferred stock was recorded within mezzanine equity at fair value on the date of issuance. On October 13, 2021, upon the closing of the IPO, all shares of preferred stock were converted into 15,906,537 shares of common stock.

As of December 31, 2020, convertible preferred stock consisted of the following:

Class of Preferred	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Convertible Preferred Stock	3,067,519	2,819,027	\$ 4,616	\$ 4,766	871,541
Series A-1 Convertible Preferred Stock	3,970,776	3,730,366	5,398	5,572	1,153,290
Series A-2 Convertible Preferred Stock	3,565,063	3,565,063	5,809	5,997	1,102,182
Series B Convertible Preferred Stock	30,450,000	30,409,890	39,547	40,826	9,401,599
Total	41,053,358	40,524,346	\$ 55,370	\$ 57,161	12,528,612

Rights, preferences, privileges, and restrictions:

The holders of shares of Series A, A-1, A-2, B and B-1 convertible preferred stock (or collectively, the “Preferred Stock”) had the rights, preferences, privileges, and restrictions as set forth below:

Dividends:

The holders of the Preferred Stock are entitled to receive cumulative dividends when, as and if declared by the Company’s Board of Directors. Accrued dividends shall accrue only on the unreturned amount of the original issue price taking into account the payment of any mandatory dividend. As used herein, “original issue price” means \$0.69 per share with respect to the Series A and A-1 convertible preferred stock, \$0.8415 per share with respect to the Series A-2 convertible preferred Stock, \$0.923 per share with respect to the Series B convertible preferred stock, and \$1.385 per share with respect to the Series B-1 convertible preferred stock. After such time the holders receive their full preferred liquidation amount, less any and all mandatory dividends, the holders of preferred stock will not be entitled to any additional accruing dividends; provided that the holders of the preferred stock will share in all dividends and distributions declared by the board of directors and paid by the Company with the holders of common stock on an as if converted to common stock basis.

Voting Rights:

The holders of Preferred Stock are entitled to voting rights equal to the number of shares of common stock into which the shares of Preferred Stock can be converted. In addition, as long as there are shares of Preferred Stock outstanding, each of the holders of over 7.5% of the total Preferred Stock outstanding on a converted basis are entitled to designate one director of the Company to be elected by the holders of Preferred Stock. The holders of a majority of the then outstanding shares of common stock, voting together as a single class, are entitled to elect one director of the Company. If the holders of the Preferred Stock or common stock fail to elect a sufficient number of directors to fulfill directorships for which they are entitled to elect directors, then any directorship shall remain vacant until the holders of the Preferred Stock or common stock elect such person.

Liquidation Rights:

In the event of any liquidation, dissolution or winding up of the Company, whether voluntary or involuntary, the holders of Preferred Stock have liquidation preferences, before any distribution or payment is made to holders of any common stock, in an amount per share equal to the original issue price for such Preferred Stock plus all accruing dividends (the “Preferred Liquidation Amount”). If the assets and funds to be distributed among the holders of Preferred Stock are insufficient to permit the payment to such holders, then the entire assets and funds of the Company legally available for distribution will be distributed ratably among the holders of Preferred Stock in proportion to the Preferred Liquidation Amount each such holder is otherwise entitled to receive on each share, less any mandatory dividends.

Upon completion of the payment of the full liquidation preference of Preferred Stock less any and all mandatory dividends previously distributed, the remaining assets of the Company, if any, shall be distributed among the holders of

common stock and Preferred Stock, pro rata based on the number of common shares held by each (assuming conversion of all shares of the Preferred Stock into common stock).

Conversion:

Each share of Preferred Stock is convertible into shares of common stock, at the option of the holder, at any time after date of issuance. Each share of Preferred Stock automatically converts to the number of shares of common stock determined in accordance with the conversion rate upon the closing of a public offering, at a price per share of not less than three times the highest, then applicable conversion price, resulting in offering proceeds of at least \$30,000 net of underwriting discounts and commissions. The conversion ratio will be adjusted in the case of specified changes to the Company's capitalization as a result of stock splits, combinations, common stock dividends and distributions, reclassifications, exchanges, substitutions, reorganizations, mergers or consolidations.

