UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

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

For the 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: 000-51173

Catalyst Biosciences, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**56-2020050**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
611 Gateway Blvd. Suite 710 South San Francisco, California	**94080**
(Address of Chief Executive Offices)	**(Zip Code)**

(650) 871-0761
(Registrant's Telephone Number, Including Area Code)

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	CBIO	NASDAQ

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 Securities Exchange Act. Yes ☐ No ☒

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

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

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

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

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

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

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

As of March 25, 2022, the number of outstanding shares of the registrant's common stock, par value $0.001 per share, was 31,477,053. The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2021, was $135,045,079.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's proxy statement for its 2022 Annual Meeting of Stockholders (the "Proxy Statement"), to be filed with the U.S. Securities and Exchange Commission, no later than 120 days after the Registrant's fiscal year ended December 31, 2021, are incorporated by reference to Part III of this Annual Report on Form 10-K.

CATALYST BIOSCIENCES, INC.
Annual Report on Form 10-K
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PART I

Forward-Looking Statements and Market Data

This Annual Report on Form 10-K and the documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements, other than statements of historical facts, included or incorporated by reference in this Annual Report on Form 10-K regarding our strategy, future results of operations, future financial condition, future revenues, projected costs, prospects, plans, intentions and objectives of management, as well as the assumptions that underlie these statements, are forward-looking statements. These forward-looking statements should not be relied upon as predictions of future events as we cannot assure you that the events or circumstances reflected in these statements will be achieved or will occur. Forward-looking statements are identified by words such as "believes," "expects," "may," "will," "should," "seeks," "intends," "plans," "pro forma," "estimates," or "anticipates" or the negative of these words and phrases or other variations of these words and phrases or comparable terminology, although not all forward-looking statements contain these identifying words. Such forward-looking statements are based on our management's assumptions and assessments in light of information currently available to our management, its experience and its perception of historical trends, current conditions, expected future developments and other factors our management believes to be appropriate.

You should read these statements carefully because they discuss future expectations, contain projections of future results of operations or financial condition, or state other "forward-looking" information. These statements relate to our plans, objectives, expectations, intentions and financial performance and the assumptions that underlie these statements. For example, forward-looking statements include any statements regarding:

- the strategies, prospects, plans, expectations or objectives of management for future operations;
- our focus on specific product candidates;
- the scope, duration, progress or outcomes of the development of product candidates or programs;
- the timelines, progress and potential results of our current and future clinical studies and trials;
- the competitiveness of our products candidates against other competing products;
- the benefits that may be derived from product candidates or the commercial or market opportunity in any target indication;
- our ability to protect intellectual property rights;
- our anticipated operations, financial position, revenues, costs or expenses, statements regarding future economic conditions or performance, statements of belief and any statement of assumptions underlying any of the foregoing;
- potential regulatory filings for or approval of any of our product candidates;
- the progress of our third-party collaborations, including estimated milestones;
- our intention to seek, and the ability to enter into, strategic alliances, partnerships and collaborations;
- the responsibilities of our collaborators, including the responsibility to make cost reimbursement, milestone, royalty and other payments to us, and our expectations regarding our collaborators' plans with respect to our products;
- the results and timing of clinical trials and the possible commencement of future clinical trials;
- conditions for obtaining regulatory approval of our product candidates;
- submission and timing of applications for regulatory approval;
- the impact of the United States (U.S.) Food and Drug Administration ("FDA") and other government regulations on our business;

- uncertainties associated with obtaining and protecting patents and other intellectual property rights, as well as avoiding the intellectual property rights of others;
- products and companies that will compete with the products we license to third-party collaborators;
- the possibility we may commercialize our own products and build up our commercial, sales and marketing capabilities and other required infrastructure;
- our employees, including the number of employees and the continued service of key management, technical and scientific personnel;
- our future performance and obligations under agreements we have entered into, such as our collaboration agreement with Biogen;
- our future performance and our expectations regarding our ability to achieve profitability;
- requirements for us to purchase supplies and raw materials from third parties, and the ability of third parties to provide us with required supplies and raw materials;
- sufficiency of our cash resources, anticipated capital requirements and capital expenditures and our need for additional financing, as well as our plans for obtaining and ability to obtain such additional financing;
- the composition of future revenues;
- accounting policies and estimates, including revenue recognition policies; and
- statements of belief and any statement of assumptions underlying any of the foregoing.

Any such forward-looking statements are not guarantees of future performance and are subject to certain risks and uncertainties that could cause actual results to differ materially from those anticipated in or contemplated by such forward-looking statements. Factors that might cause such a difference include, but are not limited to, the risks and uncertainties described in this Annual Report on Form 10-K, including those risks described in Part I, Item 1A, "Risk Factors," as well as others that we may consider immaterial or do not anticipate at this time. The risks and uncertainties described in this report, including in Part I, Item 1A, "Risk Factors," are not exclusive and further information concerning our company and our businesses, including factors that potentially could materially affect our operating results or financial condition, may emerge from time to time. All forward-looking statements are based on our management's beliefs and assumptions and on information currently available to our management. These statements, like all statements in this report, speak only as of their date, and we undertake no obligation to update or revise these statements considering future developments. We caution investors that our business and financial performance are subject to substantial risks and uncertainties and they should carefully consider the factors set forth in other reports or documents that we file from time to time with the Securities and Exchange Commission (the "SEC").

This Annual Report on Form 10-K also contains estimates, projections and other information concerning our industry, our business, and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

Unless the context requires otherwise, in this Annual Report on Form 10-K the terms "Catalyst," the "Company," "we," "us" and "our" refer to Catalyst Biosciences, Inc., together with our subsidiary, Catalyst Bio, Inc., which we refer to as "Catalyst Bio." See "Item 1— Business— Business Organization."

Item 1. BUSINESS.

Overview

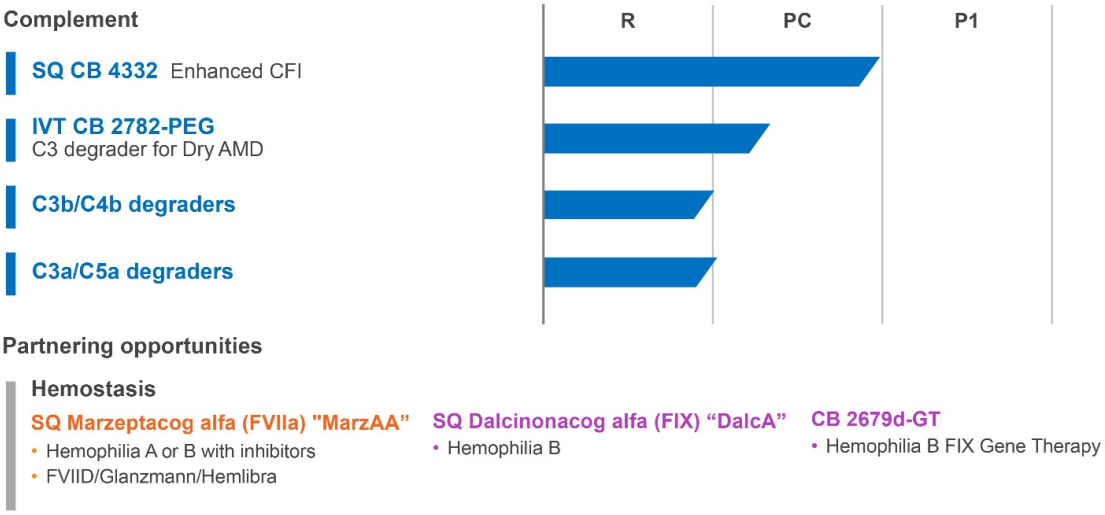
We are a research and clinical development biopharmaceutical company focused on developing protease therapeutics to address unmet medical needs in disorders of the complement system or where complement components are associated with progression of the disease state. Proteases are an important class of enzymes, which are key natural regulators of many biological processes, including the complement system. We use our protease engineering platform to create improved or novel molecules for treatment of diseases that result from dysregulation of the complement system. Our complement pipeline consists of a preclinical complement component 3 ("C3") degrader program for geographic atrophy ("GA") in dry age-related macular degeneration ("dAMD"), an improved Complement Factor I ("CFI") protease, CB 4332, for subcutaneous ("SQ") or intravitreal ("IVT") therapy to restore complement homeostasis in diseases of overactive complement or CFI deficiencies, and proteases from our ProTUNE™ C3b/C4b degrader and ImmunoTUNE™ C3a/C5a degrader platforms designed to target specific disorders of the complement or inflammatory pathways. Historically, we also used our protein engineering platform to develop potential therapies for coagulation disorders, including marzeptacog alfa (activated) ("MarzAA"), a SQ administered next-generation engineered coagulation Factor VIIa ("FVIIa") for the treatment of episodic bleeding and prophylaxis in subjects with rare bleeding disorders, and dalcinonacog alfa ("DalcA"), a next-generation SQ FIX, both of which has shown sustained efficacy and safety in mid-stage clinical trials.

The product candidates generated by our protease engineering platform are designed to have improved functional properties such as longer half-life, improved specificity and targeting, higher potency, and increased bioavailability. These characteristics potentially allow for improved safety and efficacy for SQ administration of recombinant complement regulators, or less frequently dosed intravitreal products than current therapeutics in development.

Our current complement portfolio consists of the development candidates CB 4332 and CB 2782-PEG. CB 4332 is a wholly owned, first-in-class improved albumin-fused CFI molecule intended for prophylactic SQ or IVT administration in individuals with an imbalance in complement homeostasis or a CFI deficiency. CB 2782-PEG is a potential best-in-class C3 degrader product candidate in preclinical development for the treatment of dry AMD that we had licensed to Biogen. In March 2022, we re-acquired the full rights to CB 2782-PEG adding to our promising portfolio, which includes CB 4332 our enhanced CFI development candidate. We have several engineered protease programs in discovery or early non-clinical development. These programs all target diseases caused by deficient regulation of the complement system and inflammation.

In July 2021 we commenced patient enrollment in the screening ("CFI-001") and natural history of disease ("CFI-002") studies to assess CFI blood levels in patients who have diseases related to CFI deficiency and identify those who would benefit from CB 4332 treatment ("ConFIrm" and "ConFIdence", respectively). As of February 2022 we have completed enrollment of these studies.

The following table summarizes our current development programs.



We continue to experience operational and other challenges as a result of the COVID-19 global pandemic, which could delay or impact our development programs. See Note 7, *Commitments and Contingencies* and Other Recent Developments and Item 1A – Risk Factors for further discussion of the current and expected impact on our business and development programs.

Complement

Our protease programs are designed to take advantage of nature's natural complement regulators that restore complement homeostasis and potentially treat a variety of complement-mediated disorders. We have several protease programs currently in preclinical discovery or early non-clinical development. These programs target diseases caused by aberrant regulation of the complement system including both ocular programs, specifically for dry AMD, and systemic complement disorders, all of which are wholly owned by Catalyst.

The complement system is an enzyme-based innate immune defense system with the primary role of protecting the body from pathogens. The system is naturally regulated by proteases which is the basis for our approach to addressing complement-driven diseases. Similar to the coagulation system, the complement system employs several triggering pathways, known as the classical pathway ("CP"), lectin pathway ("LP") and alternative pathway ("AP"), which are followed by a cascading system of enzymatic reactions driven by proteases and their cofactors that, when functioning properly, ultimately leads to the destruction and removal of the pathogen or unwanted cells and proteins.

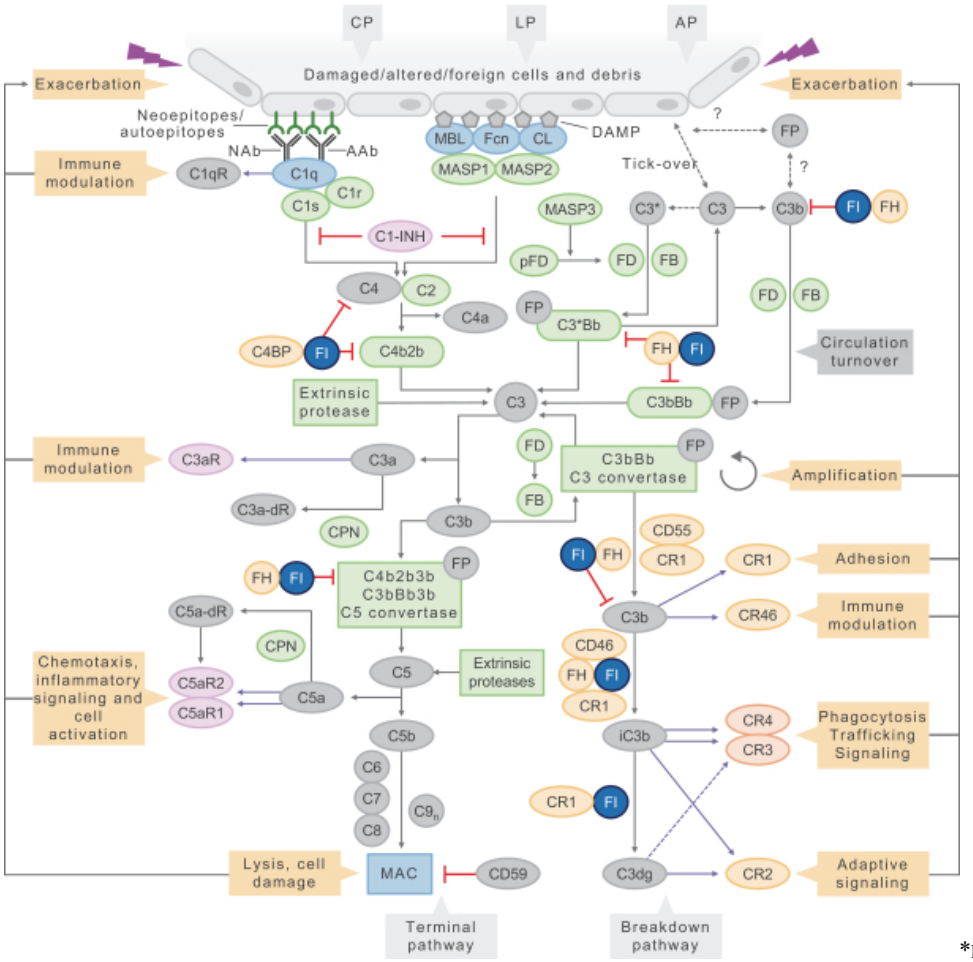


*Figure adapted from Mastellos *et al*., Clinical promise of next-generation complement therapeutics. Nature Reviews. 2019

Deficient or excessive activation of the complement system leads to severe disorders, including micro-thrombotic, autoimmune and/or immune-complex diseases, severe infectious diseases, and degenerative ophthalmic or neurologic diseases affecting a variety of tissues and organ systems. Disorders of the complement system are typically manifested by the absence or imbalance of complement regulator activity, or an overactivation of one or more pathways. The absence of regulation can cause the complement system to become self-destructive or not provide the necessary protection when needed. The protease therapeutic candidates generated by our platforms are designed to correct or restore the missing balance in the complement system that drives several diseases.

Proteases are uniquely poised to regulate key biological functions such as the complement system, either by promoting or limiting the cascade of events that leads to eventual clearing of foreign and damaged proteins, inflammation and formation of the membrane attack complex, which is deposited on the surface of cells and drives their destruction. Compared with antibodies and small molecule inhibitors that generally require a sustained excess of therapeutic compound over that of the target, Catalyst's protease therapeutic candidates are based on natural regulatory proteins that are capable of rapidly engaging and modulating large quantities of target molecules, as each protease molecule can degrade many target molecules over their effective lifetime. This means that our proteases are ideal for regulating high abundancy targets such as complement proteins in a way antibodies and small molecule

inhibitors cannot. A protease therapeutic is not consumed in the process of cleaving or degrading its target, therefore, smaller amounts of protease-based drug molecules can have a profound impact on biological pathways.

CB 2782-PEG: C3 Degrading Protease

CB 2782-PEG is an engineered pegylated C3 degrader previously licensed to Biogen that we designed with a best-in-class anti-C3 profile for geographic atrophy ("GA") in dry AMD. Dry AMD is an ocular disease that leads to vision loss and blindness for which there is currently no approved therapy. CB 2782-PEG degrades C3 in the eye reducing the steady state level of C3 activity. It is expected that maintaining low C3 levels in the eye can significantly slow disease progression and vision loss in patients with dry AMD. We have demonstrated in preclinical non-human primate models that we have the potential to reduce C3 levels in humans based on modeling studies for up to 3 months with a single intravitreal injection. In September 2021, Apellis released the results of the DERBY and OAKS phase 3 trials for GA secondary to dry AMD, showing that once-monthly pegcetacoplan, a pegylated C3 targeted inhibitor, was safe and efficacious, meeting its primary endpoint in one trial and narrowly missing the primary endpoint in a second trial for reducing GA lesion growth over a 12-month period. Further subpopulation analyses demonstrated a greater effect of reducing GA lesion growth in those subjects with extrafoveal lesions at baseline. CB 2782-PEG provides a differentiated mechanism of action by degrading both C3 and one of its byproducts, C3a potentially offering not only less frequent dosing but a more efficacious mechanism than pegcetacoplan or other complement inhibitors in development for GA.

The global market potential in dry AMD has been estimated to be $8.6 billion which could grow to over $18.0 billion by 2028. In December 2019, we entered into a License and Collaboration Agreement with Biogen for the development and commercialization of CB2782-PEG. In March 2022, Biogen terminated the license agreement and returned full rights to CB 2782-PEG.

CB 4332: Engineered Complement Factor I

CB 4332 is an engineered albumin-fused version of the CFI protease with an extended half-life that can be dosed subcutaneously or intravitreally in individuals who would benefit from enhanced regulation of complement. CFI is the central regulator of the complement system and CB 4332 has the potential to address several mechanistically related diseases driven by complement imbalance such as: Lupus Nephritis ("LN"), Systemic Lupus Erythematosus ("SLE"), warm Autoimmune Hemolytic Anemia ("wAIHA"), atypical Hemolytic Uremic Syndrome ("aHUS"), C3 Glomerulonephritis ("C3G"), and Immune Complex Membranoproliferative Glomerulonephritis ("IC-MPGN"), dry AMD and complete CFI deficiency ("CFID"), a rare immunodeficiency primarily affecting children. These are severe, chronic, life-threatening diseases that result in a significantly decreased quality of life for the afflicted individual.

CB 4332 can be dosed subcutaneously for systemic diseases or by IVT injection for ophthalmic indications. As a key complement regulator, CFI has the potential to be used in several complement dysregulated diseases (*e.g.*, those associated with hyperactive complement) in which additional upstream regulation may prove more effective than inhibiting specific downstream targets such as C3 or C5, where many of current molecules in development are targeted.

Individuals with complete or significant absence of endogenous CFI may present with a variety of disease manifestations, such as recurrent invasive infections with encapsulated bacteria, but are also at risk of developing autoimmune and/or immune-complex diseases such as chronic inflammation of the blood vessels of the brain, spinal cord, heart, or kidneys. No CFI replacement therapy, including for prophylactic use, has been approved, and patients often receive supportive care with lifelong antibiotic treatment, which may cause a range of additional problems. We have received pre-IND guidance from the FDA as well as Rare Pediatric Disease Designation of CB 4332 for treatment of CFI deficiency in January 2022.

Low circulating serum CFI levels have been shown to be associated with rare CFI genetic variants and all forms of AMD ranging from early to late-stage manifestations. Studies have estimated the prevalence rates of CFI deficiency in GA to be approximately 20%, suggesting that CFI is a prognostic biomarker for progression of GA. Approximately 1 million individuals globally are predicted to have low serum CFI levels and may potentially benefit from targeted CFI therapy. Gyroscope released interim results from its FOCUS phase 1/2a trial for patients with GA and having rare CFI variants, showing that gene therapy with GT005, an AAV-delivered CFI rebalanced

the overactivation of complement observed in the vitreous with sustained expression of CFI. The FOCUS data also showed that AAV-delivered CFI reduced complement biomarkers in the broader GA population who do not have a rare CFI genetic variant.

We have additional early-stage complement discovery programs that target different proteins of the complement system including proteases from our ProTUNE™ C3b/C4b degrader and ImmunoTUNE™ C3a/C5a degrader platforms. These proteases are designed to target specific disorders of the complement or inflammatory pathways. The ProTUNE™ platform generates optimized, next-generation engineered CFI molecules that are selectively enhanced for potency and target engagement. We expect to nominate a development candidate and target indication from this platform in 2022.

Complement intellectual property

The United States Patent and Trademark Offices issued a patent covering Catalyst's portfolio of engineered proteases that selectively cleave and degrade complement Factor 3 (C3), including the lead candidate CB 2782-PEG, a potential best-in-class treatment for dry AMD. These modified proteases inhibit complement activation and have the potential to treat multiple diseases in which complement activation plays a role. The patent provides protection until at least 2038. Our portfolio further encompasses additional issued patents on complement protein degrading proteases and pending applications in the complement space across a range of targets and protease scaffolds, including multiple pending applications covering CB 4332 and next generation engineered CFI molecules.

Coagulation Programs for Licensing

Hemophilia is a rare and serious bleeding disorder that results from a genetic or an acquired deficiency of a factor required for normal blood coagulation. There are two major types of hemophilia: Hemophilia A and Hemophilia B, caused by abnormalities in coagulation Factor VIII or Factor IX, respectively. Deficiencies in these factors reduce the ability of the affected individuals to form clots and stop bleeding. Hemophilia A occurs in approximately 1 in 5,000 male births, and Hemophilia B in approximately 1 in 20,000 male births. Patients with hemophilia suffer from spontaneous and traumatic bleeding episodes that can become limb- or life-threatening. In cases of severe hemophilia, spontaneous bleeding into muscles or joints is frequent and often results in disabling irreversible joint damage. Currently there is no cure for hemophilia. Hemophilia treatments involve on-demand management of acute bleeding episodes or prophylactic treatment using factor replacement or bypassing therapy. Replacement therapy involves frequent IV administration of the missing factors to prevent or stop bleeding. IV infusion is invasive, painful, time consuming and particularly challenging to administer to children. Often times, patients must seek assistance of a health professional for the IV infusion.

We believe that SQ dosing will be an important improvement for the treatment of hemophilia and other rare benign hematology indications. Our nonclinical and clinical studies have shown that MarzAA is nine-fold more potent than NovoSeven RT and that DalcA is 22-fold more potent than BeneFIX. The enhanced potency of MarzAA and DalcA allows for SQ dosing using a small volume injection, which we believe will provide for more effective, durable and convenient treatments of spontaneous bleeds with MarzAA and prophylactic protection with MarzAA and DalcA, especially for children and adults with difficult IV access. In late 2018 Hemlibra®, a bispecific antibody mimicking FVIIIa, was approved for SQ prophylaxis in Hemophilia A with or without inhibitors but Hemlibra cannot treat breakthrough spontaneous bleeding.

MarzAA and DalcA Clinical Development

MarzAA is a potent, subcutaneously administered, next-generation Factor VIIa variant. The development program began with a Phase 1 clinical trial evaluating the pharmacokinetics and pharmacodynamics of MarzAA administered IV in patients with severe Hemophilia A and B with and without inhibitors. In 2019, we successfully completed a Phase 2 open-label SQ prophylaxis trial that met all primary and secondary end points. The Phase 2 trial was designed to evaluate the efficacy of MarzAA in preventing bleeding episodes. We completed a Phase 1/2 PK/PD study in 2020, to evaluate the pharmacokinetics and pharmacodynamics of ascending single dose levels of MarzAA and twice and thrice dosing at 3-hourly intervals in individuals with Hemophilia A or B with or without inhibitors. The purpose of the trial was to determine if the timing and peak levels achieved were sufficient to treat spontaneous, episodic or breakthrough bleeding with SQ dosing and determine if increasing dose levels resulted in dose proportional pharmacokinetics. We commenced enrollment of a Phase 3 registrational trial of MarzAA for episodic

treatment of spontaneous or traumatic bleeding episodes in adolescents and adults with congenital hemophilia A or hemophilia B with inhibitors in May 2021.

On November 12, 2021, we announced the discontinuation of the Phase 3 trial based on a number of factors, including challenges in enrollment resulting from the limited number of potential patients eligible to enroll in this trial, competition from competing approved therapies, delays in enrollment resulting from COVID-19, the capital requirements to complete the trial, and other factors. Patients enrolled in the study returned to their standard of care and completed all required safety assessments. In the patients enrolled to date, we have successfully treated bleeds with SQ MarzAA and have not observed any adverse events. We plan to report these data at an appropriate medical conference in the future. We had also begun enrollment of a Phase 1/2 trial of MarzAA for treatment of bleeding in individuals with Factor VII Deficiency, Glanzmann Thrombasthenia, and hemophilia A with inhibitors on emicizumab prophylaxis. We have discontinued this trial as well, in light of the difficulties in identifying and enrolling eligible patients, the capital requirements to complete the trial, and other factors. We believe that a SQ recombinant Factor VIIa therapy, like MarzAA, has the potential to be an important treatment option for patients with various bleeding disorders and are exploring opportunities to license or sell MarzAA to another party for further development.