Redemption:

Prior to the July 29, 2020 amendment to the Company's second amended and restated certificate of incorporation, holders of Preferred Stock had the right to redeem shares of preferred stock on or after March 20, 2021 after receipt of written notice requesting redemption from 60% of the then outstanding shares of the preferred stock voting together as a single class on an as-converted to common stock basis at a price equal to the original issue price plus all accruing dividends. As the Preferred Stock was redeemable due to the passage of time prior to the amendment, the Company recorded changes in the redemption value and accreted the Preferred Stock immediately to its redemption value during each reporting period.

On July 29, 2020, the Company's second amended and restated certificate of incorporation was amended resulting in the removal of the redemption right. As the redemption option was removed in connection with the amendment, the only option for redemption is based on the occurrence of a deemed liquidation event. As the events that would trigger a deemed liquidation event are corporate transactions that are not certain to occur, the Company determined that post July 29, 2020, the Preferred Stock is no longer considered probable to become redeemable, and is instead contingently redeemable. As a result, the Company ceased the accretion of the Preferred Stock to redemption value upon execution of the amendment to the articles of incorporation.

Protective Provisions:

At any time when shares of Preferred Stock are outstanding, the Company shall not, either directly, indirectly by amendment, merger, consolidation or otherwise, do any of the following without the written consent or affirmative vote of at least 60% of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted to Common Stock basis: (i) effect the consummation of a liquidation event or any other merger or consolidation, (ii) amend, alter or repeal any provision of the Company's certificate of incorporation or bylaws in a manner that adversely affects the powers, preferences or rights of the Preferred Stock, (iii) amend, alter, or repeal any provision of the by-laws of the Company, in a manner that affects the powers, preferences, or rights of Preferred Stock, (iv) increase or decrease the authorized number of shares of Preferred Stock or Common Stock, (v) reclassify, alter, or amend any existing security of the Company in respect to the distribution of assets on the liquidation, dissolution, or winding up of the Company or payment of dividends, if such reclassification, alteration, or amendment would render such other security senior to Preferred Stock in respect to any such right, preference, or privilege, (vi) purchase or redeem, or declare any dividend, on any shares of capital stock of the Company other than repurchase of stock pursuant to stock restriction agreements approved by the board of directors that grant to the Company the right of repurchase upon termination of the service, (vii) borrow or authorize any amount of indebtedness, other than inventory financing in the ordinary course of business and any indebtedness in an amount of up to \$250 in aggregate that is approved by the board of directors, (viii) increase or decrease the authorized number of directors of the board of directors (ix) effect a change in business from the discovery and development of small molecule therapeutics targeting toxic proteins that cause cognitive decline associated with Alzheimer's disease and other neurodegenerative diseases, (x) enter into any transaction with any person other than in the ordinary course of business on an arm's length basis, (xi) increase the number of shares of common stock reserved for issuance, (xii) make any loan except advances in ordinary course of business or advances up to \$50 in aggregate approved by the board of directors, (xiii) hire, terminate, or change compensation in excess of \$100 of any

officer, director, or employee, unless approved by the board of directors, (xiv) own any stock or securities of any other corporation, unless approved by the board of directors, (xv) guarantee any indebtedness except for trade accounts of the Company or any guarantee approved by the board of directors, (xvi) make any investment other than investments in prime commercial paper, money market funds, certificates of deposits in any United States bank having a net worth in excess of \$100,000 or obligations issued or guaranteed by the United States of America, unless approved by the board of directors.

10. Warrants

In conjunction with both debt and equity investments, the Company issued warrants on each of the following classes of stock: common stock and Series A-1 convertible preferred stock.

Common Stock Warrants

The following is a summary of the Company's outstanding common stock warrants as of December 31, 2020:

Number of Warrants	Exercise Price	Expiration Date
50,497	\$ 0.68	May 2021
116,144	\$ 0.03	March 2023
24,171	\$ 0.03	May 2023
10,319	\$ 0.03	August 2023

The Company's common stock warrants are equity classified as there are no features within the warrant agreements that require liability treatment. Accordingly, the warrants are recorded as a component of equity when issued. A total of 198,198 common stock warrants were exercised in 2021, and the remainder were forfeited. There are no warrants outstanding as of December 31, 2021.

Series A-1 Convertible Preferred Stock Warrants

The Company reviewed the classification of the warrants as liabilities or equity under the guidance of ASC 480-10, Distinguishing Liabilities from Equity, and concluded that the Series A-1 convertible preferred stock warrants should be classified as a liability. The Company re-measures the warrant liability to fair market value at the end of each reporting period. The Series A-1 convertible preferred stock warrants expired in October 2020 and were not exercised. For the year ended December 31, 2020, the Company recorded a fair value adjustment of \$181 in the consolidated statement of operations and comprehensive loss.

11. Common Stock

Common stockholders are entitled to dividends if and when declared by the Company's Board of Directors subject to the rights of the preferred stockholders. As of December 31, 2021 and 2020, no dividends on common stock had been declared by the Company.

The Company has reserved the following shares of common stock for conversion of preferred stock, exercise of warrants, exercise of stock options, and future issuances as of December 31:

	December 31,	
	2021	2020
Convertible preferred stock (as converted)	—	12,528,612
Warrants for common stock	—	201,131
Shares available for future issuance under Prior Plans	—	411,619
Options issued and outstanding	5,640,438	4,587,865
Shares available for future issuance under 2021 Plan	1,242,271	—
Shares available for future issuance under ESPP	209,532	—
Total	<u>7,092,241</u>	<u>17,729,227</u>

12. Equity-based Compensation

2021 Equity Incentive Plan

On October 7, 2021, the date upon which the Registration Statement on Form S-1 in connection with the IPO was declared effective, the 2021 Equity Incentive Plan (the “2021 Plan”) became effective. On the same date, the Company ceased granting awards under its 2017 Equity Incentive Plan (the “2017 Plan”). The 2021 Plan authorizes the award of both equity-based and cash-based incentive awards, including: (i) stock options (both incentive stock options and nonqualified stock options), (ii) stock appreciation rights, or SARs, (iii) restricted stock awards, or RSAs, (iv) restricted stock units, or RSUs, and (v) cash or other stock-based awards. Incentive stock options may be granted only to employees. All other types of awards may be issued to employees, directors, consultants, and other service providers.

As of December 31, 2021, the aggregate number of shares of common stock of the Company that may be issued under the Plan is 7,514,395. The number of shares reserved for issuance under the 2021 Plan will increase automatically on January 1, 2022 and each anniversary of such date prior to the termination of the 2021 Plan, equal to the lesser of (i) 5% of our shares of common stock issued and outstanding on the last day of the immediately preceding fiscal year and (ii) such smaller number of shares as determined by the board or compensation committee. No more than 7,543,185 shares of common stock may be issued under the 2021 Plan through incentive stock options. Shares subject to the 2017 Plan or the 2007 Equity Incentive Plan (the “2007 Plan” and collectively with the 2017 Plan, the “Prior Plans”) that expire, terminate or are cancelled or forfeited for any reason after the effectiveness of the 2021 Plan will be added (or added back) to the shares available for issuance under the 2021 Plan. The total number of shares underlying the Prior Plan awards that may be recycled into the 2021 Plan will not exceed 4,334,131 shares.

2017 Equity Incentive Plan

On September 15, 2017, the Company’s board of directors approved the 2017 Plan, which provides for the granting of incentive stock options, non-qualified stock options and stock awards to employees, certain consultants and directors. The Board, or its designated committee, has the sole authority to select the individuals to whom awards are granted and determine the terms of each award, including the number of shares and the schedule upon which the award becomes exercisable. Upon the effectiveness of the 2021 Plan, no further awards will be granted under the 2017 Plan.