DalcA is a next-generation SQ Factor IX product candidate for the prophylactic treatment of individuals with Hemophilia B. We completed a Phase 1/2 SQ dosing trial that evaluated the safety and efficacy of DalcA in patients with severe Hemophilia B in a collaboration with ISU Abxis. In 2020, we completed an open-label Phase 2b study to evaluate the ability of DalcA to maintain steady state protective Factor IX levels above 12% in six individuals with severe hemophilia B. Each subject received a single intravenous dose, followed by daily SQ doses of DalcA for 28 days during which FIX activity levels, clotting parameters, half-life, safety, tolerability and anti-drug antibody formation were monitored. We are actively seeking a partner for this program. We have received guidance from the FDA on the design of the registrational Phase 3 clinical trial, have the necessary data to support its initiation, and are exploring opportunities to license or sell DalcA to another party for further development.

Preclinical Factor IX Gene Therapy

Our Factor IX gene therapy construct CB 2679d-GT has demonstrated a 2-fold to 3-fold higher activity resulting in improved clotting time and blood loss in a preclinical Hemophilia B mouse model compared with the Padua variant of Factor IX. By its increased activity, CB 2679d-GT has the potential to reach higher Factor IX activity levels at lower vector doses which could improve tolerability of the vector as well as efficacy of the transgene, and ultimately lower manufacturing costs. We have licensed AAV technology from The Board of Trustees of The Leland Stanford Junior University (“Stanford”) and have evaluated optimized vector constructs in a non-human primate study under a sponsored research agreement with Stanford.

Our Strategy

We are leveraging a unique protease engineering platform that builds on nature’s way of regulating key processes to generate a portfolio of novel and differentiated biopharmaceutical drug candidates. Our portfolio of engineered protease therapies is designed for individuals with disorders of the complement system across a range of potential indications where new or better treatment options are in need. The scientific basis of our strategy is based on the use of proteases, nature’s key regulatory proteins that can be engineered to circumvent the limitations of small molecule and antibody-based therapies.

In late 2021 we announced a strategic change in corporate strategy, pivoting from hemophilia to a highly promising complement therapeutics and protease medicines platform. In February of 2022 we announced that we would explore strategic alternatives for the company. In March of 2022, we re-acquired the full rights to CB 2782-PEG, adding to our promising portfolio, including CB 4332 our enhanced CFI development candidate. Having the full rights to these two potentially best-in-class candidates in dry AMD provides another opportunity in our exploration of strategic alternatives. We also implemented additional expense reduction measures, including headcount reductions, while we continue this exploration.

Collaborations

MarzAA. In 2009, we licensed MarzAA to Wyeth Pharmaceuticals, Inc. ("Wyeth"). Wyeth was subsequently acquired by Pfizer, Inc. ("Pfizer") who terminated the license and collaboration agreement after completing a Phase 1 IV trial. Pursuant to the collaboration termination agreement, in exchange for the rights to certain Pfizer technology, we agreed to make payments to Pfizer in an aggregate amount equal to up to $17.5 million, payable upon the achievement of clinical, regulatory and commercial milestones. Following commercialization of any covered product, Pfizer would also receive a single-digit royalty on net product sales on a country-by-country basis for a predefined royalty term. In February 2018, we paid Pfizer a $1.0 million milestone payment based on the dosing of the first patient in a Phase 2 study.

DalcA. We collaborated with ISU Abxis ("ISU"), in the early development of DalcA. Under the collaboration agreement, ISU conducted the Phase I clinical trial of DalcA and was responsible for all manufacturing activities for the Phase 1 clinical trial. Pursuant to the agreement, as amended in December 2018, ISU is entitled to a low single-digit royalty payment, on a country-by-country basis, for net product sales of DalcA by the Company or its affiliates in each country other than South Korea. ISU is also entitled up to $19.5 million in milestone payments, of which $2.5 million are regulatory and development milestone payments and up to $17.0 million in commercial milestone payments.

CB2782-PEG. In 2019, we agreed to collaborate with Biogen to develop and commercialize CB 2782-PEG and our other anti-C3 proteases for the potential treatment of dry AMD and other disorders. In March 2022, Biogen terminated the license and collaboration agreement. As a result of the termination, Biogen will no longer have the rights to develop and commercialize CB 2782-PEG. We were responsible for certain preclinical and manufacturing activities, and Biogen was solely responsible for funding the preclinical and manufacturing activities and performing investigational new drug ("IND") enabling activities, worldwide clinical development, and commercialization. We received a $15.0 million upfront payment from Biogen in January 2020 and were eligible to receive up to $340.0 million in milestone payments, along with tiered royalties for worldwide net sales of this product candidate up to low double-digits.

We also collaborated with Mosaic Biosciences ("Mosaic") in the development of our complement product candidates including CB 2782-PEG and CB 4332. Under the collaboration agreement, as amended in December 2019, Mosaic will perform all future services for an FTE-based fee. Pursuant to a subsequent amendment in May 2020, Mosaic received a one-time cash payment of $0.8 million and is eligible to receive up to $4.0 million in potential future milestone payments for regulatory and clinical development milestones resulting from the development of CB 2782-PEG and CB 4332 payable in cash or common stock at the Company's election. As a result, we now own one hundred percent of all future payment streams related to these product candidates.

Competition

Our product candidates will face competition from approved therapeutics. Competition for our product candidate pipeline comes primarily from large, well-established pharmaceutical companies, who have greater financial resources and expertise in research and development, manufacturing, conducting clinical trials, and marketing approved products. Mergers and acquisitions within the pharmaceutical and biotechnology industries may further concentrate competitors' resources. We are not only competing with these companies in terms of technology, but also in recruiting and retaining qualified scientists and management personnel, in establishing partnerships with clinical trial sites, and in enrolling individuals into clinical trials.

In addition to current Standard of Care for individuals, clinical trials are being pursued by several parties in the field of biologics and in our lead indications. These products in development may provide efficacy, safety, convenience, and other benefits that are not provided by currently marketed therapies. As a result, they may provide significant competition for any of our product candidates for which we obtain marketing approval. Based on publicly available information, the following are some of the products currently on market or being developed by competitors in indications overlapping with those of our programs.

Ocular Complement Competition

- While there are no currently approved treatments for dry AMD, several companies are developing cyclic peptide, aptamer, antibody or gene therapy based anti-complement product candidates for the treatment of dry AMD that are currently in clinical studies:
- Apellis has completed two Phase 3 studies (DERBY/OAKS) in 2021 to compare the efficacy and safety of intravitreal pegacetacoplan therapy, a PEGylated cyclic peptide, in patients aged 60 years and older with GA secondary to AMD.
- Iveric Bio (formerly Ophthotech) is developing two therapies to treat GA secondary to dry AMD. Iveric Bio completed its Phase 2b clinical of Zimura® (avacincaptad pegol) with positive data in patients with dry AMD and has an ongoing Phase 3 trial (GATHER2).
- Gemini Therapeutics is developing "GEM103" a recombinant human complement factor H ("FH") for patients with genetically well-defined dry AMD and for other genetically defined subpopulations of patients with dry AMD.
- Gyroscope Therapeutics is developing "GT005" a gene therapeutic approach to expressing additional CFI in the patient's eye after subretinal delivery. GT005 is being developed for a genetically well-defined subpopulation of patients with dry AMD in a Phase 1/2b trial (FOCUS). In February 2022, Gyroscope announced that Novartis has completed its acquisition of Gyroscope.
- NGM Biopharmaceuticals is expecting topline data from the Phase 2a study (CATALINA) to evaluate the safety and efficacy of intravitreal NGM621 in the fourth quarter of 2022. NGM621 is a C3-targeting monoclonal antibody being developed to treat geographic atropy secondary to AMD.

Systemic Complement Competition

- Alexion Pharmaceuticals (a division of AstraZeneca) markets eculizumab and ravulizumab for use in aHUS.
- Apellis is conducting clinical development for APL-2 (pegcetacoplan), a pegylated peptide based C3 inhibitor, in IgA Nephropathy ("IgAN"), LN, Membranous Nephropathy ("MN"), C3G, and Dense Deposit Disease.
- ChemoCentryx markets avacopan ("TAVNEOS"), a twice daily oral small molecule inhibitor of the complement 5a receptor ("C5aR") for use in combination with other standard of care such as glucocorticoids to treat adults with severe active anti-neutrophil cytoplasmic autoantibody (ANCA)-associated vasculitis. Avacopan is further being developed for in C3G and Hidradenitis Suppurativa ("HS") in ongoing phase 2 studies.
- Novartis is conducting clinical development for iptacopan ("LNP023"), a small peptide complement factor B inhibitor. Iptacopan is in development for PNH, as well as C3G and several other rare renal diseases including IgAN, aHUS, and membranous nephropathy. Novartis expect first FDA filings in 2023. Iptacopan has received Rare Pediatric Disease Designation in C3G.
- Omeros is developing OMS721 ("narsoplimab"). Narsoplimab is a human monoclonal antibody targeting mannan-binding lectin-associated serine protease-2 ("MASP-2"), the effector enzyme of the lectin pathway of the complement system. Clinical activities have been initiated in IgAN, LN, MN, & C3G and a phase 3 clinical program is underway in aHUS.
- Argenx is developing ARGX-117, a humanized antibody targeting complement compenent 2 ("C2") intended to inhibit the function of C2 and downstream complement activation. ARGX-117 is currently in a Phase 1 study for Multifocal Motor Neuropathy ("MMN").

Factor VIIa Competition

- Novo Nordisk's NovoSeven RT is an intravenous recombinant Factor VIIa indicated for treatment of bleeding episodes in individuals with Hemophilia A or B with an inhibitor to Factor VIII or Factor IX. NovoSeven was approved in 1999 and was approved as a room temperature formulation "NovoSeven RT" in 2008. The treatment has since been approved for on demand use in individuals with Factor VII deficiency and Glanzmann thrombasthenia, but not for prophylaxis. It is also approved for treatment of bleeding episodes and peri-operative management in adults with Acquired Hemophilia.
- Takeda's FEIBA is a plasma-based composition of coagulation factors indicated for intravenous on-demand and prophylactic use in the treatment of individuals with Hemophilia A or B with inhibitors. FEIBA has been on the market for more than 30 years.
- Roche's Hemlibra (emicizumab-kxwh), a bispecific Factor IXa-Factor X monoclonal antibody is indicated for routine SQ prophylaxis in adults and children with Hemophilia A with a Factor VIII inhibitor. Emicizumab received approval from the FDA in 2017. Emicizumab cannot treat episodic bleeding.
- HEMA Biologics' SEVENFACT is an intravenous recombinant Factor VIIa indicated for treatment of bleeding episodes in individuals with Hemophilia A or B with or without an inhibitor to Factor VIII or Factor IX approved in 2020.
- In addition to currently approved products, several other companies including Novo Nordisk, Pfizer, Genzyme, Hemab and others are developing SQ agents for the treatment of rare bleeding disorders using a variety of technologies.

Factor IX Competition

- BeneFIX, a recombinant Factor IX indicated for treatment of individuals with Hemophilia B, was approved in 1997 and is marketed by Pfizer.
- Alprolix, a Factor IX-Fc fusion product was approved in 2014 and is marketed by Sanofi Aventis and Swedish Orphan Biovitrum ("SOBI") in Europe, Russia, North Africa and the Middle East. Idelvion, a Factor IX-albumin fusion product marketed by CSL Behring was approved by the FDA in 2016. Idelvion is approved for weekly dosing for adolescents and adults and bi-weekly at a higher dose for those same patients if well controlled on the original regimen. It is approved for weekly in patients <12 years of age.
- Novo Nordisk's glycopegylated-Factor IX product Rebinyn® was approved by the FDA in 2017 but is not indicated for routine prophylaxis in the U.S. Rebinyn is approved for on-demand treatment and control of bleeding episodes as well as Perioperative management of bleeding.

Factor IX Gene Therapy Competition

- While there are no currently approved Factor IX gene therapy treatments for Hemophilia B, several companies, are developing Factor IX gene therapy treatments in clinical studies with the Padua FIX variant including UniQure/CSL, Spark/Pfizer and Freeline.

Our commercial opportunity in different indications could be reduced or eliminated if our competitors develop and market products that are safer, more effective, more convenient to use, or less expensive to use than our products. Furthermore, if competitors gain FDA approval faster than we do, we may be unable to establish a strong market presence or to gain market share. The key competitive factors affecting the success of all our product candidates, if approved, are likely to be their efficacy, safety, convenience, price, the level of generic competition, and the availability of reimbursement from government and other third-party payors.

Intellectual Property

We have established a broad intellectual property portfolio including patents and patent applications covering the identification, selection, optimization, and manufacture of human proteases, the composition of matter and methods of use of our product candidates and related technology, and other inventions that are important to our business.

We also rely on trade secrets relating to our proprietary technology platform and know-how, continuing technological innovation and in-licensing opportunities to develop, strengthen, and maintain our proprietary position in the field of human protease engineering. Our patent portfolio as of December 31, 2021 is more fully described below.

Our success will depend significantly on our ability to:

- Obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business;
- Defend and enforce our patents;
- Maintain our licenses to use intellectual property owned by third parties; and
- Preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and other proprietary rights of third parties.

Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees and consultants, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology. Thus, we may not be able to meaningfully protect our trade secrets.

In addition, a third-party may hold intellectual property, including patent rights that are important or necessary to the development of our products. It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our products, in which case we would be required to obtain a license from these third parties on commercially reasonable terms, or our business could be harmed, possibly materially.

There may be third party patents or patent applications with claims to compositions of matter, 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.There is a patent family pending in the U.S. in which claims that may read on MarzAA have been filed. We, however, do not believe such claims are patentable. If they were to issue, we would take appropriate action to challenge their enforceability and/or validity. We are also aware of additional patents that have issued in the United States and Europe that have claims related to Factor VII. We do not believe that MarzAA does or will infringe any valid claims in such patents.

The patent positions of biopharmaceutical companies like us are generally uncertain and involve complex legal, scientific, and factual questions. In addition, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Consequently, we do not know whether any of our product candidates will be protectable or remain protected by enforceable patents. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient proprietary protection from competitors. Any patents that we hold may be challenged, circumvented, or invalidated by third parties.

Because patent applications in the United States and certain other jurisdictions are maintained in secrecy for 18 months, and since publication of discoveries in the scientific or patent literature often lags actual discoveries, we cannot be certain of the priority of inventions covered by pending patent applications. Moreover, we may have to participate in interference proceedings declared by the United States Patent and Trademark Office, or USPTO, or a foreign patent office to determine priority of invention or in post-grant challenge proceedings, such as oppositions, that challenge priority of invention or other features of patentability. Such proceedings could result in substantial cost, even if the eventual outcome is favorable to us.

All our patents and applications were internally developed and assigned to us, except for two granted South Korean patents that are co-owned. Members of the family directed to screening methods (4 patents, including 2 of the issued U.S. patents) are jointly owned with the Torrey Pines Institute for Molecular Studies, which licensed its interest to us. As of December 31, 2021, our current patents and patent applications include:

- 73 issued patents, including 4 issued U.S. patents, and 10 patent applications, including 3 pending U.S. patent applications, covering modified Factor VII polypeptides, including our lead product candidate,

MarzAA, and methods of production and use of modified Factor VII polypeptides. The U.S. patents, with patent term adjustment, expire in 2029 and 2031. The pending applications, if granted, are expected to expire in 2029 and 2040. The foreign patents expire in 2029.

- 34 patents, including 4 issued U.S. patents, and 7 patent applications, including 2 U.S. patent applications, covering modified Factor IX polypeptides, such as our clinical candidate DalcA, nucleic acid molecules encoding modified Factor IX polypeptides, therapeutic uses, and a provisional application directed to formulations. The U.S. patents and patent applications, including patent term adjustment, expire, or are expected to expire, respectively, in 2030-2031 and 2038, and the foreign patents and patent applications, if granted, expire, or are expected to expire, respectively, in 2031. The provisional application directed to formulations, if when filed as a utility patent, and if issued, would expire in 2041, or later if there are patent term adjustments.
- 1 PCT patent application filed and 1 U.S. patent application in progress, covering adeno-associated viral vectors that have increased tropism for hepatocytes and encode modified factor IX polypeptides. The applications, if granted, are expected to expire in 2040.
- 65 patents, including 7 issued U.S. patents, and 59 patent applications, including 3 U.S. patent applications, covering novel proteases, nucleic acid molecules encoding novel proteases, or therapeutic uses. The U.S. patents and patent applications, including patent term adjustment, expire, or are expected to expire, respectively in 2025-2029 and 2038-2041, and the foreign patents and foreign patent applications, if granted, expire, or are expected to expire, respectively, in 2025-2027 and 2038-2039.
- 7 patent applications, including 1 non-provisional U.S. patent application, 3 provisional U.S. patent applications, and 3 foreign patent applications covering CB 4332 and next-generation engineered CFI molecules. The U.S. patent applications and foreign patent applications , if pursued and granted, are expected to expire in 2041-2042. The foreign patent applications, if granted, are expected to expire in 2041.
- 2 provisional U.S. patent applications covering modified Factor B proteases, if pursued and granted, are expected to expire in 2042. 2 provisional U.S. patent applications covering other complement targeting proteases, if pursued and granted, are expected to expire in 2042.

The term for individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is 20 years from the earliest claimed filing date of a non-provisional patent application in that country or the international filing date. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date.

The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the expiration date of a U.S. patent as partial compensation for the length of time the drug is under regulatory review while the patent is in force. The regulatory review period that occurs after the patent to be extended was issued is eligible to be counted for extension. The extension is calculated as one-half of the time of the testing phase added to time in the approval phase. The testing phase is the period between the effective date of an investigational product exemption (Investigational New Drug Application) and the initial submission of the marketing application (New Drug Application or Biologic License Application). The approval phase is the period between the submission and approval of the marketing application. Extensions can be reduced by any time that the applicant did act not with due diligence as determined by the FDA. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval. Only one patent applicable to each regulatory review period may be extended and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended. Similar provisions are available in the European Union and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug.

In the future, to the extent our product candidates including MarzAA, DalcA, Anti-C3 and systemic complement proteases receive approval by the FDA or foreign regulatory authorities, we expect to apply for patent term

extensions on issued patents covering those products, depending upon the length of the clinical trials for each drug and other factors.

Manufacturing

Our team has in-depth knowledge on biologics development, manufacturing and CMC regulatory requirements. We do not have any manufacturing facilities and we currently rely, and expect to continue to rely, on third parties for the manufacture of our product candidates for clinical or commercial uses. We own or have rights to all intellectual property developed in such manufacturing development activities that are specifically related to our product candidates and have a royalty-free and perpetual license to use the intellectual property to the extent reasonably necessary to make our product candidates, including commercial manufacturing.

Drug Substance manufacturing

We have a long-term development and manufacturing services agreement with AGC Biologics, Inc. ("AGC"). AGC has global manufacturing sites and we use their facilities in the U.S. and Europe for drug substance manufacturing of MarzAA, DalcA, and CB 2782-PEG. In November 2021, we provided notice of intent to terminate our agreements with AGC related to the manufacturing of MarzAA and incurred charges of $3.8 million to write-off prepaid manufacturing costs that will no longer be used for the development of MarzAA. Additionally we have development and manufacturing services agreements with Abzena ("Abzena") at their San Diego facility for drug substance manufacturing of CB 4332.

Drug Product manufacturing

We have a long-term clinical supply services agreement with Catalent Indiana, LLC ("Catalent"). Catalent has facilities in the U.S. and Europe and conducts drug product development and manufacturing for MarzAA and DalcA. We also work with Symbiosis Pharmaceutical Services Limited on drug product manufacturing for MarzAA on a fee-for-services basis. Symbiosis has a facility in the United Kingdom. For drug product finish and fill services supporting the CB 4332 program, we are working with Integrity Bio (now part of Curia).

Commercialization

We have yet to establish a sales, marketing, or product distribution infrastructure for our product candidates, which are still in pre-clinical or clinical development. We may retain commercial rights for our product candidates in the United States. We have also granted ISU rights to commercialize DalcA in South Korea.

Government Regulation

As a clinical-stage biopharmaceutical company that operates in the United States, we are subject to extensive regulation. Our engineered human protease products will be regulated as biological products. Biological products, including engineered human proteases, are subject to regulation under the Federal Food, Drug, and Cosmetic Act, or FD&C Act, and the Public Health Service Act, or PHS Act, and other federal, state, local, and foreign statutes and regulations. The FD&C Act and the PHS Act and their implementing regulations govern, among other things, the research, development, testing, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of biological products.

FDA approval must be obtained before clinical testing of a biological product begins and before the marketing of biological products. The process of obtaining regulatory approvals and the subsequent compliance with 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, the approval process, or after product approval, may subject an applicant to administrative or judicial sanctions. FDA sanctions could include, among other actions, refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning or untitled letters, product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties.

US Biological Products Development Process

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

- completion of nonclinical laboratory tests and animal studies according to good laboratory practices, or GLPs, and applicable requirements for the humane use of laboratory animals or other applicable regulations;
- submission to the FDA of an investigational new drug application or IND, which must become effective before human clinical trials may begin;
- performance of adequate and well-controlled human clinical trials according to the FDA's regulations, commonly referred to as good clinical practices, or GCPs, and any additional requirements for the protection of human research subjects and their health information, to establish the safety and efficacy of the proposed biological product for its intended use;
- submission to the FDA of a biologics license application or BLA for marketing approval that includes substantial evidence of safety, purity and potency from results of nonclinical testing and clinical trials;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the biological product is produced to assess compliance with good manufacturing practices or GMP, to assure that the facilities, methods and controls are adequate to preserve the biological product's identity, strength, quality and purity and, if applicable, the FDA's current good tissue practices, or GTPs, for the use of human cellular and tissue products;
- potential FDA audit of the nonclinical study and clinical trial sites that generated the data in support of the BLA; and
- FDA review and approval, or licensure, of the BLA.

Before testing any biological product candidate, including an engineered human protease, in humans, the product candidate enters the preclinical testing stage. Preclinical tests, also referred to as nonclinical studies, include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies to assess the potential safety and activity of the product candidate. The conduct of the preclinical tests must comply with federal regulations and requirements, including GLPs.

The clinical trial sponsor must submit the results of the preclinical tests, together with the manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. Some preclinical testing may continue even after an IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA places the clinical study on a clinical hold within that 30-day period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. The FDA may also impose clinical holds on a biological product candidate at any time before or during clinical trials due to safety concerns or non-compliance. If the FDA imposes a clinical hold, trials may not recommence without FDA authorization and then only under terms authorized by the FDA. Accordingly, we cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate such trials.

Clinical trials involve the administration of the biological product candidate to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety, including stopping rules that assure a clinical trial will be stopped if certain adverse events should occur. Each protocol and any amendments to the protocol must be submitted to the FDA as part of the IND. Clinical trials must be conducted and monitored in accordance with the FDA's regulations comprising the GCP requirements, including the requirement that all research patients provide informed consent. Further, each clinical trial must be reviewed and approved by an independent institutional review board, or IRB, at or servicing each institution at which the clinical trial will be conducted. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the form and content of the informed consent that must be

signed by each clinical trial subject or his or her legal representative and must monitor the clinical trial until completed. Clinical trials also may be reviewed by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees basic and clinical research conducted at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment.

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

- ***Phase 1:*** The product candidate is initially introduced into healthy human subjects and tested for safety. 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 is often conducted in patients.
- ***Phase 2:*** The product candidate is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- ***Phase 3:*** Clinical trials are undertaken to further evaluate dosage, clinical efficacy, potency, and safety in an expanded patient population at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the product candidate and provide an adequate basis for product labeling.

In most cases, the FDA requires two adequate and well-controlled Phase 3 clinical trials to demonstrate the efficacy of the drug. A single Phase 3 trial with other confirmatory evidence may be sufficient in instances where the study is a large multicenter trial demonstrating internal consistency and a statistically very persuasive finding of a clinically meaningful effect on mortality, irreversible morbidity or prevention of a disease with a potentially serious outcome and confirmation of the result in a second trial would be practically or ethically impossible such as in rare or orphan diseases like hemophilia. In the case of hemophilia, almost all clinical trials are conducted as open-label single arm trials, in which both the researchers and participants know which treatment is being administered and there is no placebo or blinded portion of the trial because there are too few subjects available in these orphan populations to perform statistically powered placebo or active comparator trials. Endpoints for on-demand therapies are the number of treatments required to control bleeding episodes and for prophylaxis therapies are the calculated annualized bleeding rates. Bleeding rates during the trial are compared to historic bleeding rates for participating individuals. Patients are often studied for at least 50 treatment days to see if neutralizing anti-drug antibodies (inhibitors) develop.

Pursuant to the 21st Century Cures Act, which was enacted on December 13, 2016, the manufacturer of an investigational drug for a serious or life-threatening disease is required to make available, such as by posting on its website, its policy on evaluating and responding to requests for expanded access to such investigational drug. This requirement applies on the later of 60 calendar days after the date of enactment of the law or the initiation of a Phase 2 or Phase 3 trial of the investigational drug.

Post-approval clinical trials, sometimes referred to as Phase 4 clinical trials, 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, particularly for long-term safety follow-up.