The aggregate number of shares of common stock of the Company that may be issued under the 2017 Plan is 4,334,131 (taking into account shares of common stock that may become issuable pursuant to Section 3(b) of the 2017 Plan in respect of shares of common stock reserved under the Company’s Amended and Restated 2007 Equity Incentive Plan). The 2021 Plan allows for a provision for shares granted under the Prior Plans which are cancelled, forfeited, exchanged or surrendered without having been exercised to subsequently be available for reissuance under the 2021 Plan.

Employee Stock Purchase Plan

The Company's board of directors approved the Employee Stock Purchase Plan, or ESPP, prior to the closing of the IPO. Under the ESPP, the Company may provide employees and employees of the Subsidiary with an opportunity to purchase shares of the Company's common stock at a discounted purchase price. As of December 31, 2021, subject to adjustment as provided in the ESPP, a total of 209,532 shares of common stock will be authorized and reserved for issuance under the ESPP.

Subject to prior approval by the board of directors in each instance, on or about January 1, 2022 and each anniversary of such date thereafter prior to the termination of the ESPP, the number of shares of common stock authorized and reserved for issuance under the ESPP will be increased by a number of shares of common stock equal to the least of (i) 1,000,000 shares of our common stock, (ii) 1% of the shares of common stock outstanding on the final day of the immediately preceding calendar year, and (iii) such smaller number of shares of common stock as determined by the board of directors. Such shares of common stock may be newly issued shares, treasury shares or shares acquired on the open market. In the event that any dividend or other distribution (whether in the form of cash, our common stock, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, or exchange of common stock or other securities, or other change in the structure affecting common stock occurs, then in order to prevent dilution or enlargement of the benefits or potential benefits intended to be made available under the ESPP, the compensation committee will, in such manner as it deems equitable, adjust the number of shares and class of common stock that may be delivered under the ESPP, the purchase price per share and the number of shares covered by each outstanding option under the ESPP, and the numerical limits described above.

Equity-based Compensation

The fair value of options granted was estimated on the date of grant using the Black-Scholes option pricing model with the following assumptions:

	Year Ended December 31,	
	2021	2020
Fair value of common stock	\$1.75 – \$12.13	\$1.20
Expected volatility	100.82% – 104.79%	101.35% – 109.34%
Risk-free interest rate	0.67% – 1.26%	0.27% – 1.60%
Dividend yield	0.00%	0.00%
Expected term (years)	5.00 – 6.22	5.00 – 6.25

Expected Term — The expected term represents the period that the stock-based awards are expected to be outstanding. As the Company does not have sufficient historical experience for determining the expected term of the stock option awards granted, expected term has been calculated using the simplified method.

Risk-Free Interest Rate — The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the date of grant for zero-coupon U.S. Treasury constant maturity notes with terms approximately equal to the stock-based awards' expected term.

Expected Volatility — Up until October 13, 2021, the Company was privately held and did not have a trading history of common stock. As such, the expected volatility was derived from the average historical stock volatilities of the common stock of several public companies within the industry that the Company considers to be comparable to our business over a period equivalent to the expected term of the stock-based awards. The Company will continue to derive expected volatility from average historical stock volatilities of industry peers until the Company has compiled a trading history of its own for a sufficient period of time.

Dividend Yield — The expected dividend yield is zero as the Company has not paid and does not anticipate paying any dividends in the foreseeable future.

Fair Value of Common Stock—Prior to the IPO, the fair value of the shares of common stock underlying the stock-based awards had historically been determined by the board of directors with input from management. Because there was no public market for the common stock, the board of directors had determined the fair value of the common stock at the time of grant of the stock-based award by considering a number of objective and subjective factors, including having contemporaneous valuations of the common stock performed by a third-party valuation specialist. Subsequent to the IPO, the board of directors will determine the fair value of the shares of common stock underlying the stock-based awards based off of the closing price as reported on the Nasdaq Stock Market LLC on the grant date.