Concurrently with clinical trials, companies usually complete additional animal studies and must also develop additional information about the physical characteristics of the biological product as well as finalize a process for manufacturing the product in commercial quantities in accordance with GMP requirements. To help reduce the risk of the introduction of adventitious agents with use of biological products, the PHS Act emphasizes the importance of manufacturing control for products whose attributes cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must develop methods for testing the identity, strength, quality, potency and purity of the final biological product. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the biological product candidate does not undergo unacceptable deterioration over its shelf life.

US Review and Approval Processes

After the completion of clinical trials of a biological product, FDA approval of a BLA must be obtained before commercial marketing of the biological product. The BLA must include results of product development, laboratory and animal studies, human trials, information on the manufacture and composition of the product, proposed labeling and other relevant information. The testing and approval processes require substantial time and effort and there can be no assurance that the FDA will accept the BLA for filing and, even if filed, that any approval will be granted on a timely basis, if at all.

Under the Prescription Drug User Fee Act, or PDUFA, as amended, each BLA must be accompanied by a significant user fee. The FDA adjusts the PDUFA user fees on an annual basis. PDUFA also imposes an annual product fee for biological products and an annual establishment fee on facilities used to manufacture prescription biological products. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. No user fees are assessed on BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication. MarzAA has been granted orphan drug designation for routine prophylaxis to prevent bleeding episodes in individuals with Hemophilia A and B with inhibitors and DalcA has received orphan designation for routine prophylaxis to prevent bleeding episodes for Hemophilia B patients.

Within 60 days following submission of the application, the FDA reviews a BLA submitted to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review of the BLA. The FDA reviews the BLA to determine, among other things, whether the proposed product is safe and potent, or effective, for its intended use, and has an acceptable purity profile, and whether the product is being manufactured in accordance with GMP to assure and preserve the product's identity, safety, strength, quality, potency and purity. The FDA may refer applications for novel biological products or biological products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and 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. During the biological product approval process, the FDA also will determine whether a Risk Evaluation and Mitigation Strategy, or REMS, is necessary to assure the safe use of the biological product. If the FDA concludes a REMS is needed, the sponsor of the BLA must submit a proposed REMS. The FDA will not approve a BLA without a REMS, if required.

Before approving a BLA, the FDA will generally inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with GMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with IND trial requirements and GCP requirements. To assure GMP and GCP compliance, an applicant must incur significant expenditure of time, money and effort in the areas of training, record keeping, production, and quality control.

In addition, under the Pediatric Research Equity Act, or PREA, a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may grant deferrals for submission of data or full or partial waivers.

Notwithstanding the submission of relevant data and information, the FDA may ultimately decide that the BLA does not satisfy its regulatory criteria for approval and deny approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than how we interpret the same data. If the agency decides not to approve the BLA in its present form, the FDA will issue a complete response letter that describes all the specific deficiencies in the BLA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical trials. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a

condition for approval. If a complete response letter is issued, the applicant may either resubmit the BLA, addressing all the deficiencies identified in the letter, or withdraw the application.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. The FDA may impose restrictions and conditions on product distribution, prescribing, or dispensing in the form of a REMS, or otherwise limit the scope of any approval. In addition, the FDA may require post marketing clinical trials, sometimes referred to as Phase 4 clinical trials, designed to further assess a biological product's safety and effectiveness, and testing and surveillance programs to monitor the safety of approved products that have been commercialized.

The FDA has agreed to certain review goals under PDUFA and aims to complete its review of 90% of standard BLAs within ten months from filing and 90% of priority BLAs within six months from filing. The FDA does not always meet its PDUFA goal dates for standard and priority BLAs and its review goals are subject to change from time to time. The review process and the PDUFA goal date may be extended by three months if the FDA requests, or the BLA sponsor otherwise provides, additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

Fast Track Designation, Accelerated Approval, Priority Review, Orphan Drug Designation, and Breakthrough Therapy Programs

Fast Track

There are several FDA programs intended to help facilitate the development of new drugs and biologics that meet certain criteria. Specifically, new drugs and biological products are eligible for Fast Track designation if they are intended to treat a serious or life- threatening condition and demonstrate the potential to address unmet medical needs for the condition. Fast Track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a new drug or biological product may request the FDA to designate the drug or biological product as a Fast Track product at any time during the clinical development of the product. Under a Fast Track designation, the FDA may consider for review sections of the marketing application on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the application, the FDA agrees to accept sections of the application and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the application. FDA has granted Fast Track Designation for MarzAA for the treatment of episodic bleeding in subjects with Hemophilia A or B with inhibitors and for the treatment of subjects with Factor FVII deficiency ("FVIID").

Priority Review

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 or biological product designated for priority review to facilitate the review.

Accelerated Approval

A product that is being studied for safety and effectiveness in treating serious or life-threatening illnesses and provides meaningful therapeutic benefit over existing treatments may receive accelerated approval, which means that it may be approved on the basis of adequate and well-controlled clinical trials establishing that the product has an effect on a surrogate endpoint that is reasonably likely to predict a clinical benefit, or on the basis of an effect on a clinical endpoint other than survival or irreversible morbidity. As a condition of approval, the FDA may require that a sponsor of a drug or biological product 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.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan drug designation to drugs intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in or shorten the duration of the regulatory review and approval process. If a product that has orphan drug designation subsequently receives FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug for the same disease, except in limited circumstances, for seven years. These circumstances are an inability to supply the drug in sufficient quantities or a situation in which a new formulation of the drug has shown superior safety or efficacy or a major contribution to patient care. This exclusivity, however, could also block the approval of our product for seven years if a competitor obtains earlier approval of the same drug for the same indication.

MarzAA has been granted orphan drug designation in the U.S. for routine prophylaxis to prevent bleeding episodes in individuals with Hemophilia A and B with inhibitors and for routine prophylaxis to prevent bleeding episodes in individuals with Hemophilia B with inhibitors in the E.U. DalcA has been granted orphan drug designation in the U.S. and the E.U. for routine prophylaxis to prevent bleeding episodes for Hemophilia B patients. MarzAA has also been granted orphan drug designation for the treatment of subjects with Factor FVII deficiency (“FVIID”).

Rare Pediatric Drug Designation

There are FDA programs intended to help facilitate the development of new drugs and biologics that meet certain criteria. Specifically, new drugs and biological products are eligible for rare pediatric disease designation if they treat a serious or life-threatening condition that affects less than 200,000 individuals in the U.S. per year and who are primarily less than 18 years of age. Under the FDA's rare pediatric disease designation program, the FDA may grant a priority review voucher to a sponsor who receives a product approval for a rare pediatric disease. In January 2022, CB 4332 was granted rare pediatric disease designation for Complement Factor I (“CFI”) deficiency (“CFID”).

Break Through Designation

A product may also be eligible for receipt of a Breakthrough Therapy designation. The Breakthrough Therapy designation is intended to expedite the FDA’s review of a potential new drug for serious or life-threatening diseases where “preliminary clinical evidence indicates that the drug 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 of a drug as a Breakthrough Therapy provides the same benefits as are available under the Fast Track program, as well as intensive FDA guidance on the product’s development program. Fast Track designation, priority review, accelerated approval and Breakthrough Therapy designation do not change the standards for approval, but they may expedite the development or approval process.

Post-approval Requirements

Maintaining substantial compliance with applicable federal, state and local statutes and regulations requires the expenditure of substantial time and financial resources. Rigorous and extensive FDA regulation of biological products continues after approval, particularly with respect to GMP. We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of any products that we may commercialize. Manufacturers of our products are required to comply with applicable requirements in the GMP regulations, including quality control and quality assurance and maintenance of records and documentation. Other post-approval requirements applicable to biological products include reporting of GMP deviations that may affect the identity, potency, purity and overall safety of a distributed product, record-keeping requirements, reporting of adverse effects, reporting updated safety and efficacy information, and complying with electronic record and signature requirements. After a BLA is approved, the product also may be subject to official lot release. As part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and

the results of all the manufacturer's tests performed on the lot. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency and effectiveness of biological products.

We also must comply with the FDA's advertising and promotion requirements, such as those related to direct-to-consumer advertising, the prohibition on promoting products for uses or in-patient populations that are not described in the product's approved labeling (known as "off-label use"), industry-sponsored scientific and educational activities, and promotional activities involving the internet. Discovery of previously unknown problems or the failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval may subject an applicant or manufacturer to administrative or judicial civil or criminal sanctions and adverse publicity. FDA sanctions could include refusal to approve pending applications, withdrawal of an approval, clinical hold, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, mandated corrective advertising or communications with doctors, debarment, restitution, disgorgement of profits, or civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on us.

Biological product manufacturers and other entities involved in the manufacturing and distribution of approved biological products 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 GMPs and other laws. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain GMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer or holder of an approved BLA, including withdrawal of the product from the market. In addition, changes to the manufacturing process or facility generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

Marketing Exclusivity and U.S. Patent Term Restoration

The Biologics Price Competition and Innovation Act, or BPCIA, amended the PHS Act to authorize the FDA to approve similar versions of innovative biologics, commonly known as biosimilars. A competitor seeking approval of a biosimilar must file an application to establish its molecule as highly similar to an approved innovator biologic, among other requirements. The BPCIA, however, bars the FDA from accepting biosimilar applications for four years after an innovator biological product receives initial marketing approval and from approving biosimilar applications for 12 years after an innovator biological product receives initial marketing approval. As innovative biological products, we believe that our products would receive this data protection if the FDA approves them for marketing.

Pediatric exclusivity is another type of regulatory market exclusivity that may apply to biological products approved in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods, include the 4- and 12-year periods discussed. This six-month exclusivity, which runs from the end of other exclusivity protection, may be granted based on the voluntary completion of a pediatric trial in accordance with an FDA-issued "Written Request" for such a trial.

Depending upon the timing, duration and specifics of the FDA approval of the use of our product candidates, some of our U.S. patents, if granted, may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years, as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA plus the time between the submission date of a BLA and the approval of that application. Only one patent applicable to an approved product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The USPTO, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may intend to apply for restoration of patent term for one of

our currently owned or licensed patents to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA.

Disclosure of clinical trial information

Sponsors of clinical trials of FDA-regulated products, including biological products, are required to register and disclose certain clinical trial information. Information related to the product, patient population, phase of investigation, trial sites and investigators, and other aspects of the clinical trial is then made public as part of the registration. Sponsors are also obligated to discuss the results of their clinical trials after completion. Disclosure of the results of these trials can be delayed in certain circumstances for up to two years after the date of completion of the trial. Competitors may use this publicly available information to gain knowledge regarding the progress of development programs.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services (e.g., the Office of Inspector General), the U.S. Department of Justice, or DOJ, and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, sales, marketing and scientific/educational grant programs must comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the privacy provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. There are statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all its facts and circumstances. Our practices may not in all cases meet all the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the Anti-Kickback Statute was amended by the Affordable Care Act (“ACA” to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act (discussed below).

The civil monetary penalties statute imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

The federal False Claims Act prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used, a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes “any request or demand” for money or property presented to the U.S. government. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of the product for unapproved, and thus non-reimbursable, uses.

HIPAA created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of, or payment for healthcare benefits, items or services.

Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates, independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Additionally, the federal Physician Payments Sunshine Act within the ACA, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members.

To distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All our activities are potentially subject to federal and state consumer protection and unfair competition laws.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage and establish adequate reimbursement levels for such products. In the United States, third-party payors include federal and state healthcare programs, privately managed care providers, health insurers and other organizations. The process for determining whether a third-party payor will provide coverage for a product may be separate from the process for setting the price of a product or for establishing the reimbursement rate that such a payor will pay for the product. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all the FDA-approved products for a particular indication. Third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical products, therapies and services, in addition to questioning their safety and efficacy. We may need to conduct expensive pharmaco-economic studies to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Our product candidates may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. This is also true of Medicare reimbursement, where different vendors process payments, so that coverage by one vendor does not assure that all other vendors will provide coverage. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. In addition, the United States federal government position on matters related to drug pricing is evolving and uncertain, and any changes could have a material impact on drug pricing generally in the United States, including for our product candidates if approved.

Different pricing and reimbursement schemes exist in other countries. In the EU, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines but monitor and control company profits. The National Institute for Health and Care Excellence (NICE) in the United Kingdom also requires consideration of cost-benefit analysis. The downward pressure on health care costs has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if the government and third- party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on healthcare pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or FCPA, prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern the use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on its business. We cannot predict, however, how changes in these laws may affect its future operations.

Government Regulation Outside of the United States

In addition to regulations in the United States, we will be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products. Whether or not we obtain FDA approval of a product, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the EU, for example, a clinical trial application must be submitted to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the clinical trial application is approved in accordance with a country's requirements, clinical trial development may proceed. Because biologically sourced raw materials are subject to unique contamination risks, their use may be restricted in some countries.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

To obtain regulatory approval of an investigational drug or biological product under EU regulatory systems, we must submit a marketing authorization application. The application used to file the BLA in the United States is similar to that required in the EU, with the exception of, among other things, country-specific document requirements.

For other countries outside of the EU, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

If we or our potential collaborators fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Employees

We consider our ability to recruit, retain and motivate our employees to be critical to our success. We are an equal opportunity employer and we are fundamentally committed to creating and maintaining a work environment in which employees are treated with respect and dignity. All human resources policies, practices and actions related to hiring, promotion, compensation, benefits and termination are administered in accordance with the principal of equal employment opportunity, meaning that they are made on the basis of individual skills, knowledge, abilities, job performance and other legitimate criteria and without regard to race, color, religion, sex, sexual orientation, gender expression or identity, ethnicity, national origin, ancestry, age, mental or physical disability, genetic information, any veteran status, any military status or application for military service, or membership in any other category protected under applicable law.

As of December 31, 2021, we had 45 full-time employees. Of the full-time employees, as of such date, 25 employees were engaged in manufacturing and clinical development activities and 20 employees were engaged in finance, business development, facilities and general management. Of our employees as of December 31, 2021, 49%

were male and 51% were female. We have no collective bargaining agreements with our employees, and we have not experienced any work stoppages. We consider our relations with our employees to be good.

In the quarter ended March 31, 2022, we had voluntary employee resignations and implemented a reduction-in-force of 19 full-time employees, which we expect to be completed by April 30, 2022. Following these reductions, we expect to have 8 full-time employees.

We aim to provide our employees with competitive salary and benefits that enable them to achieve a good quality of life and plan for the future. Our benefits are based on local norms and market preferences, but include all salary and social benefits required by local law (including paid time off for vacation and sick leave) and many additional benefits that go beyond legal requirements.

To maintain and enhance the safety of our employees, we promote a culture of continuous improvement and individual accountability to provide safe workplaces. The safety of our employees has been a priority throughout our response to the COVID-19 pandemic. Our management team guided our operations in the processes and procedures to comply with applicable government-imposed health and safety-related operating restrictions, and to enhance the safety of our facilities to protect the health of our employees. The management team continues to operate, updating guidance as the pandemic has continued and the medical science and government guidance and orders have evolved. We continue to enforce COVID-19 health and safety protocols and have implemented protocols to address actual and suspected cases of COVID-19 and resulting contact tracing and quarantine requirements. Throughout the pandemic, we have been communicating regularly with our employees and monitoring their views on issues related to COVID-19 and the workplace as well as general levels of engagement. In addition, management has regularly updated our Board of Directors on our COVID-19 status and response, including with respect to employee safety.

Business Organization

We commenced operations in 2002 and are a Delaware corporation. On August 20, 2015, we merged with Targacept, Inc. Our corporate headquarters are in South San Francisco, California. We conduct our research and development activities and general and administrative functions primarily from our South San Francisco, California location.

Available Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports, are available for free at www.catalystbiosciences.com as soon as reasonably practicable after they are electronically filed with or furnished to the SEC. They are also available for free on the SEC's website at www.sec.gov. The information in or accessible through the SEC and our website are not incorporated into, and are not considered part of, this filing.

Item 1A. RISK FACTORS

The following section includes the most significant factors that may adversely affect our business and operations. You should carefully consider the risks and uncertainties described below and all information contained in this Annual Report on Form 10-K before deciding to invest in our common stock. If any of the following risks actually occur, our business, financial condition, results of operations and growth prospects may be materially and adversely affected. In that event, the trading price of our common stock could decline, and you could lose all or part of your investment.

Summary of Risk Factors

Investing in our securities involves a high degree of risk. Below please find a summary of the principal risks we face. These risks are discussed more fully below.

- *We have incurred significant losses since our inception and are expected to continue to incur significant losses for the foreseeable future.*
- *We may not be able to identify or execute on any strategic alternatives.*
- *We will need additional capital to continue product development and may not be able to do so. If we are unable to raise sufficient capital, we will be forced to delay, reduce or eliminate product development programs.*
- *Raising additional funds by issuing securities or through licensing arrangements may cause dilution to stockholders, restrict our operations or require us to relinquish proprietary rights.*
- *We have no history of obtaining regulatory approval or commercialization of pharmaceutical products, which may make it difficult to evaluate the Company's prospects.*
- *The outbreak of the novel coronavirus disease, COVID-19, could adversely impact our business, including our preclinical studies.*
- *CB 2782-PEG and CB 4332, are in the early stages of development and their commercial viability remains subject to current and future preclinical studies, clinical trials, regulatory approvals and the risks generally inherent in the development of a pharmaceutical product candidate. If we are unable to successfully advance or develop our complement product candidates, our business may be materially harmed.*
- *CB 2782-PEG, CB 4332 and all of our other product candidates will require additional clinical testing before they can be sold.*
- *If we experience delays or difficulties in the commencement of clinical trials or patient enrollment in clinical trials, our regulatory approvals could be delayed or prevented.*
- *The operations of our third-party manufacturers may be requisitioned, diverted or allocated by U.S. or foreign government orders such as under emergency, disaster and civil defense declarations in connection with the COVID-19 pandemic or otherwise.*
- *The coronavirus disease, COVID-19, and the conflict between Russia and Ukraine, may impact our third-party supply of the raw materials and components needed for our product candidates, which increases the risk that we will not have sufficient quantities of such product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development efforts.*
- *Our complement product candidates may cause the generation of neutralizing antibodies, which could prevent their further development.*
- *We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.*
- *We may not be successful in our efforts to build a pipeline of additional product candidates.*

- *Results from preclinical or early stage clinical trials may not be confirmed in later trials, and if serious adverse or unacceptable side effects are identified during the development of our product candidates, we may need to abandon or limit our development of some of our product candidates.*
- *Fast Track designation by the FDA may not actually lead to a faster development or regulatory review or approval process.*
- *Breakthrough therapy designation by the FDA for any product candidate may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that the product candidate will receive marketing approval.*
- *We expect to seek to establish additional collaborations, and, if we are not able to establish them on commercially reasonable terms, we may have to alter our development and commercialization plans.*
- *We contract with third parties for the manufacture of our product candidates for preclinical testing and expect to continue to do so for clinical testing and commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities or quality of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.*
- *We are subject to many manufacturing risks, any of which could substantially increase our costs and limit supply of our product candidates and any future products.*
- *We and our contract manufacturers will be subject to significant regulation with respect to manufacturing our products. The manufacturing facilities on which we will rely may not continue to meet regulatory requirements and have limited capacity.*
- *We rely on third parties to conduct certain aspects of our preclinical studies and any clinical trials, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such tasks or trials.*
- *Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.*
- *Our employees, principal investigators, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.*
- *We will continue to incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to compliance initiatives.*
- *We or the third parties upon whom we depend may be adversely affected by earthquakes or other natural disasters and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.*
- *If we are unable to obtain, protect or enforce intellectual property rights related to our product candidates, we may not be able to compete effectively in our markets.*
- *Third-party claims of intellectual property infringement or challenging the inventorship or ownership of our patents may prevent or delay our development and commercialization efforts.*
- *We may be involved in lawsuits to protect or enforce our patents.*
- *Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.*
- *We may need to license certain intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.*
- *If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize our product candidates, and our ability to generate revenue will be materially impaired.*

- *The FDA may disagree with our regulatory plan and we may fail to obtain regulatory approval of our product candidates.*
- *Our relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.*
- *Our results of operations may be adversely affected by current and potential future healthcare legislative and regulatory actions.*
- *We are subject to evolving privacy and data protection laws, including HIPAA and the EU General Data Protection Regulation ("GDPR"). If we fail to protect personal information or comply with existing or future data protection regulations, our business, financial condition, results of operations and prospects may be materially adversely affected.*
- *If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could harm our business.*
- *We face potential product liability, and, if successful claims are brought against us, we may incur substantial liability and costs. If the use of our product candidates harms patients or is perceived to harm patients even when such harm is unrelated to our product candidates, regulatory approvals could be revoked or otherwise negatively impacted, and we could be subject to costly and damaging product liability claims.*
- *We identified a material weakness in our internal control over financial reporting in our consolidated financial statements for the year ended December 31, 2021. If we are unable to remediate this material weakness, or if we identify additional material weaknesses in the future or otherwise fail to maintain effective internal control over financial reporting, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business and share price.*
- *Even if any of our product candidates receives marketing approval, we may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success.*
- *Our product candidates are years away from regulatory approval.*
- *If we are unable to establish sales, marketing and distribution capabilities, we may not be successful in commercializing our product candidates if they are approved.*
- *We face substantial competition that may result in others discovering, developing or commercializing products before or more successfully than we do.*
- *Even if we commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives that would harm our business.*
- *The insurance coverage and reimbursement status of newly approved products is uncertain. Failure to obtain or maintain adequate coverage and reimbursement for new or current products could limit our ability to market those products and decrease our ability to generate revenue.*
- *If the market opportunities for our product candidates are smaller than expected, our revenues may be adversely affected and our business may suffer.*
- *The market price of our common stock has historically been highly volatile.*
- *Fluctuations in operating results could adversely affect the price of our common stock.*
- *Sales of a significant number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock.*
- *Anti-takeover provisions in our charter documents and provisions of Delaware law may make an acquisition more difficult and could result in the entrenchment of management.*

- *Our business could be negatively affected as a result of actions of activist stockholders, and such activism could impact the trading value of our securities.*
- *We are a smaller reporting company, and we cannot be certain if the reduced disclosure requirements applicable to smaller reporting companies will make our common stock less attractive to investors.*

Risks related to our financial condition and capital requirements

We have incurred significant losses since our inception and are expected to continue to incur significant losses for the foreseeable future.

We are a preclinical-stage biotechnology company, and we have not yet generated significant revenues. We have incurred net losses in each year since our inception in August 2002, including net losses of $87.9 million and $56.2 million for the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $402.7 million.

We are still in the early stages of development of our product candidates, and have no products approved for commercial sale. To date, we have financed our operations primarily through issuances of shares of common stock, from private placements of convertible preferred stock, and from payments under collaboration agreements.

We have devoted most of our financial resources to research and development, including our preclinical and clinical development activities. We expect to continue to incur significant expenses and operating losses over the next several years as we continue the development of our complement product candidates. Our operating losses may fluctuate significantly from quarter to quarter and year to year. We are expected to continue to incur significant expenses and operating losses for at least the next several years as we:

- continue preclinical development and begin clinical development of CB 2782-PEG, CB 4332 and our other complement product candidates;
- continue having CB 4332 and our other complement product candidates manufactured for preclinical and clinical development;
- further develop the manufacturing process for our product candidates;
- attract, hire and retain skilled personnel;
- seek regulatory and marketing approvals for any of our product candidates that successfully complete clinical studies;
- acquire or in-license other product candidates and technologies;
- maintain, protect and expand our intellectual property portfolio;
- create additional infrastructure to support operations as a public company and our product development and planned future commercialization efforts; and
- experience any delays or other issues with any of the above.

To become and remain profitable, we must succeed in developing and eventually commercializing products 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 product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling any products for which regulatory approval is obtained. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, we may never generate revenues that are significant enough to achieve profitability.

Because of the numerous risks and uncertainties associated with pharmaceutical 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. Failure to become and remain profitable would depress the value of our common stock and could impair our ability to raise capital, expand our business, maintain research and development efforts, diversify product offerings or even continue operations. A decline in the value of our common stock could also cause you to lose all or part of your investment.

We may not be able to identify or execute any strategic alternatives.

In February 2022 we announced that we were exploring strategic alternatives. There can be no assurance that this strategic review process will result in us pursuing any transaction or that any transaction, if pursued, will be completed on attractive terms or at all.

We will need additional capital to continue product development and may not be able to do so. If we are unable to raise sufficient capital, we will be forced to delay, reduce or eliminate product development programs.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is expensive. If we continue with preclinical and clinical development activities, we will continue to incur expenses related to the preclinical and clinical development of our complement product candidates. We believe that our available cash, cash equivalents and investments will be sufficient to fund our operations for at least the next 12 months. However, we expect to need to raise substantial additional capital to begin the clinical development of CB 2782-PEG, CB 4332 or any of our other complement product candidates, and depending on the availability of capital, may need to delay or cease development of some or all of our product candidates. Even if we raise additional capital, we may elect to focus our efforts on one or more development programs and delay or cease other development programs.