Activity for options was as follows:

	Options Outstanding			
	Number of Options	Weighted-Average Exercise Price	Aggregate Intrinsic Value (in 000's)	Weighted Average Remaining Contractual Life (In Years)
Balance, December 31, 2020	4,587,865	\$ 0.98	\$ 3,511	7.8
Options granted	1,697,076	\$ 11.63		
Options exercised	(321,686)	\$ 0.86		
Options forfeited	(173,974)	\$ 1.15		
Options expired	(148,843)	\$ 0.94		
Balance, December 31, 2021	5,640,438	\$ 4.19	\$ 12,002	8.0
Exercisable as of December 31, 2021	3,362,540	\$ 2.52	\$ 13,116	7.0
Vested and expected to vest as of December 31, 2021	5,640,438	\$ 4.19	\$ 12,002	8.0

The weighted-average grant date fair value of stock options granted was \$9.09 and \$0.97 during the years ended December 31, 2021 and 2020, respectively. There were 1,697,076 stock options granted at an aggregate fair value of \$15,424 for the year ended December 31, 2021 and 1,245,865 stock options granted at an aggregate fair value of \$1,210 for the year ended December 31, 2020. During the year ended December 31, 2021 and 2020, there were 321,686 and 18,545 stock options exercised, respectively, with an aggregate grant date fair value of \$188 and \$11, respectively. The intrinsic value of stock options exercised during the year ended December 31, 2021 was \$1,610.

The Company granted 349,150 option awards containing performance conditions to an executive during 2019. As of December 31, 2021, the performance targets were achieved and therefore, \$108 of expense was recognized for these awards during the year ended December 31, 2021. No expense was recognized during the year ended December 31, 2020.

The Company recorded total equity-based compensation expense in the statement of operations and comprehensive loss related to incentive stock options and nonstatutory stock options as follows:

	Year Ended December 31,	
	2021	2020
Research and development	\$ 877	\$ 216
General and administrative	4,306	259
Total equity-based compensation	\$ 5,183	\$ 475

As of December 31, 2021, total future compensation expense related to unvested awards yet to be recognized by the Company was \$11,792. Total future compensation expense related to unvested awards yet to be recognized by the Company is expected to be recognized over a weighted-average remaining vesting period of approximately 3.2 years.

13. Net Loss per Share

The following outstanding potentially dilutive common stock equivalents have been excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods presented due to their antidilutive effect:

	December 31,	
	2021	2020
Convertible preferred stock (as converted)	—	12,528,612
Warrants for common stock	—	201,131
Shares available for future issuance under Prior Plans	—	411,619
Options issued and outstanding	5,640,438	4,587,865
Shares available for future issuance under 2021 Plan	1,242,271	—
Shares available for future issuance under ESPP	209,532	—
Total	<u>7,092,241</u>	<u>17,729,227</u>

The basic and diluted net loss per share attributable to common stockholders has been prepared as follows:

	December 31,	
	2021	2020
Net loss	\$ (11,716)	\$ (7,839)
Cumulative preferred stock dividends	(4,532)	(4,234)
Net loss attributable to common stockholders	\$ (16,248)	\$ (12,073)
Weighted-average common shares outstanding - basic and diluted	5,190,883	508,112
Total	<u>\$ (3.13)</u>	<u>\$ (23.76)</u>

14. Retirement Plan

The Company maintains a 401(k) retirement plan to provide retirement and incidental benefits for its employees. Employees may contribute a percentage of their annual compensation to the 401(k) retirement plan, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The Company matches employee contributions dollar for dollar up to a maximum of 4% of the employees' compensation per person per year. All matching contributions vest immediately. Company matching contributions to the 401(k) retirement plan totaled \$113 and \$110 for the year ended December 31, 2021 and 2020, respectively.