Until we can generate sufficient revenue from our product candidates, if ever, we expect to finance future cash needs through public or private equity offerings, debt financings, corporate collaborations and/or licensing arrangements. Additional funds may not be available when we need them on terms that are acceptable, or at all. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate some or all of our research or development programs.

Because successful development of our product candidates is uncertain, we are unable to estimate the actual funds required to complete research and development and commercialize our products under development. Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the costs and results of preclinical studies or clinical trials of CB 2782-PEG, CB 4332 or our other complement product candidates, and expenses related to potential clinical development of such candidates;
- the number and characteristics of product candidates that we pursue;
- the costs we incur related to our cessation of development of MarzAA and DalcA;
- the costs we incur to purchase CB 2782-PEG inventory from Biogen;
- the terms and timing of any future collaboration, licensing or other arrangements that we may establish;
- our headcount and costs associated with hiring or retaining personnel;
- the outcome, timing and cost of regulatory approvals;
- the cost of obtaining, maintaining, defending and enforcing intellectual property rights, including patent rights;
- the effect of competing technological and market developments;
- the cost and timing of completing outsourced manufacturing activities;
- market acceptance of any product candidates for which we may receive regulatory approval;
- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval;
- the costs of continuing to operate our business, including costs associated with being a public company; and
- the extent to which we acquire, license or invest in businesses, products or technologies.

We will require additional capital to achieve our business objectives. 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. Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. Further, our ability to raise additional capital may be adversely impacted by potential worsening global economic conditions and the recent disruptions to and volatility in the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic or the conflict between Russia and Ukraine. If we are unable to raise sufficient additional capital, we could be forced to curtail our planned operations and the pursuit of our strategy.

Raising additional funds by issuing securities or through licensing arrangements may cause dilution to stockholders, restrict our operations or require us to relinquish proprietary rights.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, stockholders will be diluted, and the terms of these new securities may include liquidation or other preferences that adversely affect the rights of common stockholders. We currently have in place an Equity Distribution Agreement with Piper Sandler & Co. that permits us, subject to applicable SEC regulations, up to $50.0 million worth of shares of our common stock in “at the market” transactions at prevailing market prices.

Debt financing, if available at all, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, product candidates or future revenue streams or grant licenses on terms that are not favorable to us. We may also seek to access the public or private capital markets whenever conditions are favorable, even if we do not have an immediate need for additional capital at that time. There can be no assurance that we will be able to obtain additional funding if, and when necessary. If we are unable to obtain adequate financing on a timely basis, we could be required to delay, curtail or eliminate one or more, or all, of our development programs or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

We currently have an effective registration statement on Form S-3 that allows us to offer up to $150.0 million of securities in one or more offerings, subject to limitations under applicable SEC rules, including up to $50.0 million of common stock issuable under our Equity Distribution Agreement with Piper Sandler & Co. Any additional sales in the public market of our common stock or other securities under these shelf registration statements could adversely affect prevailing market prices for our common stock.

We have no history of obtaining regulatory approval or commercialization of pharmaceutical products, which may make it difficult to evaluate the Company’s prospects.

We began operations in August 2002. Our operations to date have been limited to financing and staffing the Company, developing our technology and product candidates, establishing collaborations and conducting Phase 2 clinical trials on small numbers of patients. We have not yet demonstrated an ability to successfully conduct a Phase 3 clinical trial, obtain marketing approvals, manufacture a product at commercial scale repeatedly, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, predictions about the Company’s future product development timelines, clinical trial plans, expenses, 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 pharmaceutical products.

Risks related to our business operations and product candidates

The outbreak of the novel coronavirus disease, COVID-19, could adversely impact our business, including our preclinical studies.

The global coronavirus pandemic has resulted in widespread requirements for individuals to work from their homes, strained medical facilities worldwide and is causing disruptions to certain pharmaceutical manufacturing and product supply chains. We are experiencing operational and other challenges as a result of the COVID-19 global

pandemic across our programs. The impact of COVID-19 on the enrollment of the MAA-304 and MAA-202 studies contributed to their being halted in November 2021, and may delay or halt our development in other programs. In particular, as a result of the COVID-19 pandemic, we may experience disruptions that could severely impact our business, preclinical studies, drug manufacturing and clinical trials including:

- delays in manufacturing of our product candidates as third-party manufacturing capacity is shifted towards the production of COVID-19 vaccines;
- interruption or delays in the operations of the FDA, European Medicines Agency (the "EMA") or other regulatory authorities, which may impact review and approval timelines;
- 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 delivery systems;
- interruptions in preclinical studies due to restricted or limited operations at laboratory facilities;
- limitations on employee resources that would otherwise be focused on the conduct of our preclinical studies, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people; and
- material delays and complications with respect to our research and development programs.

In addition, the trading prices for our common stock and other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. Furthermore, a recession or market correction resulting from the spread of COVID-19 could materially affect our operations and the value of our common stock.

CB 2782-PEG and CB 4332 are in the early stages of development and their commercial viability remains subject to current and future preclinical studies, clinical trials, regulatory approvals and the risks generally inherent in the development of a pharmaceutical product candidate. If we are unable to successfully advance or develop our complement product candidates, our business may be materially harmed.

We currently have no products approved for commercial sale, and all of our product candidates are currently in clinical and preclinical development. To date, we have not successfully commercially marketed, distributed or sold any product candidate. The success of our business depends primarily upon our ability to successfully advance the development of our product candidates through preclinical studies and clinical trials, have the product candidates approved for sale by the FDA or regulatory authorities in other countries, and ultimately have the product candidates successfully commercialized by us or a strategic partner. We cannot assure you that the results of our ongoing preclinical studies or future clinical trials will support or justify the continued development of CB 2782-PEG or CB 4332, or that we will receive approval from the FDA, or similar regulatory authorities in other countries, to advance the development of CB 2782-PEG or CB 4332.

Our ability to generate revenue from our product candidates, which may not occur for several years, if ever, will depend heavily on the successful development, regulatory approval, obtaining of manufacturing supply, capacity and expertise, and eventual commercialization of our product candidates. The success of CB 2782-PEG, CB 4332 or any other product candidates that we develop or otherwise may acquire will depend on several factors, including:

- the timing and progress of preclinical and clinical development activities;
- the number and scope of preclinical and clinical programs we decide to pursue;
- filing acceptable investigational new drug applications, or INDs, with the U.S. Food and Drug Administration, or the FDA, or comparable foreign applications that allow commencement of our planned clinical trials or future clinical trials for our product candidates;
- sufficiency of our financial and other resources to complete the necessary preclinical studies and clinical trials, manufacture the product candidates and complete associated regulatory activities;

- our ability to establish and maintain agreements with third-party manufacturers for clinical supply for our clinical trials and commercial manufacturing and successfully develop, obtain regulatory approval for, and then successfully commercialize our product candidates;
- successful enrollment and timely completion of clinical trials, including our ability to generate positive data from any such clinical trials;
- the costs associated with the development of any additional development programs and product candidates we identify in-house or acquire through collaborations;
- receipt of timely marketing approvals from applicable regulatory authorities;
- developing and expanding sales, marketing and distribution capabilities and launching commercial sales of products, if approved, whether alone or in collaboration with others;
- acceptance of the benefits and use of our products, including method of administration, if approved, by patients, the medical community and third-party payors, for their approved indications;
- the prevalence and severity of adverse events experienced with CB 2782-PEG, CB 4332 or any other product candidates;
- the availability, perceived advantages, cost, safety and efficacy of alternative therapies for any product candidate that we develop;
- the terms and timing of any collaboration, license or other arrangement, including the terms and timing of any milestone payments thereunder;
- our ability to obtain and maintain patent, trademark and trade secret protection and regulatory exclusivity for our product candidates, if and when approved, and otherwise protecting our rights in our intellectual property portfolio;
- our ability to maintain compliance with regulatory requirements, including Good Clinical Practices, or GCPs, current Good Laboratory Practices, or cGLPs, and cGMPs, and to comply effectively with other rules, regulations and procedures applicable to the development and sale of pharmaceutical products;
- potential significant and changing government regulation, regulatory guidance and requirements and evolving treatment guidelines;
- obtaining and maintaining third-party coverage and adequate reimbursement and patients' willingness to pay out-of-pocket in the absence of such coverage and adequate reimbursement;
- our ability to maintain a continued acceptable safety, tolerability and efficacy profile of the products following approval; and
- the impact of any business interruptions to our operations or those of third parties with which we work, particularly in light of the current COVID-19 pandemic.

If we are not successful with respect to one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize the product candidates we develop, which would materially harm our business. Failure to successfully advance the development of our complement product candidates, including CB 2782-PEG and CB 4332, may have a material adverse effect on us.

CB 2782-PEG, CB 4332 and all of our other product candidates will require additional clinical testing before they can be sold.

Our product candidates must satisfy rigorous regulatory standards of safety and efficacy before we can advance or complete their clinical development or they can be approved for sale. To satisfy these standards, we must engage in expensive and lengthy preclinical studies and clinical trials, develop acceptable manufacturing processes, and obtain regulatory approval of our complement product candidates. Despite these efforts, our complement product candidates may not:

- offer therapeutic or other medical benefits over existing drugs or other product candidates in development to treat the same patient population;
- be proven to be safe and effective in current and future preclinical studies or clinical trials;
- have the desired effects;
- be free from undesirable or unexpected effects;
- meet applicable regulatory standards;
- be capable of being formulated and manufactured in commercially suitable quantities and at an acceptable cost; or
- be successfully commercialized by us or by collaborators.

Even if we demonstrate favorable results in preclinical studies and early-stage clinical trials, we cannot assure you that the results of late-stage clinical trials will be favorable enough to support the continued development of our product candidates. A number of companies in the pharmaceutical and biopharmaceutical industries have experienced significant delays, setbacks and failures in all stages of development, including late-stage clinical trials, even after achieving promising results in preclinical testing or early-stage clinical trials. Accordingly, results from completed preclinical studies of our complement product candidates may not be predictive of the results we may obtain in human clinical trials. Furthermore, even if the data collected from preclinical studies and clinical trials involving our complement product candidates demonstrate a favorable safety and efficacy profile, such results may not be sufficient to support the submission of a biologics license application to obtain regulatory approval from the FDA in the United States or other similar regulatory agencies in other jurisdictions, which is required to market and sell the products.

Our product candidates will require significant additional research and development efforts, the commitment of substantial financial resources, and regulatory approvals prior to advancing into clinical development or being commercialized by us or collaborators. We cannot assure you that CB 4332 or CB 2782-PEG will successfully progress into clinical development or through the drug development process or will result in commercially viable products. We do not expect any of our other complement product candidates to be commercialized by us or collaborators for at least several years.

If we experience delays or difficulties in the commencement of clinical trials or patient enrollment in clinical trials, our regulatory approvals could be delayed or prevented.

We or our collaborators may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate, enroll and maintain enrollment of a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. In particular, there is a relatively small number of individuals with CFI deficiency or dry AMD for whom CB 2782-PEG or CB 4332 can be used in clinical trials. The availability of other approved products and other products in clinical trials have and may limit the number of patients willing to participate in our clinical trials.

Patient enrollment is affected by other factors including:

- the severity of the disease under investigation;
- the eligibility criteria for the study in question;
- the perceived risks and benefits of the product candidate under study;
- the efforts to facilitate timely enrollment in clinical trials;
- clinical trials of other product candidates in the same indication;
- laboratory testing and turnaround time for samples needed for eligibility assessments;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment; and
- the proximity and availability of clinical trial sites for prospective patients.

Our inability to enroll a sufficient number of patients for our clinical trials will result in significant delays and could require us to abandon one or more clinical trials altogether. Enrollment delays in clinical trials conducted by us may also result in increased development costs for our product candidates, which would cause the value of the Company to decline and limit our ability to obtain additional financing.

The operations of our third-party manufacturers may be requisitioned, diverted or allocated by U.S. or foreign government orders such as under emergency, disaster and civil defense declarations in connection with the COVID-19 pandemic or otherwise.

The third-party manufacturers of our complement product candidates have advised us that they could be required under orders of the U.S. government to allocate manufacturing capacity to the manufacture or distribution of COVID-19 vaccines. If any of our third-party manufacturers become subject to acts or orders of U.S. or foreign government entities to allocate manufacturing capacity to the manufacture or distribution of COVID-19 vaccines or medical supplies needed to treat COVID-19 patients, this could delay or interrupt, perhaps substantially, our supply of clinical trial material for MarzAA which could materially and adversely affect our business. Refer to the risk factor entitled “The outbreak of the novel coronavirus disease, COVID-19, could adversely impact our business, including our preclinical studies and clinical trials.”

The coronavirus disease, COVID-19, and the conflict between Russia and Ukraine, may impact our third-party supply of the raw materials and components needed for our product candidates, which increases the risk that we will not have sufficient quantities of such product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development efforts.

If supplies of the raw materials for our product candidates are significantly delayed, or if the third parties that we engage to supply any materials or to manufacture any products for our preclinical tests and clinical trials should cease to continue to do so for any reason, including due to the effects of the COVID-19 pandemic or the conflict between Russia and Ukraine, we likely would experience delays in advancing these tests and trials while we identify and qualify replacement suppliers or manufacturers and we may be unable to obtain replacement supplies on terms that are favorable to us. In addition, if we are not able to obtain adequate supplies of our product candidates or the substances used to manufacture them, it will be more difficult for us to develop our product candidates and compete effectively.

Our current and anticipated dependence upon third-party suppliers may adversely affect our ability to develop product candidates and could delay our clinical trials and development programs, and otherwise harm our operations and financial condition and increase our costs and expenses.

Risks related to the discovery, development and commercialization of our product candidates

Our complement product candidates may cause the generation of neutralizing antibodies, which could prevent their further development.

CB 2782-PEG, CB 4332 and our other complement product candidates are protein molecules which may cause the generation of antibodies in individuals who receive them. If clinical trials demonstrate a treatment-related neutralizing immunological response in individuals that causes safety concerns or would limit the efficacy of either product candidate, development of the product candidate could be halted.

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

Because we have limited financial and management resources, we must focus on development programs and product candidates that we identify for specific indications. As such, we are currently primarily focused on the development of CB 2782-PEG, CB 4332 and our other complement product candidates. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications for these product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

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

We may not be able to continue to identify and develop new product candidates in addition to our current pipeline. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify may not be suitable for clinical development. For example, product candidates may be shown to have harmful side effects or other characteristics that indicate that they are unlikely to be successfully developed, much less receive marketing approval and achieve market acceptance. If we do not successfully develop and commercialize product candidates based upon our approach, we will not be able to obtain product revenue in future periods, which likely would result in significant harm to our financial position and adversely affect our stock price. Clinical drug development involves a lengthy and expensive process with an uncertain outcome.

Results from preclinical or early stage clinical trials may not be confirmed in later trials, and if serious adverse or unacceptable side effects are identified during the development of our product candidates, we may need to abandon or limit our development of some of our product candidates.

Clinical testing is expensive, time consuming and uncertain as to outcome. We cannot guarantee that any preclinical studies and clinical trials will be conducted as planned or completed on schedule, if at all. The clinical development of our product candidates is susceptible to the risk of failure at any stage of drug development, including failure to demonstrate efficacy in a clinical trial or across a suitable population of patients, the occurrence of severe or medically or commercially unacceptable adverse events, failure to comply with protocols or applicable regulatory requirements and determination by the FDA or any comparable foreign regulatory authority that a drug product is not approvable. It is possible that even if one or more of our product candidates has a beneficial effect, that effect will not be detected during clinical evaluation as a result of one or more of a variety of factors, including the size, duration, design, measurements, conduct or analysis of our clinical trials. Conversely, as a result of the same factors, our clinical trials may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any. Similarly, in our clinical trials we may fail to detect toxicity of or intolerability caused by our product candidates, or mistakenly believe that our product candidates are toxic or not well tolerated when that is not in fact the case.

In addition, the outcome of preclinical studies and early clinical trials may not be predictive of the success of late-stage clinical trials. Trials of our product candidates in larger numbers of patients may not have similar efficacy results and could result in adverse effects that were not observed in the earlier trials with smaller numbers of patients.

Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in earlier development, and we may face similar setbacks. The design of a clinical trial can determine whether our results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. We have limited experience in designing clinical trials and may be unable to design and execute a clinical trial to support marketing approval. In addition, preclinical and clinical data are often susceptible to varying interpretations and analyses. Many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval for the product candidates. Even if we believe that the results of clinical trials for our product candidates warrant marketing approval, the FDA or comparable foreign regulatory authorities may disagree and may not grant marketing approval of our product candidates.

In some instances, there can be significant variability in safety or efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the dosing regimen and other clinical trial protocols and the rate of dropout among clinical trial participants. Any Phase 2, Phase 3 or other clinical trials that we may conduct may not demonstrate the efficacy and safety necessary to obtain regulatory approval to market our product candidates.

If our product candidates are associated with undesirable side effects in clinical trials or have characteristics that are unexpected, we may need to abandon development or limit development of the product candidate to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Any such limitations could adversely affect the value of our product candidates or common stock.

Fast Track designation by the FDA may not actually lead to a faster development or regulatory review or approval process.

The FDA grants Fast Track designation to therapies that are considered capable of addressing unmet medical needs and possess the potential to treat serious or life-threatening disease conditions in order to facilitate its development and expedite the review procedure. The FDA has broad discretion in granting Fast Track designation, so even if we believe that a particular product candidate is eligible for such designation, the FDA could decide not to grant it. Even though Marzeptacog alfa (activated)—or MarzAA—has received Fast Track designation in certain indications, we may not experience a faster development process, review or approval, or receive FDA approval at all, in any of those indications compared to conventional FDA procedures. A Fast Track designation does not change the standards for approval. The FDA may also withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program.

Breakthrough therapy designation by the FDA for any product candidate may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that the product candidate will receive marketing approval.

We may, in the future, apply for breakthrough therapy designation, or the equivalent thereof in foreign jurisdictions (where available), for our product candidates. A breakthrough therapy is defined as a product candidate that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the product candidate 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. Product candidates designated as breakthrough therapies by the FDA are also eligible for priority review if supported by clinical data at the time of the submission of the BLA.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe that 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 product candidates considered for approval under conventional FDA procedures and it would 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 candidate no longer meets the conditions for qualification or it may decide that the time period for FDA review or approval will not be shortened.

Risks related to our reliance on third parties

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

Our drug development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. We have previously relied on collaborators, such as Biogen, Pfizer and ISU, to contribute to the development of our product candidates. We may seek one or more additional collaborators for the development and commercialization of one or more of our product candidates. For example, we are seeking a new collaborator to develop MarzAA or DalcA, and we are also seeking collaborators for our complement programs.

We face significant competition in seeking appropriate collaborators. Whether we can reach a definitive agreement with a collaborator will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of preclinical trials, the likelihood of approval by the FDA or comparable foreign regulatory authorities and the regulatory pathway for any such approval, the potential market for the product candidate, the costs and complexities of manufacturing and delivering the product to patients and the potential of competing products. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available for collaboration and whether such a collaboration could be more attractive than the one with us. There can also be no assurance that we will enter into any collaboration agreements, or that any such agreements will be on favorable terms.

Collaborations are complex and time consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay our development program or one or more of our other development programs, delay our potential commercialization or reduce the scope of any sales or marketing activities, and increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

We contract with third parties for the manufacture of our product candidates for preclinical testing and expect to continue to do so for clinical testing and commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities or quality of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We currently have no internal capabilities to manufacture our product candidates for clinical use or for preclinical trials following good manufacturing practices ("GMP"), or good laboratory practices ("GLP"). We expect to rely on one or more third-party contractors to manufacture, package, label and distribute clinical supplies and commercial quantities of any product candidate that we commercialize following approval for marketing by applicable regulatory authorities. We also expect to rely on one or more third-party contractors to manufacture our product candidates for use in our clinical trials. Reliance on such third-party contractors entails risks, including:

- our inability to identify and negotiate manufacturing and supply agreements with suitable manufacturers;
- manufacturing delays if our third-party contractors give greater priority to the supply of other products over our product candidates or otherwise do not satisfactorily perform according to the terms of the agreements between us and them;
- the possible termination or nonrenewal of agreements by our third-party contractors at a time that is costly or inconvenient for us;
- the possible breach by the third-party contractors of our agreements with them;
- the failure of third-party contractors to comply with applicable regulatory requirements;
- the possible mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or active drug or placebo not being properly identified;
- the possibility of clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales; and
- the possible misappropriation of our proprietary information, including our trade secrets and know-how.

Although we do not currently rely on third parties with operations in Russia or Ukraine, some of our vendors may do so, and disruptions in supply of materials or components to our vendors as a result of the conflict between Russia and Ukraine could adversely affect us. We may incur delays in product development resulting from the need to identify or qualify manufacturers for our product candidates. Our current and anticipated future dependence upon others for the manufacture of our product candidates may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

We are subject to many manufacturing risks, any of which could substantially increase our costs and limit supply of our product candidates and any future products.

To date, our product candidates have been manufactured by third-party manufacturers solely for preclinical studies and relatively small clinical trials. The process of manufacturing our complement associated therapeutic product candidates is complex, highly regulated and subject to several risks, including:

- the process of manufacturing biologics is susceptible to product loss due to contamination, equipment failure, improper installation or operation of equipment, vendor or operator error and improper storage conditions. Even minor deviations from normal manufacturing processes could result in reduced production yields, product defects and other supply disruptions. If microbial, viral or other contaminations are discovered in our products or in the manufacturing facilities in which our products are made, the manufacturing facilities may need to be closed for an extended period of time to investigate and eliminate the contamination;
- the manufacturing facilities in which our products are made could be adversely affected by equipment failures, labor and raw material shortages, financial difficulties of our contract manufacturers, including as a result of the evolving effects of the COVID-19 pandemic, natural disasters, power failures, local political unrest and numerous other factors; and
- any adverse developments affecting manufacturing operations or the scale up of manufacturing operations for our products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls or other interruptions in the supply of our product candidates. We may also have to record inventory write-offs and incur other charges and expenses for product candidates or drug substances that fail to meet specifications, undertake costly remediation efforts or seek costlier manufacturing alternatives.

Specifically, we have entered into various development, manufacturing and clinical supply services agreements with third-party manufacturers for drug substance and drug product manufacturing of our product candidates CB 2782-PEG, CB 4332, MarzAA, and DalcA. If our third-party manufacturers are not able to provide us with sufficient quantities or quality of our of product candidates on a timely basis, or at all, whether due to production shortages or other supply delays or interruptions resulting from the ongoing COVID-19 pandemic or otherwise, our preclinical

trials, clinical trials or regulatory approvals, as applicable, may be delayed. Significant portions of our research and development resources are focused on manufacturing. If any of our third-party manufacturers experiences difficulties in scaling production or experiences product loss due to contamination, equipment failure, improper installation or operation of equipment, vendor or operator error or improper storage conditions, the potential trials of the affected product candidate would be delayed, perhaps substantially, which could materially and adversely affect our business.

We have minimal process development capabilities and have access only to external manufacturing capabilities. We do not have, and we do not currently plan to acquire or develop, the facilities or capabilities to manufacture bulk drug substance or filled drug product for use in clinical trials or commercialization. Any delay or interruption in the supply of clinical trial material or preclinical trial material could delay the completion of clinical trials or preclinical trials, increase the costs associated with maintaining such trial programs and, depending upon the period of delay, require us to commence new clinical trials or preclinical trials at additional expense or terminate the trials completely.

We and our contract manufacturers will be subject to significant regulation with respect to manufacturing our products. The manufacturing facilities on which we will rely may not continue to meet regulatory requirements and have limited capacity.

All entities involved in the preparation of therapeutics for clinical studies or commercial sale, including any contract manufacturers for our product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in late-stage clinical studies must be manufactured in accordance with GMP. These regulations govern manufacturing processes and procedures (including record keeping) and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of adventitious agents or other contaminants, or to inadvertent changes in the properties or stability of our product candidates that may not be detectable in final product testing. We or our contract manufacturers must supply all necessary documentation in support of a BLA on a timely basis and must adhere to the FDA's GLP and GMP regulations enforced by the FDA through its facilities inspection program. Our facilities and quality systems and the facilities and quality systems of some or all our third-party contractors must pass a pre-approval inspection for compliance with the applicable regulations as a condition of regulatory approval of our product candidates. In addition, the regulatory authorities may, at any time, audit or inspect a manufacturing facility involved with the preparation of our product candidates or the associated quality systems for compliance with the regulations applicable to the activities being conducted. If these facilities do not pass a pre-approval plant inspection or do not have a GMP compliance status acceptable for the FDA, FDA approval of the products will not be granted.

The regulatory authorities also may, at any time following approval of a product for sale, audit our manufacturing facilities or those of our third-party contractors. If any such inspection or audit identifies a failure to comply with applicable regulations or if a violation of our product specifications or applicable regulations occurs independent of such an inspection or audit, we or the relevant regulatory authority may require remedial measures that may be costly and/or time-consuming for us or a third-party to implement and that may include the temporary or permanent suspension of a clinical study or commercial sales or the temporary or permanent closure of a facility. Any such remedial measures imposed upon us or third parties with whom we contract could materially harm our business.