15. Income Taxes

The net loss consists of the following components:

	Year Ended December 31,	
	2021	2020
Domestic	\$ (10,910)	\$ (7,268)
Foreign	(806)	(571)
Total	<u>\$ (11,716)</u>	<u>\$ (7,839)</u>

During the years ended December 31, 2021 and 2020, the Company recorded no current or deferred income tax expenses or benefits as the Company has incurred losses since inception and has provided a full valuation allowance against its deferred tax assets.

Global Intangible Low-Taxed Income (“GILTI”) is the excess of a U.S. shareholders total net foreign income over a deemed return on tangible assets. In January 2018, in response to inquiries by companies, the FASB issued guidance that allows companies to elect as an accounting policy whether to treat the GILTI tax as a period cost or to recognize deferred tax assets and liabilities when basis differences exist that are expected to affect the amount of GILTI inclusion upon reversal. The Company has elected to treat GILTI as a period expense.

A reconciliation of the expected income tax (benefit) computed using the federal statutory income tax rate to the Company’s effective income tax rate is as follows:

	Year Ended December 31,	
	2021	2020
Income tax computed at federal statutory rate	21.0 %	21.0 %
State taxes, net of federal benefit	4.1 %	7.1 %
Change in valuation allowance	(32.9)%	(35.8)%
R&D Credit	11.2 %	10.7 %
Interest expense	4.6 %	(3.2)%
Equity-based compensation	(5.8)%	(1.0)%
Fair value adjustments	(3.5)%	— %
Other	1.3 %	1.2 %
Effective income tax rate	— %	— %

The Company’s deferred tax assets and liabilities consist of the following:

	Year Ended December 31,	
	2021	2020
Deferred tax assets:		
Net operating loss carryforwards	\$ 13,239	\$ 11,060
Tax credit carryforwards	4,959	3,713
Equity-based compensation	544	291
Other	316	137
Deferred tax assets	19,058	15,201
Less: valuation allowance	(19,045)	(15,179)
Deferred tax assets after valuation allowance	13	22
Deferred tax liabilities		
Fixed assets	(13)	(22)
Deferred tax liabilities	(13)	(22)
Net deferred tax assets	\$ —	\$ —

The Company has evaluated the positive and negative evidence bearing upon its ability to realize the deferred tax assets as of December 31, 2021 and 2020. Management has considered the Company’s history of cumulative net losses and has concluded as of December 31, 2021 and 2020, that it was more likely than not that the Company will not realize all of the benefits of the deferred tax assets. Accordingly, a full valuation allowance has been established against the deferred tax assets as of December 31, 2021 and 2020. The valuation allowance increased by \$3,866 and \$2,814 for the years ended December 31, 2021 and 2020, respectively, primarily as a result of operating losses generated with no corresponding financial statement benefit.

The Company has incurred net operating losses (“NOL”) since inception. As of December 31, 2021, the Company had federal net operating loss carryforwards of \$44,572 that expire at various dates through 2037. Included in the federal net operating loss carryforwards of \$44,572 is \$18,345 that can be carried forward indefinitely. As of December 31, 2021, the Company had state net operating loss carryforwards of \$44,571, available to reduce future state taxable income, which expire at various dates through 2041. As of December 31, 2021, the Company had foreign net operating loss carryforwards of \$1,202 that can be carried forward indefinitely. As of December 31, 2021, the Company had federal research and development tax credit carryforwards of \$4,959 available to reduce future federal tax liabilities, which expire at various dates through 2041.