If we or any of our third-party manufacturers fail to maintain regulatory compliance, the FDA can impose regulatory sanctions including, among other things, refusal to approve a pending application for a new drug product or biologic product, or revocation of a pre-existing approval. As a result, our business, financial condition and results of operations may be materially harmed.

Additionally, if supply from one approved manufacturer is interrupted, there could be a significant disruption in commercial supply. An alternative manufacturer would need to be qualified through a BLA supplement which could result in further delay. The regulatory agencies may also require additional studies if a new manufacturer is relied upon for commercial production. Switching manufacturers may involve substantial costs and is likely to result in a delay in our desired clinical and commercial timelines.

These factors could cause the delay of clinical studies, regulatory submissions, required approvals or commercialization of our product candidates, cause us to incur higher costs and prevent us from commercializing our products successfully. Furthermore, if our suppliers fail to meet contractual requirements, and we are unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, our clinical studies may be delayed, or we could lose potential revenue.

We rely on third parties to conduct certain aspects of our preclinical studies and any clinical trials, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such tasks or trials.

We rely on third parties such as contract research organizations ("CROs"), medical institutions and clinical investigators to conduct certain aspects of preclinical development, including assay development and testing, and to enroll qualified patients and conduct, supervise and monitor clinical trials. Our reliance on these third parties for preclinical and clinical development activities reduces our control over these activities. Our reliance on these third parties, however, will not relieve us of our regulatory responsibilities, including ensuring that our clinical studies are conducted in accordance with good clinical practices, and the investigational plan and protocols contained in the relevant regulatory application, such as an investigational new drug application, or IND. In addition, the CROs with whom we contract may not complete activities on schedule or may not conduct our preclinical studies or clinical studies in accordance with regulatory requirements or our clinical study design. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, our efforts to complete development and obtain regulatory approvals for, and to commercialize, our product candidates may be delayed or prevented.

Risks related to employee matters, managing growth and our business operations

Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our executive management and scientific personnel. We do not maintain "key man" insurance policies on the lives of these individuals or the lives of any of our other employees. In addition, we will need to add personnel to achieve our business objectives. The loss of the services of any of our executive officers, other key employees, and our inability to find suitable replacements, or our inability to hire new clinical development and manufacturing personnel, could result in delays in product development and harm our business.

We conduct operations at our facility in the San Francisco Bay Area. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all.

To induce valuable employees to remain at Catalyst, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may be significantly affected by movements in the Company's stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of management and scientific and development teams may terminate their employment with the Company on short notice. Our employees are under at-will employment arrangements, which means that any of our employees can leave employment with Catalyst at any time, with or without notice. Failure to retain, replace or recruit personnel could harm our business.

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

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants and collaborators. Misconduct by these parties could include intentional failures to comply with the regulations of the FDA and non-US regulators, to provide accurate information to the FDA and non-US regulators, to comply with healthcare fraud and abuse laws and regulations in the United States and abroad, to report financial information or

data accurately or to disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Such misconduct could also involve the improper use of information obtained during clinical studies that could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

We will continue to incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to compliance initiatives.

As a public company, we have and will continue to incur significant legal, accounting and other expenses that we did not incur as a private company, including costs associated with public company reporting and corporate governance requirements, in order to comply with the rules and regulations imposed by the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection (the "Dodd-Frank Act"), as well as rules implemented by the SEC and Nasdaq. Stockholder activism, the political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways that are not currently anticipated. Our management and other personnel need to devote a substantial amount of time to these compliance initiatives. In addition, these rules and regulations make it difficult and expensive for us to obtain director and officer liability insurance, and we may be required to incur substantial costs to maintain our current levels of such coverage. We expect that we will annually incur significant expenses to comply with the requirements imposed on us as a public company.

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

Our offices are located in the San Francisco Bay Area, which is prone to earthquakes. Earthquakes or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects. If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as the manufacturing facilities of our third-party contract manufacturers, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans that, particularly when taken together with our lack of earthquake insurance, could have a material adverse effect on our business.

Risks related to our intellectual property

If we are unable to obtain, protect or enforce intellectual property rights related to our product candidates, we may not be able to compete effectively in our markets.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidates. The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. Third parties may challenge the validity, enforceability or scope of our patents, which may result in those patents being narrowed or invalidated. The patent applications that we own may fail to result in issued patents with claims that cover our product candidates in the United States or in other foreign countries. The current conflict between Russia and Ukraine may make it difficult or impossible to continue to prosecute patent applications or maintain patents in those countries or other affected territories. Furthermore, even if they are unchallenged, our patents and patent

applications may not adequately protect our intellectual property, provide exclusivity for our product candidates or prevent others from designing around our claims. Certain of our patents also cover processes, for which enforcement can be difficult. Any of these outcomes could impair our ability to prevent competition from third parties that may have an adverse impact on our business.

If the patents or patent applications we hold or have in-licensed for our programs or product candidates are invalidated or fail to issue, if their breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for our product candidates, it could threaten our ability to commercialize future products. 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. In addition, 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. Once the patent life has expired for a product, we may be open to competition from generic medications.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent and other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

Although we expect all of our employees and consultants to assign their inventions to us, and all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed or that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Misappropriation or unauthorized disclosure of our trade secrets could impair our competitive position and may have a material adverse effect on our business. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret. In addition, others may independently discover our trade secrets and proprietary information.

Further, filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent material disclosure of the non-patented intellectual property related to our technologies to third parties, and there is no guarantee that we will have any such enforceable trade secret protection, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

Third-party claims of intellectual property infringement or challenging the inventorship or ownership of our patents may prevent or delay our development and commercialization efforts.

Our commercial success depends in part on avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, oppositions and inter partes reexamination proceedings before the USPTO, and corresponding foreign patent offices. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are pursuing development candidates. As the

biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties.

Third parties may assert that the manufacture, use or sale of our product candidates infringes patents held by such third parties, or that we are employing their proprietary technology without authorization. There may be third-party patents or patent applications with claims to compositions of matter, 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. There is a patent family pending in the U.S. in which claims that may read on MarzAA have been filed. We, however, do not believe such claims are patentable. If they were to issue, we would take appropriate action to challenge their enforceability and/or validity. We are also aware of additional patents that have issued in the United States and Europe that have claims related to Factor VII. We do not believe that MarzAA does or will infringe any valid claims in such patents.

In addition, we have received confidential and proprietary information from third parties, and we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against these claims.

Parties making claims against us may obtain injunctive or other equitable relief that could effectively block our ability to further develop and commercialize one or more of our product candidates unless we redesigned infringing products (which may be impossible) or obtained a license under the applicable patents (which may not be available on commercially reasonable terms or at all), or until such patents expire.

We may be involved in lawsuits to protect or enforce our patents.

Competitors may infringe our patents. To counter infringement or unauthorized use, we or our collaborators may be required to file infringement claims that can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that one of our patents is not valid, is unenforceable and/or is not infringed, 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. 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.

Interference proceedings provoked by third parties or brought by us may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

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 have a material adverse effect on the price of our common stock.

Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims, regardless of their merit, would cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, in addition

to paying royalties, redesign infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace.

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

A third-party may hold intellectual property, including patent rights, that is important or necessary to the development of our products. It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our products, in which case we would be required to obtain a license from these third parties on commercially reasonable terms, or our business could be harmed, possibly materially.

Risks related to regulatory approval of our product candidates and other compliance matters

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

While we have multiple drug candidates in clinical and advanced preclinical development for a range of diseases, we have not yet submitted BLAs for our engineered human proteases to the FDA, or similar approval filings to comparable foreign authorities. Submission of a BLA requires extensive preclinical and clinical data and supporting information that demonstrates the product candidate's safety, purity, and potency, also known as safety and effectiveness, for each desired indication. A BLA must also include significant information regarding the chemistry, manufacturing and controls for the product. However, failure of one or more clinical trials can occur at any stage in the clinical trial process. Accordingly, the regulatory pathway for our product candidates is still uncertain, complex, and lengthy, and ultimately, approval may not be obtained.

We may experience delays in completing planned clinical trials for a variety of reasons, including delays related to:

- the availability of financial resources to commence and complete the planned trials;
- inability to reach agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- obtaining approval at each clinical trial site by an independent institutional review board ("IRB");
- recruiting suitable patients to participate in trials;
- having patients complete a trial or return for post-treatment follow-up;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- adding new clinical trial sites; and
- manufacturing sufficient quantities of qualified materials under Current Good Manufacturing Practice ("cGMPs") regulations and applying them on a subject-by-subject basis for use in clinical trials.

We could also experience delays in obtaining approval if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our product candidates in lieu of prescribing existing treatments that have established safety and efficacy profiles given the serious nature of the diseases for the core indications for our product candidates. Additionally, a clinical trial may be suspended or terminated by us, the IRBs for the institutions

in which the trials are being conducted, the Data Monitoring Committee for the trial, or by the FDA or other regulatory authorities for a number of reasons, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues, or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. In addition, the FDA review and approval process could be delayed by any future shutdown of the U.S. government, and our development activities could be harmed or delayed as a result. If we experience termination of, or delays in the completion of, any clinical trial of our product candidates, our ability to commercialize our product candidates will be harmed and our ability to generate revenue will be materially impaired. Additionally, delays in completing trials will increase costs, slow down our product development and approval process, and impair our ability to commence product sales and generate revenue. Many of the factors that could create or lead to a delay in the commencement or completion of clinical trials may lead to the denial of regulatory approval for our product candidates.

The FDA may disagree with our regulatory plan and we may fail to obtain regulatory approval of our product candidates.

The results of clinical trials we conduct may not support regulatory approval of our product candidates. Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- We may be unable to demonstrate to the satisfaction of the FDA or comparable foreign authorities that our product candidates are safe and effective for any of their proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- We may be unable to demonstrate that our product candidates' clinical and other benefits outweigh their safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be sufficient to the satisfaction of the FDA or comparable foreign regulatory authorities to support the submission of a BLA or other comparable submission in foreign jurisdictions or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

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

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we would market, sell and distribute our products. As a pharmaceutical company, even though we do not and may not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. These regulations include:

- the Federal Healthcare Anti-Kickback Statute that prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid, and which will constrain our marketing practices and the marketing practices of our licensees, educational programs, pricing policies, and relationships with healthcare providers or other entities;
- the federal physician self-referral prohibition, commonly known as the Stark Law, which prohibits physicians from referring Medicare or Medicaid patients to providers of "designated health services" with whom the physician or a member of the physician's immediate family has an ownership interest or compensation arrangement, unless a statutory or regulatory exception applies;
- federal false claims laws that prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other government reimbursement programs that are false or fraudulent, and which may expose entities that provide coding and billing advice to customers to potential criminal and civil penalties, including through civil whistleblower or qui tam actions, and including as a result of claims presented in violation of the Federal Healthcare Anti-Kickback Statute, the Stark Law or other healthcare-related laws, including laws enforced by the FDA;
- the federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), which imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and also created federal criminal laws that prohibit knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statements in connection with the delivery of or payment for healthcare benefits, items or services that, as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH"), also imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;
- federal physician sunshine requirements under the ACA, which requires manufacturers of approved drugs, devices, biologics and medical supplies to report annually to the U.S. Department of Health and Human Services or HHS, information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations;
- the Federal Food, Drug, and Cosmetic Act, which, among other things, strictly regulates drug product marketing, prohibits manufacturers from marketing drug products for off-label use and regulates the distribution of drug samples; and
- state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, state laws requiring pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and which may require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, and state and foreign laws governing the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and often are not preempted by federal laws such as HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion from government funded healthcare programs,

such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any physicians or other healthcare providers or entities with whom we expect to do business are found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Our results of operations may be adversely affected by current and potential future healthcare legislative and regulatory actions.

Legislative and regulatory actions affecting government prescription drug procurement and reimbursement programs occur relatively frequently. In the United States, the ACA was enacted in 2010 to expand healthcare coverage. Since then, numerous efforts have been made to repeal, amend or administratively limit the ACA in whole or in part. For example, the Tax Cuts and Jobs Act, signed into law by President Trump in 2017, repealed the individual health insurance mandate, which is considered a key component of the ACA. In December 2018, a Texas federal district court struck down the ACA on the grounds that the individual health insurance mandate is unconstitutional, although this ruling has been stayed pending appeal. The ongoing challenges to the ACA and new legislative proposals have resulted in uncertainty regarding the ACA's future viability and destabilization of the health insurance market. The resulting impact on our business is uncertain and could be material.

Efforts to control prescription drug prices could also have a material adverse effect on our business. For example, in 2018, President Trump and the Secretary of the U.S. Department of Health and Human Services ("HHS") released the "American Patients First Blueprint" and have begun implementing certain portions. The initiative includes proposals to increase generic drug and biosimilar competition, enable the Medicare program to negotiate drug prices more directly and improve transparency regarding drug prices and ways to lower consumers' out-of-pocket costs. The Trump administration also proposed to establish an "international pricing index" that would be used as a benchmark to determine the costs and potentially limit the reimbursement of drugs under Medicare Part B. Among other pharmaceutical manufacturer industry-related proposals, Congress has proposed bills to change the Medicare Part D benefit to impose an inflation-based rebate in Medicare Part D and to alter the benefit structure to increase manufacturer contributions in the catastrophic phase. The volume of drug pricing-related bills has dramatically increased under the current Congress, and the resulting impact on our business is uncertain and could be material.

In addition, many states have proposed or enacted legislation that seeks to indirectly or directly regulate pharmaceutical drug pricing, such as by requiring biopharmaceutical manufacturers to publicly report proprietary pricing information or to place a maximum price ceiling on pharmaceutical products purchased by state agencies. For example, in 2017, California's governor signed a prescription drug price transparency state bill into law, requiring prescription drug manufacturers to provide advance notice and explanation for price increases of certain drugs that exceed a specified threshold. Both Congress and state legislatures are considering various bills that would reform drug purchasing and price negotiations, allow greater use of utilization management tools to limit Medicare Part D coverage, facilitate the import of lower-priced drugs from outside the United States and encourage the use of generic drugs. Such initiatives and legislation may cause added pricing pressures on our products.

Changes to the Medicaid program at the federal or state level could also have a material adverse effect on our business. Proposals that could impact coverage and reimbursement of our products, including giving states more flexibility to manage drugs covered under the Medicaid program and permitting the re-importation of prescription medications from Canada or other countries, could have a material adverse effect by limiting our products' use and coverage. Furthermore, state Medicaid programs could request additional supplemental rebates on our products as a result of an increase in the federal base Medicaid rebate. To the extent that private insurers or managed care programs follow Medicaid coverage and payment developments, they could use the enactment of these increased rebates to exert pricing pressure on our products, and the adverse effects may be magnified by their adoption of lower payment schedules.

Other proposed regulatory actions affecting manufacturers could have a material adverse effect on our business. It is difficult to predict the impact, if any, of any such proposed legislative and regulatory actions or resulting state actions on the use and reimbursement of our products in the United States, but our results of operations may be adversely affected.

We are subject to evolving privacy and data protection laws, including HIPAA and the EU General Data Protection Regulation ("GDPR"). If we fail to protect personal information or comply with existing or future data protection regulations, our business, financial condition, results of operations and prospects may be materially adversely affected.

Numerous state and federal laws and regulations govern the collection, dissemination, use, privacy, confidentiality, security, availability, integrity, and other processing of personal information. HIPAA establishes a set of national privacy and security standards for the protection of protected health information (as defined in HIPAA) ("PHI") by health plans, healthcare clearinghouses and certain healthcare providers, referred to as covered entities, and the business associates with whom such covered entities contract for services. HIPAA requires covered entities and business associates, such as us, to develop and maintain policies with respect to the protection of, use and disclosure of electronic PHI, including the adoption of administrative, physical and technical safeguards to protect such information, and certain notification requirements in the event of a data breach.

By virtue of our clinical trial activities in Europe, we are also subject to European data protection laws, including the GDPR (as implemented in the European Economic Area (the "EEA") and the United Kingdom). The GDPR which came into effect on May 25, 2018, establishes stringent requirements applicable to the processing of personal data (*i.e.*, data which identifies an individual or from which an individual is identifiable), affords various data protection rights to individuals (*e.g.*, the right to erasure of personal data) and imposes potential penalties for serious breaches of up to 4.0% annual worldwide turnover or €20 million, whichever is greater. Individuals (e.g., study subjects) also have a right to compensation for financial or non-financial losses (*e.g.*, distress). There may be circumstances under which a failure to comply with the GDPR, or the exercise of individual rights under the GDPR, would limit our ability to utilize clinical trial data collected on study subjects. The GDPR imposes additional responsibility and liability in relation to our processing of personal data. This may be onerous and materially adversely affect our business, financial condition, results of operations and prospects. The GDPR also prohibits the international transfer of personal data from the EEA/UK to countries outside of the EEA/United Kingdom unless made to a country deemed to have adequate data privacy laws by the European Commission or a data transfer mechanism has been put in place.

In addition, the interpretation and application of consumer, health-related and data protection laws in the United States, Europe and elsewhere are often uncertain, contradictory and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. If so, this could result in government-imposed fines or orders requiring that we change our practices, which could adversely affect our business.

In addition, we are subject to various U.S. state laws which may require us to modify our data processing practices and policies and to incur substantial costs and expenses in an effort to comply.

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

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

We maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, but this insurance may not provide adequate coverage against potential liabilities. However, we do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us.

In addition, we may incur substantial costs to comply with current or future environmental, health and safety laws and regulations. Current or future environmental laws and regulations may impair our research, development or production efforts that could adversely affect our business, financial condition, results of operations or prospects. In addition, failure to comply with these laws and regulations may result in substantial fines, penalties or other sanctions.

We face potential product liability, and, if successful claims are brought against us, we may incur substantial liability and costs. If the use of our product candidates harms patients or is perceived to harm patients even when such harm is unrelated to our product candidates, regulatory approvals could be revoked or otherwise negatively impacted, and we could be subject to costly and damaging product liability claims.

The use of our product candidates in clinical trials and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. Product liability claims might be brought against us by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. There is a risk that our product candidates may induce adverse events. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of our business reputation;
- withdrawal of clinical trial participants;
- costs due to related litigation;
- distraction of management's attention from our primary business;
- substantial monetary awards to patients or other claimants;
- the inability to commercialize our product candidates; and
- decreased demand for our product candidates, if approved for commercial sale.

We carry product liability insurance of $10,000,000 per occurrence and $10,000,000 aggregate limit. We believe our product liability insurance coverage is sufficient for our current clinical programs; however, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If we obtain marketing approval for product candidates, we intend to expand our insurance coverage to include the sale of commercial products; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs or medical treatments that had unanticipated adverse effects. A successful product liability claim or series of claims brought against us could cause our stock price to decline and, if judgments exceed insurance coverage, could adversely affect our results of operations and business.

Patients with the diseases targeted by our product candidates are often already in severe and advanced stages of disease and have both known and unknown significant pre-existing and potentially life-threatening health risks. During treatment, patients may suffer adverse events, including death, for reasons that may be related to our product candidates. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market our products, or require us to suspend or abandon our commercialization efforts. Even in a circumstance in which we do not believe that an adverse event is related to our products, the investigation into the circumstance may be time-consuming or inconclusive. These investigations may interrupt our sales efforts, delay our regulatory approval process in other countries, or impact and limit the type of regulatory approvals our product candidates receive or maintain. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, financial condition, results of operations, or cash flows.

We identified a material weakness in our internal control over financial reporting in our consolidated financial statements for the year ended December 31, 2021. If we are unable to remediate this material weakness, or if we identify additional material weaknesses in the future or otherwise fail to maintain effective internal control over financial reporting, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business and share price.

In connection with the preparation and audit of our consolidated financial statements for the year ended December 31, 2021, a material weakness was identified in our internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our consolidated financial statements will not be prevented or detected on a timely basis. Our material weakness related to the following control deficiency: we did not design and maintain effective controls related to the review of certain contracts, including the proper application of U.S. GAAP. Specifically, we did not design and maintain controls to properly review the retention bonuses granted to our employees in November 2021 after our reduction in workforce to assess the appropriate accounting treatment under U.S. GAAP.

To address our material weakness, we are evaluating our accounting policy over monitoring and reviewing contracts so that contracts with a significant impact are reviewed and U.S. GAAP is properly applied. We are also formalizing our internal control documentation and strengthening supervisory reviews by our management. While these actions and planned actions are subject to ongoing management evaluation and will require validation and testing of the design and operating effectiveness of internal controls over a sustained period, we are committed to continuous improvement and will continue to diligently review our internal control over financial reporting.

While we believe these efforts will remediate the material weakness, we may not be able to complete our evaluation, testing or any required remediation in a timely fashion, or at all. We cannot assure you that the measures we have taken to date and may take in the future, will be sufficient to remediate the control deficiency that led to our material weakness in internal control over financial reporting or that we will prevent or avoid potential future material weaknesses. The effectiveness of our internal control over financial reporting is subject to various inherent limitations, including cost limitations, judgments used in decision making, assumptions about the likelihood of future events, the possibility of human error and the risk of fraud. If we are unable to remediate the material weakness or identify additional material weaknesses in the future, our ability to record, process and report financial information accurately, and to prepare financial statements within the time periods specified by the forms of the SEC, could be adversely affected which, in turn, may adversely affect our reputation and business and the market price of our common stock. In addition, any such failures could result in litigation or regulatory actions by the SEC or other regulatory authorities, loss of investor confidence, delisting of our securities and harm to our reputation and financial condition, or diversion of financial and management resources from the operation of our business.

Risks related to commercialization of our product candidates

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

If any of our product candidates receives marketing approval, we may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. For example, current hemophilia treatments like intravenous NovoSeven RT are well established in the medical community, and doctors may continue to rely on these treatments. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant product revenues and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on several factors, including:

- the subcutaneous efficacy and potential advantages compared with alternative treatments;
- our ability to offer our products for sale at competitive prices;
- the convenience and ease of subcutaneous administration compared with alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;

- the strength of marketing and distribution support;
- the availability of third-party coverage and adequate reimbursement;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our products together with other medications.

Our product candidates are years away from regulatory approval.

Our development candidates are not expected to be commercially available for several years, if at all. Further, the commercial success of either product candidate will depend upon its acceptance by physicians, individuals, third-party payors and other key decision-makers as a therapeutic and cost-effective alternative to products available at the time, which may include competing products currently under development by others. See "We face substantial competition that may result in others discovering, developing or commercializing products before or more successfully than we do." If we are unable to successfully develop, obtain regulatory approval in a timely manner (including due to reasons that are beyond our control, such as changes in regulations or a shutdown of the federal government, including the FDA) and commercialize our development candidates, our ability to generate revenue from product sales will be significantly delayed and our business will be materially and adversely affected, and we may not be able to earn sufficient revenues to continue as a going concern.

Even if the FDA or other regulatory agency approves our product candidates, the approval may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, marketing and/or production of such product and may impose ongoing commitments or requirements for post-approval studies, including additional research and development and clinical trials. The FDA and other agencies also may impose various civil or criminal sanctions for failure to comply with regulatory requirements, including withdrawal of product approval. Regulatory approval from authorities in foreign countries will be needed to market our product candidates in those countries. Approval by one regulatory authority does not ensure approval by regulatory authorities in other jurisdictions. If we fail to obtain approvals from foreign jurisdictions, the geographic market for our product candidates would be limited.

If we are unable to establish sales, marketing and distribution capabilities, we may not be successful in commercializing our product candidates if they are approved.

We have not yet established a sales, marketing or product distribution infrastructure for our product candidates, which are still in preclinical or early clinical development. We have not yet developed a commercial strategy for our product candidates. To achieve commercial success for any product for which we obtain marketing approval, we will need to establish a sales and marketing organization within the United States and develop a strategy for sales outside of the United States.

There are risks involved with establishing internal sales, marketing and distribution capabilities. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel. If we are unable to establish sales, marketing and distribution capabilities and enter into additional arrangements with third parties to perform these services, then our product revenues and profitability, if any, are likely to be lower than if we were to market, sell and distribute any products that we develop ourselves.

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

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition, and a strong emphasis on proprietary products. We face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies, and public and private research institutions. Any product candidates that we

successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future.

Although there are no currently approved treatments for dry AMD, several companies are developing cyclic peptide, aptamer, antibody or gene therapy based anti-complement product candidates in clinical studies. Apellis is conducting two Phase 3 studies to compare the efficacy and safety of intravitreal APL-2 therapy with sham injections in patients aged 60 years and older with GA secondary to AMD; Iveric Bio (formerly Ophthotech) is developing two therapies to treat GA secondary to dry AMD, iveric Bio completed its Phase 2b clinical of Zimura® (avacincaptad pegol) with positive data in patients with dry AMD; Gemini Therapeutics is developing "GEM103" a recombinant human complement factor H ("FH") for patients with genetically well-defined dry AMD and "GEM104," a recombinant human complement factor I as well as additional molecules in preclinical development for other genetically defined subpopulations of patients with dry AMD, Gyroscope Therapeutics is developing "GT005" a gene therapeutic approach to expressing additional CFI in the patient's eye after subretinal delivery, and NGM Biopharmaceuticals is expecting topline data from the Phase 2a study (CATALINA) to evaluate the safety and efficacy of intravitreal NGM621 in the fourth quarter of 2022. NGM621 is a C3-targeting monoclonal antibody being developed to treat geographic atropy secondary to AMD. In addition, there are currently no approved agents specifically targeting systemic factor I deficiency patients irrespective of the resultant disease phenotype being aHUS, C3G, IC-MPGN, invasive infections or any other or any approved therapies for C3G and IC-MPGN. However, there are less specific treatment options on the market or in clinical development which may be applicable to some disease manifestations of systemic CFI deficiency, for instance aHUS and C3G. These treatment options include: eculizumab and ravulizumab marketed by Alexion Pharmaceuticals (a division of AstraZeneca) for use in aHUS irrespective of the patients' CFI status; APL-2 (pegcetacoplan), a pegylated peptide based C3 inhibitor, in IgA Nephropathy ("IgAN"), LN, Membranous Nephropathy ("MN"), C3G, and Dense Deposit Disease which is in clinical development by Apellis; TAVENOS (avacopan), a twice daily oral small molecule inhibitor of the complement 5a receptor ("C5aR") in C3G currently marketed by ChemoCentryx for use in combination with other standard of care such as glucocorticoids to treat adults with severe active anti-neutrophil cytoplasmic autoantibody (ANCA)-associated vasculitis, and being is further being developed for in C3G and Hidradenitis Suppurativa ("HS") in ongoing phase 2 studies; iptacopan ("LNP023"), a small peptide complement factor B inhibitor which is currently in development by Novartis for PNH, C3G and several other rare renal diseases including IgAN, aHUS, and membranous nephropathy; Omeros has initiated clinical activities in igAN, LN, MN, & C3G and a phase 3 clinical program in aHUS with OMS721 ("narsoplimab"), a human monoclonal antibody targeting mannan-binding lectin-associated serine protease-2 ("MASP-2"), the effector enzyme of the lectin pathway of the complement system; and Argenx is developing ARGX-117, a humanized antibody targeting complement compenent 2 ("C2") intended to inhibit the function of C2 and downstream complement activation. ARGX-117 is currently in a Phase 1 study for Multifocal Motor Neuropathy ("MMN").

Our commercial opportunity in different indications could be reduced or eliminated if competitors develop and market products or therapies that are more convenient to use, more effective, less expensive, and safer to use than our products. Furthermore, if competitors gain FDA approval earlier than we do, we may be unable to establish a strong market presence or to gain market share. The key competitive factors affecting the success of all our product candidates, if approved, are likely to be their efficacy, safety, convenience, price, the level of generic competition, and the availability of reimbursement from government and other third-party payors.

Many of the companies against which we are competing or against which we may compete in the future 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, biotechnology and diagnostic 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 individual registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

Even if we commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives that would harm our business.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we may obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Our ability to commercialize any product candidates successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for certain medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Coverage and reimbursement may not be available for any product that we or our collaborators commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Reimbursement may affect the demand for, or the price of, any product candidate that receives marketing approval. Obtaining and maintaining adequate reimbursement for our products may be difficult. We may be required to conduct expensive pharmaco-economic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or similar regulatory authorities outside the United States. Moreover, eligibility for reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent.

Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, ability to raise capital needed to commercialize products and overall financial condition.

The insurance coverage and reimbursement status of newly approved products is uncertain. Failure to obtain or maintain adequate coverage and reimbursement for new or current products could limit our ability to market those products and decrease our ability to generate revenue.

The availability and extent of reimbursement by governmental and private payors is essential for most patients to be able to afford expensive treatments. Sales of our product candidates will depend substantially, both domestically and abroad, on the extent to which the costs of our product candidates will be paid by health maintenance, managed care,

pharmacy benefit and similar healthcare management organizations, or reimbursed by government health administration authorities, private health coverage insurers and other third-party payors. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain pricing sufficient to realize a sufficient return on our investment.

There is significant uncertainty related to the insurance coverage and reimbursement of newly approved products. 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 level of reimbursement for new products approved 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 any of our product candidates, due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general has become very intense. As a result, increasingly high barriers are being erected to the entry of new products.

If the market opportunities for our product candidates are smaller than expected, our revenues may be adversely affected and our business may suffer.

We focus our research and product development on hemostasis and inflammation treatment. Our projections of both the number of people who suffer from related conditions, as well as the subset of people with these conditions who have the potential to benefit from treatment with our product candidates, are based on estimates. These estimates may prove to be incorrect and new studies may change the estimated incidence or prevalence of these diseases. The number of patients in the United States, Europe and elsewhere may turn out to be lower than expected or may not be otherwise amenable to treatment with our products, or new patients may become increasingly difficult to identify or gain access to, all of which would adversely affect our results of operations and our business.

Risks related to our common stock

The market price of our common stock has historically been highly volatile.

The trading price of our common stock has historically been highly volatile and there have been significant periods of time in which the trading volume of our common stock has been low, which can contribute to volatility in price. Additionally, the stock market in general has experienced extreme price and volume fluctuations. The market prices of securities of pharmaceutical, biopharmaceutical and biotechnology companies in particular have been extremely volatile and have experienced fluctuations that have often been unrelated or disproportionate to operating performance. Factors giving rise to this volatility may include:

- disclosure of clinical trial results;
- regulatory or political developments in both the United States and abroad;
- developments concerning proprietary rights, including patents and litigation matters;
- disclosure of new collaborations or other strategic transactions;
- public concern about the safety or efficacy of product candidates or technology, their components, or related technology or new technologies generally;
- public announcements by competitors or others regarding new products or new product candidates; and
- general market conditions and comments by securities analysts and investors.

Fluctuations in operating results could adversely affect the price of our common stock.

Our operating results are likely to fluctuate significantly from quarter to quarter and year to year. These fluctuations could cause our stock price to decline. Some of the factors that may cause operating results to fluctuate on a period-to-period basis include the scope, progress, duration results and costs of preclinical and clinical development programs, as well as non-clinical studies and assessments of product candidates and programs, restructuring costs, implementation or termination of collaboration, licensing, manufacturing or other material agreements with third parties, non-recurring

revenue or expenses under any such agreement, the cost, timing and outcomes of regulatory compliance, approvals or other regulatory actions and general and industry-specific economic conditions, particularly as affects the pharmaceutical, biopharmaceutical or biotechnology industries in the United States. Period-to-period comparisons of our historical and future financial results may not be meaningful, and investors should not rely on them as an indication of future performance. Fluctuating losses may fail to meet the expectations of securities analysts or investors. Failure to meet these expectations may cause the price of our common stock to decline.

Sales of a significant number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock.

Our current trading volumes are modest, and sales of a substantial number of shares of our common stock in the public market, or the perception that these sales could occur, could cause the market price to decline. We have effective registration statements on Form S-3 that enables us to sell up to $150.0 million of securities in one or more offerings, subject to limitations under applicable SEC rules, including up to $50.0 million of common stock issuable under our Equity Distribution Agreement with Piper Sandler & Co. Any additional sales in the public market of our common stock or other securities under these shelf registration statements could adversely affect prevailing market prices for our common stock. In addition, we have outstanding options to purchase 2,603,630 shares of common stock at a weighted average exercise price of $7.70 as of December 31, 2021. If such options are exercised and the shares are sold into the open market, such sales also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate. Conversion or exercise of these securities into shares of our common stock will cause dilution to the other holders of our common stock, and all such stock may be sold in the public market after conversion or exercise, subject to restrictions under the securities laws, which may lead to a decline in the market price of our common stock.

Anti-takeover provisions in our charter documents and provisions of Delaware law may make an acquisition more difficult and could result in the entrenchment of management.

We are incorporated in Delaware. Anti-takeover provisions of Delaware law and our charter documents may make a change in control or efforts to remove management more difficult. Also, under Delaware law, our board of directors may adopt additional anti-takeover measures. The existence of the following provisions of Delaware law and our restated certificate of incorporation and amended and restated bylaws could limit the price that investors might be willing to pay in the future for shares of our common stock.

Our restated certificate of incorporation authorizes our board of directors to issue up to 5,000,000 shares of preferred stock and to determine the terms of those shares of stock without any further action by our stockholders. If the board of directors exercises this power to issue preferred stock, it could be more difficult for a third-party to acquire a majority of our outstanding voting stock and vote the stock they acquire to remove management or directors.

Our restated certificate also provides staggered terms for the members of our board of directors, and that directors may be removed by stockholders only by vote of the holders of 66 2/3% of voting shares then outstanding. In addition, our amended and restated bylaws do not permit stockholders to call special or annual meetings of stockholders, or to act by written consent without a meeting. These provisions may prevent stockholders from replacing the entire board in a single proxy contest, making it more difficult for a third party to acquire control without the consent of our board of directors. These provisions could also delay the removal of management by the board of directors with or without cause.

As a Delaware corporation, we are also subject to certain Delaware anti-takeover provisions. Under Delaware law, a publicly-held corporation may not engage in a business combination with any holder of 15% or more of our voting stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Our board of directors could rely on Delaware law to prevent or delay an acquisition.

Our business could be negatively affected as a result of actions of activist stockholders, and such activism could impact the trading value of our securities.

One of our stockholders, on behalf of himself and certain other stockholders, has requested that we add three individuals to our board of directors to replace existing directors and take steps to declassify our board of directors. Although we have engaged in negotions with this stockholder to reach an agreement regarding his requests, we may not be able to do so, and this stockholder may engage in proxy solicitations and submit proposals for consideration at our upcoming annual meeting. Such an activist campaign could conflict with our strategic direction or seek changes in the composition of our board of directors and could have an adverse effect on our operating results and financial condition. A proxy contest would require us to incur significant legal and advisory fees, proxy solicitation expenses and administrative and associated costs, and require significant time and attention by our board of directors and management, diverting their attention from the pursuit of our business strategy. Any perceived uncertainties as to our future direction and control, our ability to execute on our strategy, or changes to the composition of our board of directors or senior management team arising from a proxy contest could lead to the perception of a change in the direction of our business or instability which may result in the loss of potential business opportunities, make it more difficult to pursue our strategy, or limit our ability to attract and retain qualified personnel, any of which could adversely affect our business and operating results. If individuals are ultimately elected to our board of directors with a specific agenda, it may adversely affect our ability to effectively implement our business strategy and create additional value for our stockholders. We may choose to initiate, or may become subject to, litigation as a result of the proxy contest or matters arising from the proxy contest, which would serve as a further distraction to our board of directors and management and would require us to incur significant additional costs. In addition, actions such as those described above could cause significant fluctuations in our stock price based upon temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business.

We are a smaller reporting company, and we cannot be certain if the reduced disclosure requirements applicable to smaller reporting companies will make our common stock less attractive to investors.

We have been a "smaller reporting company" as defined in the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and thus have been allowed to provide simplified executive compensation disclosures in our filings. We have also had certain other decreased disclosure obligations in our SEC filings. We cannot predict whether investors find our common stock less attractive because of our reliance on any of 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.

Item 1B. UNRESOLVED STAFF COMMENTS

None.

Item 2. PROPERTIES

Our corporate headquarters are in South San Francisco, California, where we lease approximately 16,208 rentable square feet of office space. We also lease lab space in South San Francisco, California, for our research and development work, where we lease approximately 2,630 square feet of space. The leases will expire on April 30, 2023.

As a result of the restructuring announced on November 12, 2021, we decided to downsize our office space and are actively looking for a tenant to sublease a portion of the rented space.

Item 3. LEGAL PROCEEDINGS

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that in the opinion of our management, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Market Information for Common Stock

Catalyst Biosciences, Inc. is listed on the Nasdaq Capital Market under the symbol "CBIO."

Holders of Common Stock

As of March 25, 2022, there were approximately 80 holders of record of our common stock. In addition, a substantially greater number of stockholders may be "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Securities Authorized for Issuance Under Equity Compensation Plans

The information required by this Item regarding equity compensation plans is incorporated by reference to the information set forth in Item 12 of this Annual Report on Form 10-K.

Dividend Policy

We have never declared or paid cash dividends on our capital stock. We intend to retain all available funds and any future earnings, if any, to fund the development and expansion of our business and we do not anticipate paying any cash dividends in the foreseeable future. Any future determination related to dividend policy will be made at the discretion of our board of directors.

Unregistered Sales of Securities; Use of Proceeds from Registered Securities; Issuer Purchases of Equity Securities

In the first quarter of 2021, we issued and sold 9,185,000 shares of our common stock, which included the partial exercise by the underwriters of their option to purchase additional shares, at the public offering price of $5.75 per share and received net proceeds of approximately $49.3 million, after deducting underwriting discounts and commissions of approximately $3.2 million and offering-related transaction costs of approximately $0.4 million. None of the expenses associated with the offering were paid to directors, officers, persons owning ten percent or more of any class of equity securities, or to their associates, or to our affiliates. Piper, Sandler & Co., acted as sole lead active bookrunner and Raymond James & Associates, Inc. acted as a bookrunner for the offering.

There has been no material change in the planned use of proceeds from our public offering from that described in the prospectus filed by us with the SEC on May 3, 2021.

On October 15, 2021, we entered into an Equity Distribution Agreement (the "Equity Distribution Agreement") with Piper Sandler & Co. ("Piper Sandler") under which we may offer and sell, from time to time in our sole discretion, shares of the Company's common stock, par value $0.001 per share (the "Common Stock"), with aggregate gross sales proceeds of up to $50.0 million through an "at the market" equity offering program under which Piper Sandler will act as sales agent.

Under the Equity Distribution Agreement, we will set the parameters for the sale of shares, including the number of shares to be issued, the time period during which sales are requested to be made, limitations on the number of shares that may be sold in any one trading day and any minimum price below which sales may not be made. Subject to the terms and conditions of the Equity Distribution Agreement, Piper Sandler may sell the shares by methods deemed to be an "at the market" offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, including sales made through The Nasdaq Capital Market or any other trading market for the Common Stock.

The Equity Distribution Agreement provides that Piper Sandler will be entitled to compensation for its services equal to 3.0% of the gross proceeds of any shares of Common Stock sold through Piper Sandler under the Equity

Distribution Agreement and the Company will reimburse Piper Sandler for certain expenses incurred in connection with its services under the Equity Distribution Agreement, including up to $50,000 for legal expenses in connection with the establishment of the at-the-market offering. We have no obligation to sell any shares under the Equity Distribution Agreement, and may at any time suspend solicitation and offers under the Equity Distribution Agreement. The offering of shares pursuant to the Equity Distribution Agreement will terminate upon the earlier of (i) the sale of all shares subject to the Equity Distribution Agreement or (ii) termination of the Equity Distribution Agreement in accordance with its terms.

The shares will be issued pursuant to the Company's shelf registration statement on Form S-3 (File No. 333-253874), which was declared effective by the SEC on May 3, 2021. The Company filed a prospectus supplement, dated October 15, 2021 with the SEC in connection with the offer and sale of the shares pursuant to the Equity Distribution Agreement.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers.

None.

Item 6. [RESERVED].

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

The following discussion and analysis should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties, including those set forth under the heading "Risk Factors" and elsewhere in this Annual Report on Form 10-K. Our actual results and the timing of selected events discussed below could differ materially from those expressed in, or implied by, these forward-looking statements.

Overview

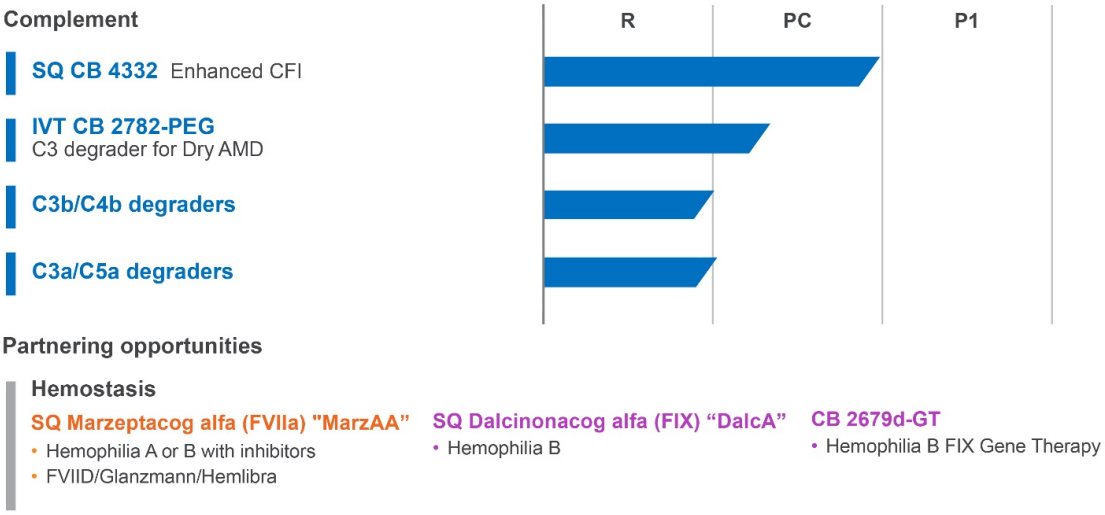
We are a research and clinical development biopharmaceutical company focused on developing protease therapeutics to address unmet medical needs in disorders of the complement system or where complement components are associated with progression of the disease state. Proteases are an important class of enzymes, which are key natural regulators of many biological processes, including the complement system. We use our protease engineering platform to create improved or novel molecules for the treatment of diseases that result from dysregulation of the complement system. Our complement pipeline consists of a preclinical complement component 3 ("C3") degrader program for geographic atrophy ("GA") in dry age-related macular degeneration ("dAMD"), an improved Complement Factor I ("CFI") protease, CB 4332, for subcutaneous ("SQ") or intravitreal ("IVT") therapy to restore complement homeostasis in disease of overactive complement of CFI deficiencies, and proteases from our ProTUNE™ C3b/C4b degrader and ImmunoTUNE™ C3a/C5a degrader platforms designed to target specific disorders of the complement or inflammatory pathways. Historically, we also used our protein engineering platform to develop potential therapies for coagulation disorders, including marzeptacog alfa (activated) ("MarzAA"), a SQ administered next-generation engineered coagulation Factor VIIa ("FVIIa") for the treatment of episodic bleeding and prophylaxis in subjects with rare bleeding disorders, and dalcinonacog alfa ("DalcA"), a next-generation SQ FIX, both of which has shown sustained efficacy and safety in mid-stage clinical trials.

The product candidates generated by our protease engineering platform are designed to have improved functional properties such as longer half-life, improved specificity and targeting, higher potency, and increased bioavailability. These characteristics potentially allow for improved safety and efficacy for SQ administration of recombinant complement regulators, or less frequently dosed intravitreal products than current therapeutics in development.

Our current complement portfolio consists of the development candidates CB 4332 and CB 2782-PEG. CB 4332 is a wholly owned, first-in-class improved albumin-fused CFI molecule intended for prophylactic SQ or IVT administration in individuals with an imbalance in complement homeostasis or a CFI deficiency. CB 2782-PEG is a potential best-in-class C3 degrader product candidate in preclinical development for the treatment of dry AMD that we had licensed to Biogen. In March 2022, we re-acquired the full rights to CB 2782-PEG adding to our promising portfolio, which includes CB 4332 our enhanced CFI development candidate. We have several engineered protease programs in discovery or early non-clinical development. These programs all target diseases caused by deficient regulation of the complement system and inflammation.

In July 2021 we commenced patient enrollment in the screening ("CFI-001") and natural history of disease ("CFI-002") studies to assess CFI blood levels in patients who have diseases related to CFI deficiency and identify those who might benefit from CB 4332 treatment ("ConFIrm" and "ConFIdence" studies, respectively). As of February 2022, we have completed enrollment of these studies.

The following table summarizes our current development programs.



We continue to experience operational and other challenges as a result of the COVID-19 global pandemic, which could delay or impact our development programs. See Note 7, *Commitments and Contingencies,* Other Recent Developments and Item 1A - Risk Factors for further discussion of the current and expected impact on our business and development programs.

Recent Development Program Updates

Complement

Our protease programs are designed to take advantage of nature's natural complement regulators that restore complement homeostasis and potentially treat a variety of complement-mediated disorders. We have several protease programs currently in preclinical discovery or early non-clinical development. These programs target diseases caused by aberrant regulation of the complement system including both ocular programs, specifically for dry AMD, and systemic complement disorders, all of which are wholly owned by Catalyst.

The complement system is an enzyme-based innate immune defense system with the primary role of protecting the body from pathogens. The system is naturally regulated by proteases which is the basis for our approach to addressing complement-driven diseases. Deficient or excessive activation of the complement system may lead to severe disorders, including microthrombotic, autoimmune and/or immune-complex diseases, severe infectious diseases, and degenerative ophthalmic or neurologic diseases affecting a variety of tissues and organ systems. The absence of regulation can cause the complement system to become self-destructive or not provide the necessary protection when needed. The protease therapeutic candidates generated by our platforms are designed to correct or restore the missing balance in the complement system that drives several diseases.

Proteases are uniquely poised to regulate key biological functions such as the complement system, either by promoting or limiting the cascade of events that leads to eventual clearing of foreign and damaged proteins, inflammation, and formation of the membrane attack complex, which is deposited on the surface of cells and drives their destruction. Compared with antibodies and small molecule inhibitors that generally require a sustained excess of therapeutic compound over that of the target, Catalyst's protease therapeutic candidates are based on natural regulatory proteins that are capable of rapidly engaging and modulating large quantities of target molecules, as each protease molecule can degrade many target molecules over their effective lifetime. This means that our proteases are ideal for regulating high abundancy targets such as complement proteins in a way antibodies and small molecule inhibitors cannot.

CB 2782-PEG is an engineered pegylated C3 degrader previously licensed to Biogen that we designed with a best-in-class anti-C3 profile for geographic atrophy ("GA") in dry AMD. Dry AMD is an ocular disease that leads to vision loss and blindness for which there is currently no approved therapy. CB 2782-PEG degrades C3 in the eye reducing the steady state level of C3 activity. It is expected that maintaining low C3 levels in the eye can significantly slow disease progression and vision loss in patients with dry AMD. We have demonstrated in preclinical non-human primate models that we have the potential to reduce C3 levels in humans based on modeling studies for up to 3 months with a single intravitreal injection. In September 2021, Apellis released the results of the DERBY and OAKS phase 3 trials for GA secondary to dry AMD, showing that once-monthly pegcetacoplan, a pegylated C3 targeted inhibitor, was safe and efficacious, meeting its primary endpoint in one trial and narrowly missing the primary endpoint in a second trial for reducing GA lesion growth over a 12-month period. Further subpopulation analyses demonstrated a greater effect of reducing GA lesion growth in those subjects with extrafoveal lesions at baseline. CB 2782-PEG provides a differentiated mechanism of action by degrading both C3 and one of its byproducts, C3a potentially offering not only less frequent dosing but a more efficacious mechanism than pegcetacoplan or other complement inhibitors in development for GA. In March 2022, Biogen terminated the license agreement and returned full rights to CB 2782-PEG.

CB 4332 is an engineered albumin-fused version of the CFI protease with an extended half-life that can be dosed subcutaneously or intravitreally in individuals who would benefit from enhanced regulation of complement. CFI is the central regulator of the complement system and CB 4332 has the potential to address several mechanistically related diseases driven by complement imbalance such as: Lupus Nephritis ("LN"), Systemic Lupus Erythematosus ("SLE"), warm Autoimmune Hemolytic Anemia ("wAIHA"), atypical Hemolytic Uremic Syndrome ("aHUS"), C3 Glomerulonephritis ("C3G"), and Immune Complex Membranoproliferative Glomerulonephritis ("IC-MPGN"), dry AMD and complete CFI deficiency ("CFID"), a rare immunodeficiency primarily affecting children. These are severe, chronic, life-threatening diseases that result in a significantly decreased quality of life for the afflicted individual.

CB 4332 can be dosed subcutaneously for systemic diseases and has the potential for infrequent IVT injections for ophthalmic indications. As a key complement regulator, CFI has the potential to be used in several complement dysregulated diseases (*e.g.*, those associated with hyperactive complement) in which additional upstream regulation may prove more effective than inhibiting specific downstream targets such as C3 or C5, where many of current molecules in development are targeted.

Individuals with complete or significant absence of endogenous CFI may present with a variety of disease manifestations, such as recurrent invasive infections with encapsulated bacteria, but these patients are also at risk of developing autoimmune and/or immune-complex diseases such as chronic inflammation of the blood vessels of the brain, spinal cord, heart, or kidneys. No CFI replacement therapy, including for prophylactic use, has been approved, and patients often receive supportive care with lifelong antibiotic treatment, which may cause a range of additional problems. We have received pre-IND guidance from the FDA as well as Rare Pediatric Disease Designation of CB 4332 for treatment of CFI deficiency in January 2022.

Low circulating serum CFI levels have been shown to be associated with rare CFI genetic variants and all forms of AMD ranging from early to late-stage manifestations. Studies have estimated the prevalence rates of CFI deficiency in GA to be approximately 20%, suggesting that CFI is a prognostic biomarker for progression of GA. Approximately 1 million individuals globally are predicted to have low serum CFI levels and may potentially benefit from targeted CFI therapy. Gyroscope released interim results from its FOCUS phase 1/2a trial for patients with GA and having rare CFI variants, showing that gene therapy with GT005, an AAV-delivered CFI rebalanced the overactivation of complement observed in the vitreous with sustained expression of CFI. The FOCUS data also showed that AAV-delivered CFI reduced complement biomarkers in the broader GA population who do not have a rare CFI genetic variant.