Utilization of the Company's net operating loss carryforwards and research and development tax credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986 due to ownership changes that have occurred previously or that could occur in the future. These ownership changes may limit the amount of carryforwards that can be utilized annually to offset future taxable income. In general, an ownership change, as defined by Section 382, results from transactions increasing the ownership of certain stockholders or public groups in the stock of a corporation by more than 50% over a three-year period. The Company has not conducted a study to assess whether a change of control has occurred or whether there have been multiple changes of control since inception due to the significant complexity and cost associated with such a study. If the Company has experienced a change of control, as defined by Section 382, at any time since inception, utilization of the net operating loss carryforwards or research and development tax credit carryforwards would be subject to an annual limitation under Section 382, which is determined by first multiplying the value of the Company's stock at the time of the ownership change by the applicable long-term tax-exempt rate, and then could be subject to additional adjustments, as required. Any limitation may result in expiration of a portion of the net operating loss carryforwards or research and development tax credit carryforwards before utilization. Further, until a study is completed, and any limitation is known, no amounts are being presented as an uncertain tax position.

The Company files tax returns as prescribed by the tax laws of the jurisdictions in which it operates. In the normal course of business, the Company is subject to examination by federal and state jurisdictions, where applicable. There are currently no pending tax examinations. The Company is open to further tax examination under statute from 2017 to present; however, carryforward attributes that were generated prior to December 31, 2017 may still be adjusted upon examination by federal, state or local tax authorities if they either have been or will be used in a future period.

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

Cognition Therapeutics, Inc. (the "Company") has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). The Company's common stock, \$0.001 par value per share ("Common Stock") is registered under Section 12(b) of the Exchange Act. The following description of our Common Stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our third amended and restated certificate of incorporation (the "Certificate of Incorporation"), and amended and restated bylaws (the "Bylaws"), each of which is incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.1 is a part. We encourage you to read our Certificate of Incorporation, Bylaws and the applicable provisions of the General Corporation Law of the State of Delaware (the "DGCL"), for additional information.

References to "Cognition," "we," "our" and the "Company" herein are, unless the context otherwise indicates, only to Cognition Therapeutics, Inc. and not to any of its subsidiaries.

Common Stock

Authorized Capital Stock. Our authorized capital stock consists of 260,000,000 shares, 250,000,000 of which are designated as Common Stock and 10,000,000 of which are designated as preferred stock with a par value of \$0.001 ("Preferred Stock"). Shares of our Common Stock have the following rights, preferences and privileges:

Voting Rights. Except as otherwise provided by the DGCL or our Certificate of Incorporation and subject to the rights of holders of any series of Preferred Stock, all of the voting power of our stockholders is vested in the holders of the Common Stock, and each holder of Common Stock has one vote for each share held by such holder on all matters voted upon by our stockholders. No holder of Common Stock is entitled to the right of cumulative voting. At meetings of our stockholders, a plurality of the votes cast is sufficient to elect a director to our board of directors (the "Board").

Dividends. Except as otherwise provided by the DGCL or our Certificate of Incorporation, and subject to the powers, rights, privileges, preferences and priorities of holders of any series of Preferred Stock, the holders of Common Stock will share ratably in all dividends payable in cash, stock or otherwise and other distributions, whether in respect of liquidation or dissolution (voluntary or involuntary) or otherwise, at such times and in such amounts as our Board in its sole discretion may determine.

No Preemptive or Similar Rights. Holders of our Common Stock have no preemptive, subscription, redemption or conversion rights.

Transfer Agent and Registrar. The transfer agent and registrar for our Common Stock is American Stock Transfer & Trust Company, LLC.

Listing. Our Common Stock is listed on the Nasdaq Global Market under the symbol "CGTX."

Preferred Stock

Our Board has the authority, without further action by our stockholders, to issue up to 10,000,000 shares of Preferred Stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the dividend, voting and other rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding. Our Board may authorize the issuance of Preferred Stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our Common Stock. The issuance of Preferred Stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control and may adversely affect the market price of the Common Stock and the voting and other rights of the holders of our Common Stock.

We have no current plans to issue any shares of Preferred Stock.