We have additional early-stage complement discovery programs that target different proteins of the complement system including proteases from our ProTUNE™ C3b/C4b degrader and ImmunoTUNE™ C3a/C5a degrader platforms. These proteases are designed to target specific disorders of the complement or inflammatory pathways. The ProTUNE™ platform generates optimized, next-generation engineered CFI molecules that are selectively enhanced for potency and target engagement. We expect to nominate a development candidate and target indication from this platform in 2022.

Coagulation Programs

MarzAA

MarzAA is a potent, subcutaneously administered, next-generation Factor VIIa variant. We commenced enrollment of a Phase 3 registrational trial of MarzAA for episodic treatment of spontaneous or traumatic bleeding episodes in adolescents and adults with congenital hemophilia A or hemophilia B with inhibitors in May 2021. We have discontinued this trial based on a number of factors, including challenges in enrollment resulting from the limited number of potential patients eligible to enroll in this trial, competition from competing approved therapies, delays in enrollment resulting from COVID-19, the capital requirements to complete the trial, and other factors. Patients enrolled in the study returned to their standard of care and completed all required safety assessments. In the patients enrolled to date, we have successfully treated bleeds with SQ MarzAA and have not observed any adverse events. We plan to report these data at an appropriate medical conference in the future. We had also begun enrollment of a Phase 1/2 trial of MarzAA for treatment of bleeding in individuals with Factor VII Deficiency, Glanzmann Thrombasthenia, and hemophilia A with inhibitors on emicizumab prophylaxis. We have discontinued this trial as well, in light of the difficulties in identifying and enrolling eligible patients, the capital requirements to complete the trial and other factors. We believe that a SQ recombinant Factor VIIa therapy, like MarzAA, has the potential to be an important treatment option for patients with various bleeding disorders and are exploring opportunities to license or sell MarzAA to another party for further development.

DalcA

DalcA is a next-generation SQ Factor IX product candidate for the prophylactic treatment of individuals with hemophilia B. An open-label, Phase 2b study was completed in 2020, demonstrating that FIX plasma activity levels were raised from severe to mild hemophilia B levels and maintained throughout the course of the study. We have received guidance from the FDA on the design of the registrational Phase 3 clinical trial, have the necessary data to support its initiation, and are exploring opportunities to license or sell DalcA to another party for further development.

Recent Manufacturing Updates

CB 4332

CB 4332 is an engineered albumin-fused version of the CFI protease with an extended half-life that is designed to be a subcutaneously or intravitreally dosed therapy for individuals who would benefit form enhanced regulation of complement.

Other Recent Developments

COVID-19 Business Impact

The global coronavirus pandemic has resulted in widespread requirements for individuals to work from their homes, strained medical facilities worldwide, and disruptions to certain pharmaceutical manufacturing and product supply chains. While our offices in California have reopened for all employees, we may experience future disruptions in applicable guidelines for workplace safety, necessitating a return to a remote working environment. We are also still experiencing operational and other challenges as a result of the COVID-19 global pandemic, which delayed our enrollment in MAA-304 and MAA-202, contributing to the decision to discontinue these trials, and which may delay or halt our other development programs.

Recent Financing

In the first quarter of 2021, we issued and sold an aggregate of 9,185,000 shares of our common stock (including 485,000 shares sold pursuant to the exercise of the underwriters' overallotment option) at a price of $5.75 per share. The net proceeds to us, after deducting $3.6 million in underwriting discounts and commissions and offering expenses, were approximately $49.3 million.

We have no drug products approved for commercial sale and have not generated any revenue from drug product sales. From inception to December 31, 2021, we have raised net proceeds of approximately $509.3 million,

primarily from private placements of convertible preferred stock since converted to common stock, proceeds from our merger with Targacept, issuances of shares of common stock and warrants, including $83.5 million in total cash receipts from our license and collaboration agreements.

We have never been profitable and have incurred significant operating losses in each year since inception. Our net losses were $87.9 million and $56.2 million for the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $402.7 million. As of December 31, 2021, our cash, cash equivalents and short-term investments balance were $46.9 million. Substantially all our operating losses were incurred in our research and development programs and in our general and administrative operations.

We expect to incur significant expenses and increasing operating losses for at least the next several years as we continue preclinical, manufacturing and clinical development, and seek regulatory approval for our drug candidates. Our operating losses may fluctuate significantly from quarter to quarter and year to year due to timing of preclinical, manufacturing, clinical development programs and regulatory guidance spending.

Leadership Changes

On July 14, 2021, we promoted Grant Blouse, Ph.D., to chief scientific officer and Tom Knudsen, DVM, Ph.D., to senior vice president, corporate development. Howard Levy, M.B.B.Ch, Ph.D., M.M.M., chief medical officer, announced his plan to retire and transition to a senior clinical advisor role to Catalyst.

On September 9, 2021 (the “Effective Date”), we appointed Ms. Jeanne Y. Jew as a Class III director of Catalyst with a term to expire at the 2024 Annual Meeting of Stockholders. In connection with the appointment, the Board approved an increase in the size of the Board, from seven to eight members, effective as of the Effective Date.

On October 13, 2021, Clinton Musil, the chief financial officer, resigned for personal reasons effective October 29, 2021. We promoted Seline Miller, the Company’s controller, to senior vice president, finance. She will serve as the interim chief financial and principal accounting officer while the Company initiates a search for a successor.

Financial Operations Overview

License and Collaboration Revenue

License and collaboration revenue consist of revenue earned for performance obligations satisfied pursuant to our license and collaboration agreement with Biogen which was entered into in December 2019. In consideration for the grant of an exclusive license and related know-how, we received an up-front license payment of $15.0 million in January 2020, which was recorded in license revenue during the year ended December 31, 2020. We recognized collaboration revenue for reimbursable third-party vendor, out-of-pocket and personnel costs pertaining to the Biogen Agreement of $7.3 million and $5.8 million during the years ended December 31, 2021 and 2020, respectively. In March 2022, we received notice that Biogen is terminating the license and collaboration agreement. Under the terms of the Biogen Agreement, termination will be effective in May 2022.

We have not generated any revenue from the sale of any drug products and we do not expect to generate any revenue from the sale of drug products until we obtain regulatory approval of and commercialize our product candidates.

Cost of License and Collaboration

Cost of license and collaboration revenue consists of fees for research and development services payable to third-party vendors, and personnel costs, corresponding to the recognition of license and collaboration revenue from Biogen. Cost of license and collaboration revenue does not include any allocated overhead costs. In connection with the license revenue recognized from Biogen as discussed above in 2020, we paid Mosaic a $3.0 million sublicense fee and recorded such payment as cost of license. We recognized third-party vendor, out-of-pocket and personnel costs, most of which were reimbursable, pertaining to the Biogen Agreement of $7.4 million and $6.1 million during the years ended December 31, 2021 and 2020, respectively, and recorded such costs as cost of collaboration revenue.

Research and Development Expenses

Research and development expenses represent costs incurred to conduct research, such as the discovery and development of our product candidates. We recognize all research and development costs as they are incurred. Nonrefundable advance payments for goods or services used in research and development are deferred and capitalized. The capitalized amounts are then expensed as the related goods are delivered or services are performed, or until it is no longer expected that the goods or services will be delivered.

Research and development expenses consist primarily of the following:

- employee-related expenses, which include salaries, benefits and stock-based compensation;
- laboratory and vendor expenses, including payments to consultants and third parties, related to the execution of preclinical, non-clinical, and clinical studies;
- the cost of acquiring and manufacturing preclinical and clinical materials and developing manufacturing processes;
- clinical trial expenses, including costs of third-party clinical research organizations;
- performing toxicity and other preclinical studies; and
- facilities and other allocated expenses, which include direct and allocated expenses for rent and maintenance of facilities, depreciation and amortization expense and other supplies.

The table below details our internal and external costs for research and development for the period presented (*in thousands)*. See Overview and Recent Development Program Updates for further discussion of the current research and development programs.

	Year Ended December 31, 2021
Hemophilia	$ 25,791
Complement	24,698
Personnel and other	17,198
Stock-based compensation	1,202
Total research and development expenses	$ 68,889

The largest component of our total operating expenses has historically been our investment in research and development activities, including the clinical and manufacturing development of our product candidates. We are focusing substantially all our resources and development efforts on our complement programs. Costs listed for our hemophilia and complement programs above consist of clinical trial, manufacturing and research costs. Our internal resources, employees and infrastructure, identified above as personnel and other, are generally not directly tied to individual product candidates or development programs. As such, we do not maintain information regarding these costs incurred for these research and development programs on a project-specific basis.

We expect our aggregate research and development expenses will fluctuate during the next year as we continue to explore strategic opportunities for the clinical and manufacturing development of our programs. The global coronavirus pandemic may also delay and increase costs of our current development plans.

On May 20, 2016, we signed a development and manufacturing services agreement with AGC, formerly known as CMC ICOS Biologics, Inc., pursuant to which AGC will conduct manufacturing development of agreed upon product candidates. We will own all intellectual property developed in such manufacturing development activities that are specifically related to our product candidates and will have a royalty-free and perpetual license to use AGC's intellectual property to the extent reasonably necessary to make these product candidates, including commercial manufacturing. As of December 31, 2021, six GMP batches have been manufactured at AGC in addition to an engineering batch.

The initial term of the agreement is ten years or, if later, until all stages under outstanding statements of work have been completed. Either party may terminate the agreement in its entirety upon written notice of a material uncured breach or upon the other party's bankruptcy, and we may terminate the agreement upon prior notice for any reason. In addition, each party may terminate the agreement in the event that the manufacturing development activities

cannot be completed for technical or scientific reasons. We had firm work orders with AGC to manufacture MarzAA and DalcA to support clinical trials totaling $15.8 million. The payment obligations were fully paid off as of December 31, 2021. We also have firm work orders with AGC to perform certain manufacturing services related to our collaboration agreement with Biogen totaling $0.7 million and the payment obligations remaining as of December 31, 2021 were $0.3 million.

In July 2021, we entered into two separate agreements, one for additional clinical trial services for MarzAA, and another for our screening and natural history of disease clinical studies related to CFI deficiency, with total payments of up to $3.2 million and $6.5 million, respectively. In November 2021, we provided notice of intent to terminate our MarzAA manufacturing agreements and incurred charges of $3.8 million to write-off prepaid manufacturing costs that will no longer be used for the clinical development of MarzAA. We can terminate the CFI agreement at our discretion and upon termination will be responsible to pay for those services incurred prior to termination plus reasonable wind-down expenses.

On September 16, 2021, we signed a Manufacturing and Research and Development Studies Agreement to support the lyophilized drug product, CB 4332. The agreement will cover analytical method qualification to support GMP manufacturing. We have firm work orders related to this agreement totaling $0.2 million and the payment obligations were fully paid off as of December 31, 2021.

We also have a long-term clinical supply services agreement with Catalent Indiana, LLC (“Catalent”). Catalent has facilities in the U.S. and Europe and conducts drug product development and manufacturing for MarzAA and DalcA. We successfully completed development work for a variety of vial sizes which supports flexible dosing.

The process of conducting clinical trials necessary to obtain regulatory approval is costly and time consuming. We may never succeed in achieving marketing approval for our product candidates. The probability of success of each product candidate may be affected by numerous factors, including clinical data, competition, manufacturing capability and commercial viability. As a result, we are unable to determine the duration of and costs to complete our research and development projects or when and to what extent we will generate revenue from the commercialization and sale of any of our product candidates.

Successful development of current and future product candidates is highly uncertain. Completion dates and costs for our research programs can vary significantly for each current and future product candidate and are difficult to predict. Thus, we cannot estimate with any degree of certainty the costs we will incur in the development of our product candidates. We anticipate we will determine which programs and product candidates to pursue and how much funding to direct to each program and product candidate on an ongoing basis in response to the scientific success of early research programs, results of ongoing and future clinical trials, our ability to enter into collaborative agreements with respect to programs or potential product candidates, as well as ongoing assessments as to each current or future product candidate’s commercial potential.

General and Administrative Expenses

General and administrative expenses consist of personnel costs, allocated expenses and other expenses for outside professional services, including legal, human resources, audit and accounting services. Personnel costs consist of salaries, bonus, benefits and stock-based compensation. We incur expenses associated with operating as a public company, including expenses related to compliance with the rules and regulations of the Securities and Exchange Commission (“SEC”) and Nasdaq Stock Market LLC (“Nasdaq”), insurance expenses, audit expenses, investor relations activities, Sarbanes-Oxley compliance expenses and other administrative expenses and professional services. We expect such expenses to fluctuate as we continue to explore strategic opportunities for our programs.

Results of Operations

The following tables set forth our results of operations data for the periods presented *(in thousands, except percentages)*:

	Year Ended December 31,			
	2021	2020	Change ($)	Change (%)
Revenue:				
License	$ —	$ 15,100	$ (15,100)	*
Collaboration	7,338	5,848	1,490	25%
License and collaboration revenue	7,338	20,948	(13,610)	(65)%
Operating expenses:				
Cost of license	—	3,102	(3,102)	*
Cost of collaboration	7,380	6,061	1,319	22%
Research and development	68,889	52,975	15,914	30%
General and administrative	18,963	16,180	2,783	17%
Total operating expenses	95,232	78,318	16,914	22%
Loss from operations	(87,894)	(57,370)	(30,524)	53%
Interest and other income (expense), net	(39)	1,129	(1,168)	*
Net loss	$ (87,933)	$ (56,241)	$ (31,692)	56%

*Not meaningful

License and Collaboration Revenue

License and collaboration revenues were $7.3 million and $20.9 million for the years ended December 31, 2021 and 2020, respectively. In the year ended December 31, 2021, revenue consisted primarily of reimbursable collaboration expenses from our Biogen Agreement. In the year ended December 31, 2020, revenue consisted primarily of a license payment of $15.0 million and reimbursable collaboration expenses of $5.8 million from our Biogen Agreement.

Cost of License and Collaboration

Cost of license and collaboration revenues were $7.4 million and $9.2 million during the years ended December 31, 2021 and 2020, respectively. Cost of collaboration for the year ended December 31, 2021 was primarily related to reimbursable third-party vendor and personnel costs we incurred pertaining to the Biogen Agreement. Cost of license for the year ended December 31, 2020 was primarily the $3.0 million sublicense fee we paid to Mosaic in connection with the recognition of the license revenue from Biogen. Cost of collaboration revenue for the year ended December 31, 2020 was primarily reimbursable third-party vendor, out-of-pocket and personnel related costs we incurred pertaining to the Biogen Agreement.

Research and Development Expenses

Research and development expenses were $68.9 million and $53.0 million during the years ended December 31, 2021 and 2020, respectively, an increase of approximately $15.9 million, or 30%. The increase was due primarily to an increase of $9.3 million in clinical manufacturing costs of which $3.8 million related to the write-off of prepaid manufacturing costs as part of our restructuring, an increase of $3.9 million in preclinical research, an increase of $2.1 million in personnel-related costs which includes approximately $0.3 million related to one-time severance costs associated with our restructuring, and an increase of $0.6 million in facilities costs.

General and Administrative Expenses

General and administrative expenses were $19.0 million and $16.2 million during the years ended December 31, 2021 and 2020, respectively, an increase of approximately $2.8 million, or 17%. The increase was due primarily to an increase of $1.4 million in personnel-related costs and an increase of $1.4 million in professional services.

Interest and Other Income (Expense), Net

The $1.2 million decrease in interest and other income (expense), net for the year ended December 31, 2021 compared to the year ended December 31, 2020 was primarily due to a decrease in interest income and due to the payment received in the first quarter of 2020 under an agreement associated with neuronal nicotinic receptor asset sold in 2016.

Recent Accounting Pronouncements

Refer to Note 3, *Summary of Significant Accounting Policies,* to our consolidated financial statements included within Item 8 of this Annual Report on Form 10-K for a description of recent accounting pronouncements adopted and not yet adopted for the year ended December 31, 2021.

Liquidity and Capital Resources

As of December 31, 2021, we had $46.9 million of cash, cash equivalents and short-term investments. During the year ended December 31, 2021, we had a $87.9 million net loss and $83.8 million cash used in operating activities. We have an accumulated deficit of $402.7 million as of December 31, 2021. Our primary uses of cash are to fund operating expenses, including research and development expenditures and general and administrative expenditures. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding accounts payable and accrued expenses.

We believe that our existing capital resources, including cash, cash equivalents and investments will be sufficient to meet our projected operating requirements for at least the next 12 months from the date of this filing. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. We plan to continue to fund losses from operations and capital funding needs through future equity and/or debt financings, as well as potential additional asset sales, licensing transactions, collaborations or strategic partnerships with other companies. At the year ended December 31, 2021, we had effective registration statements on Form S-3 that enable us to sell up to $150.0 million in securities subject to limitations under SEC rules. The sale of additional equity or convertible debt could result in additional dilution to our stockholders. The incurrence of indebtedness would result in debt service obligations and could result in operating and financing covenants that would restrict our operations. Licensing transactions, collaborations or strategic partnerships may result in us relinquishing valuable rights. We can provide no assurance that financing will be available in the amounts we need or on terms acceptable to us, if at all. If we are not able to secure adequate additional funding we may be forced to delay, make reductions in spending, extend payment terms with suppliers, liquidate assets where possible, and/or suspend or curtail planned programs. Any of these actions could materially harm our business.

In October 2021, we entered into the ATM Agreement with Piper Sandler, which provides that, upon the terms and subject to the conditions and limitations set forth in the ATM Agreement, we may elect to issue and sell, from time to time, shares of our common stock having an aggregate offering price of up to $50.0 million through Piper Sandler acting as our sales agent. Under the ATM Agreement, Piper Sandler may sell the shares of common stock by methods deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act of 1933, as amended, including sales made directly on the Nasdaq Capital Market or any other trading market for the common stock. Piper Sandler will use commercially reasonable efforts to sell the shares of common stock subject to the ATM Agreement from time to time, based upon our instructions (including any price, time or size limits or other customary parameters or conditions that we may impose). We will pay Piper Sandler a commission of 3.0% of the gross proceeds of any shares sold through Piper Sandler under the ATM Agreement; however, we are not obligated to make any sales of common stock. For the year ended December 31, 2021, no shares of common stock were sold under the ATM Agreement.

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

	Year Ended December 31,	
	2021	2020
Cash used in operating activities	$ (83,755)	$ (55,048)
Cash provided by investing activities	48,189	9,663
Cash provided by financing activities	49,553	60,376
Net increase in cash and cash equivalents	$ 13,987	$ 14,991

Cash Flows from Operating Activities

Cash used in operating activities for the year ended December 31, 2021 was $83.8 million. The most significant component of our cash used was a net loss of $87.9 million. This included non-cash expense related to stock-based compensation of $3.4 million and depreciation and amortization of $0.3 million. In addition, cash inflow of $0.5 million was attributable to the change in our net operating assets and liabilities primarily as a result of a $3.9 million decrease in prepaid and other assets, a $1.5 million decrease in accounts receivable, and a $0.5 million increase in accounts payable, offset by a $3.7 million decrease in accrued compensation and other accrued liabilities and a $1.8 million decrease in deferred revenue related to the Biogen Agreement.

Cash used in operating activities for the year ended December 31, 2020 was $55.0 million, due primarily to a net loss of $56.2 million and a net change in our operating assets and liabilities of $2.6 million, due primarily to a $11.7 million decrease in accounts receivable and a $1.7 million increase in accounts payable, partially offset by a $13.0 million decrease in deferred revenue related to the Biogen Agreement and a $3.0 million increase in prepaid and other assets. This is partially offset by non-cash charges of $3.8 million.

Cash Flows from Investing Activities

Cash provided by investing activities for the year ended December 31, 2021 was $48.2 million, due to $49.0 million in proceeds from maturities of investments, offset by $0.8 million in purchases of property and equipment.

Cash provided by investing activities for the year ended December 31, 2020 was $9.7 million, due to $107.6 million in proceeds from maturities of investments, offset by $97.6 million in purchases of short-term and long-term investments and $0.3 million in purchases of property and equipment.

Cash flows from Financing Activities

Cash provided by financing activities for the year ended December 31, 2021 was $49.6 million, due to $49.3 million in net proceeds from the issuance of common stock related to our public offering in the first quarter of 2021 and $0.3 million in proceeds from ESPP purchases of common stock and stock option exercises.

Cash provided by financing activities for the year ended December 31, 2020 was $60.4 million, due to $32.0 million in net proceeds from the issuance of common stock related to our public offering in February 2020, $28.0 million in net proceeds from the issuance of common stock related to our public offering in June 2020, and $0.4 million in proceeds from ESPP purchases of common stock and stock option exercises.

Critical Accounting Polices and Estimates

The preparation of the consolidated financial statements and related disclosures in conformity with U.S. generally accepted accounting principles ("GAAP") and the Company's discussion and analysis of its financial condition and operating results require the Company's management to make judgments, assumptions and estimates that affect the amounts reported in its consolidated financial statements and accompanying notes. Our significant accounting policies and methods used in preparation of the Company's consolidated financial statements are described in Note 3, "*Summary of Significant Accounting Policies*," of the Notes to the Consolidated Financial Statements of this Annual Report on Form 10-K. Management bases its estimates on historical experience and on various other assumptions it believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ from these estimates, and such differences may be material.

Management believes the Company's critical accounting policies and estimates discussed below are critical to understanding its historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Revenue Recognition

License and Collaboration Arrangements

We may enter into collaboration arrangements that fall under the scope Collaborative Arrangements (Topic 808) ("ASC 808"). We analyze collaboration arrangements to assess whether they are within the scope of ASC 808 to determine whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards dependent on the commercial success of such activities. This assessment is performed throughout the life of the arrangement based on changes in the responsibilities of all parties in the arrangement. The accounting for some of the activities under collaboration arrangements may be analogized to ASC 606 for distinct units of accounting that are reflective of a vendor-customer relationship.

Under ASC 606, in determining the appropriate amount of revenue to be recognized as we fulfill our obligations under its agreements, we perform the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when we satisfy each performance obligation.

If a license to our intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, we recognize revenues attributed to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, we use our judgement to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time.

At the inception of each arrangement that contains development milestones, we evaluate whether the development milestones included are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or the licensee, such as regulatory approvals, are not generally considered probable of being achieved until those approvals are received.

At the end of each reporting period, we re-evaluate the probability of achievement of any development milestones, and if necessary, adjust its estimate of the transaction price. Any such adjustments would be recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

For research and development services, the Company elected the practical expedient to recognize revenue as the research and development services are invoiced. As the Company has a right to consideration from the collaboration agreement with Biogen, in an amount that corresponds directly with the value of the Company's performance completed to date for the research services, the Company recognized revenue related to the research services as invoiced, in line with the practical expedient in ASC 606-10-55-18.

The transaction price is allocated to each performance obligation on a relative stand-alone selling price ("SSP") basis. We recognize revenue as or when the performance obligations under the contract are satisfied. As part of the accounting for these arrangements, we must develop assumptions that require judgment to determine the timing of recognition and the SSP for each performance obligation identified in the contract.

The SSP for licenses are calculated using the residual approach if we have not yet established a price for such license and the license has not previously been sold on a standalone basis. Otherwise, selling prices for licenses are determined using an income approach model and include key assumptions such as: development timeline, revenue forecast, commercialization expenses, discount rate and probabilities of technical and regulatory success. To estimate the SSP for research and development services, we use a cost-plus margin approach.

Accrued Research and Development Expenses

We record accrued expenses for estimated costs of our research and development activities conducted by external service providers, which include the conduct of preclinical studies and clinical trials and contract manufacturing activities. We record the estimated costs of research and development activities based upon the estimated amount of services provided but not yet invoiced and includes these costs in other accrued liabilities in the consolidated balance sheet and within research and development expense in the consolidated statement of operations. These costs are a significant component of our research and development expenses. We record accrued expenses for these costs based on the estimated amount of work completed and in accordance with agreements established with these external service providers.

We estimate the amount of work completed through discussions with internal personnel and external service providers as to the progress or stage of completion of the services and the agreed-upon fee to be paid for such services. We make significant judgments and estimates in determining the accrued balance in each reporting period. As actual costs become known, we adjust its accrued estimates.

Stock-based Compensation

We measure the cost of employee and director services received in exchange for an award of equity instruments based on the fair value-based measurement of the award on the date of grant and recognize the related expense over the period during which an employee or director is required to provide service in exchange for the award on a straight-line basis. The estimated fair value of equity awards that contain performance conditions is expensed over the term of the award once we have determined that it is probable that performance conditions will be satisfied.