Anti-Takeover Effects of Delaware Law and our Certificate of Incorporation and Bylaws

Certificate of Incorporation and Bylaws

Provisions of our Certificate of Incorporation and Bylaws may delay or discourage transactions involving an actual or potential change of control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our Common Stock. Among other things, our Certificate of Incorporation and Bylaws:

- divide our Board into three classes with staggered three-year terms;
- provide that a special meeting of stockholders may be called only by (i) a majority of our Board, (ii) the Chairperson of the Board or (iii) our Chief Executive Officer;
- establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the Board or a committee of the Board;
- provide that stockholders may only act at a duly organized meeting; and
- provide that members of our Board of directors may be removed from office by our stockholders only for cause by the affirmative vote of 66 2/3% of the total voting power of all shares entitled to vote generally in the election of directors.

Our Certificate of Incorporation and Bylaws provide that the Court of Chancery of the State of Delaware (or, in the event that the Court of Chancery does not have jurisdiction, the United States District Court for the District of Delaware or other state courts of the State of Delaware) is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of breach of fiduciary duty, any action asserting a claim against us arising pursuant to the DGCL, our Certificate of Incorporation or our Bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine; provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction; and provided further that, if and only if the Court of Chancery of the State of Delaware dismisses any such action for lack of subject matter jurisdiction, such action may be brought in another state or federal court sitting in the State of Delaware.

Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Our Certificate of Incorporation and Bylaws, however, provide that the federal district courts of the United States of America will be the exclusive forum for the resolution of any complaint asserting a cause of action against us or any of our directors, officers, employees or agents and arising under the Securities Act.

Delaware Anti-Takeover Law

We are subject to Section 203 of the DGCL, which prohibits persons deemed “interested stockholders” from engaging in a “business combination” with a publicly-held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an “interested stockholder” is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by our Board, such as discouraging takeover attempts that might result in a premium over the market price of our Common Stock.

List of Subsidiaries

Subsidiary	Ownership percentage	Jurisdiction of incorporation or organization
Cognition Therapeutics PTY LTD	100%	Australia

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8 No. 333- 260686) pertaining to the Cognition Therapeutics, Inc. Amended and Restated 2007 Equity Incentive Plan, the 2017 Equity Incentive Plan, as Amended, the 2021 Equity Incentive Plan and the 2021 Employee Stock Purchase Plan of Cognition Therapeutics, Inc. of our report dated March 30, 2022, with respect to the consolidated financial statements of Cognition Therapeutics, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2021.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
March 30, 2022

CERTIFICATIONS

I, Lisa Ricciardi, certify that:

1. I have reviewed this annual report on Form 10-K of Cognition Therapeutics, Inc. (the “registrant”);
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 the 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:
 - (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 30, 2022

/s/ Lisa Ricciardi

Lisa Ricciardi
Chief Executive Officer, President and Director
(Principal Executive Officer)

CERTIFICATIONS

I, James O'Brien, certify that:

1. I have reviewed this annual report on Form 10-K of Cognition Therapeutics, Inc. (the "registrant");
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 the 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:
 - (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 30, 2022

/s/ James O'Brien
James O'Brien
Chief Financial Officer
(Principal Financial Officer)

**STATEMENT PURSUANT TO
18 U.S.C. SECTION 1350
AS REQUIRED BY
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Cognition Therapeutics, Inc. (the “Company”) on Form 10-K for the period ending December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned hereby certify that to the best of our 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.

March 30, 2022	<u>/s/ Lisa Ricciardi</u> Lisa Ricciardi	Chief Executive Officer, President and Director (Principal Executive Officer)
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A signed original of this written statement required by Section 906 has been provided to Cognition Therapeutics, Inc. and will be retained by Cognition Therapeutics, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

**STATEMENT PURSUANT TO
18 U.S.C. SECTION 1350
AS REQUIRED BY
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Cognition Therapeutics, Inc. (the “Company”) on Form 10-K for the period ending December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned hereby certify that to the best of our 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.

March 30, 2022

/s/ James O’Brien
James O’Brien

Chief Financial Officer
(Principal Financial Officer and Principal
Accounting Officer)

A signed original of this written statement required by Section 906 has been provided to Cognition Therapeutics, Inc. and will be retained by Cognition Therapeutics, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.