Determining the fair value of stock-based awards at the grant date requires judgment. We use the Black-Scholes option-pricing model to determine the fair value of stock options. The determination of the grant date fair value of options using an option-pricing model is affected by our assumptions regarding a number of variables including the fair value of our common stock, our expected common stock price volatility over the expected life of the options, expected term of the stock option, risk-free interest rates and expected dividends. We record stock-based compensation as a compensation expense, net of the forfeited awards. We elected to account for forfeitures when they occur. As such, we recognize stock-based compensation expense only for those stock-based awards that are expected to vest, over their requisite service period, based on the vesting provisions of the individual grants. See Note 10, *Stock Based Compensation,* to our consolidated financial statements included in this Annual Report on Form 10-K for more information.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

CATALYST BIOSCIENCES, INC.

Index to Consolidated Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Catalyst Biosciences, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Catalyst Biosciences, Inc. (the "Company") as of December 31, 2021 and 2020 and the related statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years then ended in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

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

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

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the financial statements and (ii) involved especially challenging, subjective, or complex judgments. The communication of critical audit matter does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Research and Development Expenses

As described in Note 3 to the financial statements, the Company is required to estimate their expenses resulting from their research and development activities conducted by external service providers, which include the performance of preclinical studies and clinical trials and contract manufacturing activities. The Company recorded accrued expenses related to research and development activities of $3.6 million, which are included in other accrued liabilities on the December 31, 2021 balance sheet and also recorded prepaid research and development expenses of $0.9 million, which are included in prepaid and other current assets on the December 31, 2021 balance sheet. The amounts recorded for research and development accruals and for prepaid research and development expenses, within the aforementioned balance sheet captions represent the Company's estimate of the unpaid and prepaid research and development expenses based on the progress of the research and development activities for clinical trials compared to the amounts paid for clinical trials through December 31, 2021.

Management's estimate of research and development expenses is based on the estimated amount of services provided but not yet invoiced, the estimated amount of work completed and estimates to completion and in accordance with agreements established with these external service providers.

We identified management's estimate of the research and development expenses as a critical audit matter. There was significant judgment required by management with respect to the estimate of the amount of work completed, as the calculation includes estimates of the progress or stage of completion of the services. This in turn led to a high degree of auditor judgment, subjectivity and effort in applying the procedures related to those estimates.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. We obtained an understanding and evaluated the design of the controls over the Company's process of estimation and assumptions used in the estimation of the research and development expenses. We performed procedures to test the research and development accruals and prepaid balances that included, among others, reading agreements with external service providers and evaluating the significant assumptions described above and methods used in developing the research and development estimates and calculating the amounts that were unpaid and prepaid at the balance sheet date. We made direct inquiries of financial and clinical personnel on the status of the research and development activities, progress towards completion, and status of any change orders. We compared the current estimate of expenses incurred to estimates previously made by management. We also assessed the historical accuracy of management's estimates and examined invoices issued and payments made to services providers after the balance sheet date.

/s/ EisnerAmper LLP

We have served as the Company's auditor since 2014.

EISNERAMPER LLP
Philadelphia, Pennsylvania
March 31, 2022

Catalyst Biosciences, Inc.
Consolidated Balance Sheets
(In thousands, except shares and per share amounts)

	December 31, 2021	December 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 44,347	$ 30,360
Short-term investments	2,504	48,994
Accounts receivable	1,818	3,313
Prepaid and other current assets	2,807	6,843
Total current assets	51,476	89,510
Long-term investments	—	2,543
Other assets, noncurrent	472	528
Right-of-use assets	2,744	1,832
Property and equipment, net	970	433
Total assets	$ 55,662	$ 94,846
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 6,419	$ 5,931
Accrued compensation	1,467	2,476
Deferred revenue	230	1,983
Other accrued liabilities	4,072	6,743
Operating lease liability	1,977	663
Total current liabilities	14,165	17,796
Operating lease liability, noncurrent	408	981
Total liabilities	14,573	18,777
Commitments and Contingencies (Note 7)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 5,000,000 shares authorized; zero shares issued and outstanding	—	—
Common stock, $0.001 par value, 100,000,000 shares authorized; 31,409,707 and 22,097,820 shares issued and outstanding at December 31, 2021 and 2020, respectively	31	22
Additional paid-in capital	443,752	390,803
Accumulated other comprehensive income	—	5
Accumulated deficit	(402,694)	(314,761)
Total stockholders' equity	41,089	76,069
Total liabilities and stockholders' equity	$ 55,662	$ 94,846

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

Catalyst Biosciences, Inc.
Consolidated Statements of Operations
(In thousands, except share and per share amounts)

	Year Ended December 31,	
	2021	2020
Revenue:		
License	$ —	$ 15,100
Collaboration	7,338	5,848
License and collaboration revenue	7,338	20,948
Operating expenses:		
Cost of license	—	3,102
Cost of collaboration	7,380	6,061
Research and development	68,889	52,975
General and administrative	18,963	16,180
Total operating expenses	95,232	78,318
Loss from operations	(87,894)	(57,370)
Interest and other income (expense), net	(39)	1,129
Net loss	$ (87,933)	$ (56,241)
Net loss per share attributable to common stockholders, basic and diluted	$ (2.87)	$ (2.93)
Shares used to compute net loss per share attributable to common stockholders, basic and diluted	30,640,977	19,179,299

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

Catalyst Biosciences, Inc.
Consolidated Statements of Comprehensive Loss
(In thousands)

	Year Ended December 31,	
	2021	2020
Net loss	$ (87,933)	$ (56,241)
Other comprehensive loss:		
Unrealized loss on available-for-sale debt securities	(5)	(29)
Total comprehensive loss	$ (87,938)	$ (56,270)

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

Catalyst Biosciences, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Income (Loss)	Deficit	Equity
Balance at December 31, 2019	—	$ —	12,040,835	$ 12	$ 326,810	$ 34	$ (258,520)	$ 68,336
Stock-based compensation expense	—	—	51,056	—	3,627	—	—	3,627
Issuance of common stock from ESPP purchases and stock option exercises	—	—	82,853	—	435	—	—	435
Issuance of common stock for public offering, net of issuance costs of $4,559	—	—	9,923,076	10	59,931	—	—	59,941
Unrealized loss on available-for-sale debt securities	—	—	—	—	—	(29)	—	(29)
Net loss	—	—	—	—	—	—	(56,241)	(56,241)
Balance at December 31, 2020	—	—	22,097,820	22	390,803	5	(314,761)	76,069
Stock-based compensation expense	—	—	56,912	—	3,405	—	—	3,405
Issuance of common stock from ESPP purchases and stock option exercises	—	—	69,975	—	303	—	—	303
Issuance of common stock for public offering, net of issuance costs of $3,563	—	—	9,185,000	9	49,241	—	—	49,250
Unrealized loss on available-for-sale debt securities	—	—	—	—	—	(5)	—	(5)
Net loss	—	—	—	—	—	—	(87,933)	(87,933)
Balance at December 31, 2021	—	$ —	31,409,707	$ 31	$ 443,752	$ —	$ (402,694)	$ 41,089

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

Catalyst Biosciences, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,	
	2021	**2020**
Operating Activities		
Net loss	$ (87,933)	$ (56,241)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	3,405	3,627
Depreciation and amortization	290	138
Changes in operating assets and liabilities:		
Accounts receivable	1,495	11,687
Prepaid and other assets	3,880	(3,043)
Accounts payable	500	1,652
Accrued compensation and other accrued liabilities	(3,680)	82
Operating lease liability and right-of-use asset	41	67
Deferred revenue	(1,753)	(13,017)
Net cash flows used in operating activities	(83,755)	(55,048)
Investing Activities		
Proceeds from maturities of short-term investments	49,028	107,565
Purchase of short-term and long-term investments	—	(97,635)
Purchases of property and equipment	(839)	(267)
Net cash flows provided by investing activities	48,189	9,663
Financing Activities		
Issuance of common stock for public offering, net of issuance costs	49,250	59,941
Issuance of common stock from ESPP purchase and stock option exercises	303	435
Net cash flows provided by financing activities	49,553	60,376
Net increase in cash and cash equivalents	13,987	14,991
Cash and cash equivalents at beginning of the period	30,360	15,369
Cash and cash equivalents at end of the period	$ 44,347	$ 30,360
Supplemental Disclosure of Non-Cash Investing and Financing Activities:		
Right-of-use assets obtained in exchange for operating lease liabilities	$ 1,850	$ 476
Remeasurement of right-of-use asset due to operating lease modification	$ 624	$ —

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

1. Nature of Operations

Catalyst Biosciences, Inc. and its subsidiary (the "Company" or "Catalyst") is a fully integrated research and clinical development biopharmaceutical company with expertise in protease engineering, discovery, translational research, clinical development, and manufacturing. The Company is focused on advancing its protease product candidates in the fields of hemostasis and complement regulation. The Company is located in South San Francisco, California and operates in one segment.

2. Liquidity

The Company had a net loss of $87.9 million for the year ended December 31, 2021 and an accumulated deficit of $402.7 million as of December 31, 2021. The Company expects to continue to incur losses for the next several years. As of December 31, 2021, the Company had $46.9 million of cash, cash equivalents and short-term investments. Its primary uses of cash are to fund operating expenses, including research and development expenditures and general and administrative expenditures. Based on the current status of its research and development plans, the Company believes that its existing cash, cash equivalents and investments as of December 31, 2021 will be sufficient to fund its cash requirements for at least the next 12 months from the date of the filing of this report. If, at any time, the Company's prospects for financing its research and development programs decline, the Company may decide to reduce research and development expenses by delaying, discontinuing or reducing its funding of one or more of its research or development programs. Alternatively, the Company might raise funds through strategic collaborations, public or private financings or other arrangements. Such funding, if needed, may not be available on favorable terms, or at all. The Company will continue to evaluate the impact of the novel coronavirus disease ("COVID-19") pandemic on our business, operations, and cash requirements. For recent financing, see Note 14, *Stockholders' Equity*.

3. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements include the accounts of the Company and its subsidiary. Intercompany accounts and transactions, if applicable, have been eliminated in consolidation. The Company's consolidated financial statements have been prepared in accordance with United States generally accepted accounting principles ("GAAP").

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. On an ongoing basis, management evaluates its estimates, including those related to revenue recognition, allowance of doubtful accounts, operating lease right-of-use assets and liabilities, accrued expenses, income taxes and stock-based compensation. The Company bases its estimates on various assumptions that the Company believes to be reasonable under the circumstances. Actual results could differ from those estimates.

Accounting Pronouncements Recently Adopted

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes.* The amendments in ASU 2019-12 are intended to simplify various aspects related to accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in Topic 740 and also clarifies and amends existing guidance to improve consistent application. The Company adopted ASU 2019-12 as of January 1, 2021, on a prospective transition basis. The adoption of ASU 2019-12 did not have a material impact on the Company's consolidated financial statements.

New Accounting Pronouncements – Issued But Not Yet Adopted

In June 2016, the FASB issued ASU 2016-13, *Measurement of Credit Losses on Financial Instruments*. The main objective of ASU 2016-13 is to provide financial statement users with more decision-useful information about an entity's expected credit losses on financial instruments and other commitments to extend credit at each reporting date. To achieve this objective, the amendments in this update replace the incurred loss impairment methodology currently used today with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to develop credit loss estimates. ASU 2016-13 will be effective for the Company for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years, using a modified retrospective approach. Early adoption is permitted. The Company plans to adopt ASU 2016-13 and related updates as of January 1, 2023. The Company will assess the impact of adoption of this standard on its consolidated 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*. The amendments in ASU 2021-04 provide guidance to clarify and reduce 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. The amendments in this ASU 2021-04 are effective for all entities for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years, with early adoption permitted, including interim periods within those fiscal years. The Company plans to adopt ASU 2021-04 and related updates on January 1, 2022, and does not expect the adoption to have a material impact on its consolidated financial statements.

Cash and Cash Equivalents

The Company invests its excess cash in bank deposits, consisting primarily of money market mutual funds. The Company considers all highly liquid investments with original maturities of three months or less from the date of purchase to be cash equivalents.

Fair Value of Financial Instruments

The Company applies fair value accounting for all financial assets and liabilities and non-financial assets and liabilities that are recognized or disclosed at fair value in the consolidated financial statements on a recurring basis. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date.

The fair value hierarchy requires that an entity maximize the use of observable inputs when estimating fair value. The fair value hierarchy includes the following three-level classification which is based on the market observability of the inputs used for estimating the fair value of the assets or liabilities being measured:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 – Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the respective assets, which are three years for computer equipment and software, and three to seven years for furniture and leasehold improvements.

Investments

The Company invests its excess cash in investment grade, short to intermediate-term, fixed income securities and recognizes purchased securities on the settlement date. All investments have been classified as "available-for-sale" and are carried at estimated fair value based upon quoted market prices or pricing models for similar securities. Management determines the appropriate classification of its investments at the time of purchase and reevaluates such designation as of each consolidated balance sheet date. Unrealized gains and losses on available-for-sale debt securities are excluded from earnings and are reported as a component of comprehensive loss. Realized gains and losses and declines in fair value determined to be other-than-temporary, if any, on available-for-sale debt securities are included in interest and other income (expense), net. The cost of securities sold is based on the specific-identification method. Interest on short-term investments is included in interest and other income (expense), net.

Revenue Recognition

License and Collaboration Arrangements

The Company may enter into collaboration arrangements that fall under the scope Collaborative Arrangements (Topic 808). The Company analyzes its collaboration arrangements to assess whether they are within the scope of ASC 808 to determine whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards dependent on the commercial success of such activities. This assessment is performed throughout the life of the arrangement based on changes in the responsibilities of all parties in the arrangement. The accounting for some of the activities under collaboration arrangements may be analogized to ASC 606 for distinct units of account that are reflective of a vendor-customer relationship.

Under ASC 606, in determining the appropriate amount of revenue to be recognized as it fulfills its obligations under its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when the Company satisfies each performance obligation.

If a license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenues attributed to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgement to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time.

At the inception of each arrangement that contain development milestones, the Company evaluates whether the development milestones included are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the control of the Company or the licensee, such as regulatory approvals, are not generally considered probable of being achieved until those approvals are received.

At the end of each reporting period, the Company re-evaluates the probability of achievement of any development milestones, and if necessary, adjusts its estimate of the transaction price. Any such adjustments

would be recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

For research and development services, the Company elected the practical expedient to recognize revenue as the research and development services are invoiced. As the Company has a right to consideration from the collaboration agreement with Biogen International GmbH ("Biogen"), in an amount that corresponds directly with the value of the Company's performance completed to date for the research services, the Company recognized revenue related to the research services as invoiced, in line with the practical expedient in ASC 606-10-55-18.

The transaction price is allocated to each performance obligation on a relative stand-alone selling price ("SSP") basis. The Company recognizes revenue as or when the performance obligations under the contract are satisfied. As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the timing of recognition and the SSP for each performance obligation identified in the contract.

The SSP for licenses are calculated using the residual approach if the Company has not yet established a price for such license and the license has not previously been sold on a standalone basis. Otherwise, selling prices for licenses are determined using an income approach model and include key assumptions such as: development timeline, revenue forecast, commercialization expenses, discount rate and probabilities of technical and regulatory success. To estimate the SSP for research and development services, the Company uses a cost-plus margin approach.

Cost of License and Collaboration

Cost of license revenue includes sublicense fees paid or payable to Mosaic Biosciences, Inc. ("Mosaic"), incurred in the period, under the terms of the Mosaic collaboration agreement, and fees for patent development and protection paid or payable to other third-party vendors corresponding to the recognition of license revenue from the Company's collaboration agreement with Biogen. See Notes 8 and 12, *Related Parties* and *Collaborations,* respectively. Cost of license revenue does not include any allocated overhead costs.

Cost of collaboration revenue includes fees for research and development services paid or payable to Mosaic and other third-party vendors and personnel cost, incurred in the period pertaining to the Company's agreement with Biogen. See Notes 8 and 12, *Related Parties* and *Collaborations,* respectively. Cost of collaboration revenue does not include any allocated overhead costs.

Research and Development Expenses

Research and development costs are expensed as incurred. Nonrefundable advance payments for goods or services used in research and development are initially deferred and capitalized in prepaid and other current assets. The capitalized amounts are then expensed as the related goods are delivered or services are performed, or until it is no longer expected that the goods or services will be delivered. Research and development costs consist of payroll and other personnel-related expenses, laboratory supplies and reagents, contract research and development services, materials, and consulting costs, as well as allocations of facilities and other overhead costs. Under the Company's collaboration agreement with Biogen, certain specific expenditures are reimbursed by third parties. During the years ended December 31, 2021 and 2020, $6.5 million and $5.4 million, respectively, of research and development expense was recorded as cost of collaboration revenue related to the collaboration agreement with Biogen signed in December 2019.

Accrued Research and Development Expenses

Accrued expenses include estimated costs of research and development activities conducted by external service providers, which include the conduct of preclinical studies and clinical trials and contract manufacturing activities. The Company records the estimated costs of research and development activities

based upon the estimated amount of services provided but not yet invoiced and includes these costs in other accrued liabilities in the consolidated balance sheet and within research and development expense in the consolidated statement of operations. These costs are a significant component of the research and development expenses. The Company records accrued expenses for these costs based on the estimated amount of work completed and in accordance with agreements established with these external service providers.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash, cash equivalents, investments and accounts receivable. The Company's investment policy restricts cash investments to high credit quality, investment grade investments. The Company believes that it has established guidelines for investment of its excess cash that maintain safety and liquidity through its policies on high quality of investment and investment duration. The Company is exposed to credit risk in the event of default by the institutions holding the cash and cash equivalents to the extent beyond the amount insured by the federal depository insurance corporation. The Company's accounts receivable as of December 31, 2021 of $1.8 million as well as its total license and collaboration revenue of $7.3 million and $20.9 million for the years ended December 31, 2021 and 2020, respectively, are from one party, see Note 12, *Collaborations*.

Accounts Receivable and Allowance for Doubtful Accounts

Amounts payable to the Company are recorded as accounts receivable when the Company's right to consideration is unconditional. Customer payments are recorded as deferred revenue upon receipt or when due and may require deferral of revenue recognition to a future period until the Company performs its obligations under the arrangements. The Company continuously monitors collections and payments from its customers and maintains a provision for estimated credit losses. The Company determines its allowance for doubtful accounts by considering a number of factors, including the length of time balances are past due, the Company's previous loss history, the customer's current ability to pay its obligations to the Company and the condition of the general economy and the industry as a whole. The Company writes off accounts receivable when they are determined to be uncollectible. For the years ended December 31, 2021 and 2020, there were no allowance for doubtful accounts deemed necessary.

Income Taxes

Income taxes are computed using the liability method. Deferred tax assets and liabilities are determined based on the differences between the financial reporting and tax basis of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse.

The Company follows the authoritative guidance on accounting for uncertainty in income taxes. This guidance prescribes a more-likely-than-not threshold for financial statement recognition and measurement of a tax position taken in the Company's income tax returns. This interpretation also provides guidance on accounting for interest and penalties and associated with tax positions, accounting for income taxes in interim periods and income tax disclosures.

The Company's policy is to include penalties and interest expense related to income taxes as a component of other expense and interest expense, respectively, as necessary.

Stock-Based Compensation

The Company measures the cost of employee, non-employee and director services received in exchange for an award of equity instruments based on the fair value of the award on the date of grant and recognizes the related expense over the period during which the employee, non-employee or director is required to provide service in exchange for the award on a straight-line basis. The estimated fair value of equity awards that contain performance conditions is expensed over the term of the award once the Company has determined that it is probable that performance conditions will be satisfied.

The Company uses the Black-Scholes option-pricing valuation model to estimate the grant-date fair value of stock-based awards. The determination of fair value for stock-based awards on the date of grant using an option-pricing model requires management to make certain assumptions regarding a number of variables. The Company elected to account for forfeitures when they occur. As such, the Company recognizes stock-based compensation expense, over their requisite service period, based on the vesting provisions of the individual grants.

Restructuring Charges

Costs and liabilities associated with restructuring are recorded in the period management commits to a restructuring or cost reduction plan, or executes specific actions contemplated by the plan and all criteria for liability recognition have been met. One-time employee termination costs are recognized at the time of communication to employees, unless future service is required, in which case the costs are recognized ratably over the future service period. Restructuring charges are recognized as an operating expense within the consolidated statements of operations and related liabilities are recorded within accrued compensation on the consolidated balance sheets. The Company periodically evaluates and, if necessary, adjusts its estimates based on currently available information.

Leases

At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on the unique facts and circumstances present. Operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of lease payments over the expected lease term. The interest rate implicit in lease contracts is typically not readily determinable. As such, the Company utilizes its incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment. Certain adjustments to the right-of-use asset may be required for items such as initial direct costs paid or incentives received.

The Company has elected to combine lease and non-lease components as a single component. The lease expense is recognized over the expected term on a straight-line basis. Operating leases are recognized on the consolidated balance sheet as right-of-use assets, operating lease liabilities, current and operating lease liabilities, non-current.

Net Loss per Share Attributable to Common Stockholders

Basic net loss per share is calculated by dividing the net loss by the weighted average number of shares of common stock outstanding during the period, without consideration for common stock equivalents. Diluted net loss per share is the same as basic net loss per share, since the effects of potentially dilutive securities are antidilutive given the net loss of the Company for all periods presented.

4. Fair Value Measurements

For a description of the fair value hierarchy and fair value methodology, see Note 3, *Summary of Significant Accounting Policies*. As of December 31, 2021 and 2020, the Company's highly liquid money market funds included within cash equivalents and U.S. government agency securities are valued using Level 1 inputs. The Company classifies its federal agency securities as Level 2. There were no transfers in or out of Level 1 and Level 2 during the periods presented. U.S. government agency securities are bonds issued by the U.S. government and are fully backed by the U.S. government. Given the frequency at which U.S. government agency securities trade and the accessibility of observable, quoted prices for such assets in active markets, they are recognized as Level 1 assets. Federal agency securities are bonds and notes issued by government-sponsored enterprises, including Fannie Mae, Freddie Mac and the Federal Home Loan Bank. Since Federal agency securities typically do not trade as U.S. government agency securities and no exchange exists to price such investments, they are recognized as Level 2 assets.

The following tables present the fair value hierarchy for assets measured at fair value on a recurring basis as of December 31, 2021 and 2020 *(in thousands)*:

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Money market funds(1)	$ 44,347	$ —	$ —	$ 44,347
U.S. government agency securities(2)	2,504	—	—	2,504
Total financial assets	$ 46,851	$ —	$ —	$ 46,851

	December 31, 2020			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Money market funds(1)	$ 30,360	$ —	$ —	$ 30,360
U.S. government agency securities(2)	37,837	—	—	37,837
Federal agency securities(2)	—	13,700	—	13,700
Total financial assets	$ 68,197	$ 13,700	$ —	$ 81,897

(1) Included in cash and cash equivalents on accompanying consolidated balance sheet.

(2) Included in short-term investments on accompanying consolidated balance sheet and are classified as available-for-sale debt securities. $2.5 million of U.S. government agency securities as of December 31, 2020 are included in long-term investments on the accompanying consolidated balance sheets due to the maturity being more than 12 months.

The carrying amounts of cash, accounts receivable, accounts payable and accrued liabilities approximate their fair values due to the short-term maturity of these instruments.

5. Financial Instruments

Cash equivalents and investments (debt securities) which are classified as available-for-sale securities, consisted of the following *(in thousands)*:

December 31, 2021	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Money market funds (cash equivalents)	$ 44,347	$ —	$ —	$ 44,347
U.S. government agency securities	2,504	—	—	2,504
Total financial assets	$ 46,851	$ —	$ —	$ 46,851
Classified as:				
Cash and cash equivalents				$ 44,347
Short-term investments				2,504
				$ 46,851

December 31, 2020	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Money market funds (cash equivalents)	$ 30,360	$ —	$ —	$ 30,360
U.S. government agency securities	37,835	2	—	37,837
Federal agency securities	13,697	3	—	13,700
Total financial assets	$ 81,892	$ 5	$ —	$ 81,897
Classified as:				
Cash and cash equivalents				$ 30,360
Short-term investments				48,994
Long-term investments				2,543
				$ 81,897

There have been no material realized gains or losses on available-for-sale debt securities for the periods presented. As of December 31, 2021, the remaining contractual maturities of $2.5 million of available-for-sale debt securities were less than one year.

6. Other Accrued Liabilities

Other accrued liabilities consisted of the following *(in thousands)*:

	Year Ended December 31,	
	2021	2020
Manufacturing	$ 1,381	$ 2,238
Biogen	868	—
Pre-clinical	773	—
Professional and consulting services	509	3,979
Clinical	361	291
Other	180	235
Total other accrued liabilities	$ 4,072	$ 6,743

7. Commitments and Contingencies

Manufacturing Agreements

On May 20, 2016, the Company signed a development and manufacturing services agreement with AGC Biologics, Inc. ("AGC"), pursuant to which AGC will conduct manufacturing development of agreed upon product candidates. The Company had firm work orders with AGC to manufacture MarzAA and DalcA to support its clinical trials totaling $15.8 million and the payment obligations were fully paid off as of December 31, 2021. The Company also signed an agreement with AGC to perform certain manufacturing services related to the Company's collaboration agreement with Biogen, which includes firm work orders totaling $0.7 million and the payment obligations remaining as of December 31, 2021 were $0.3 million.

In July 2021, the Company entered into two separate agreements, one for additional clinical trial services for MarzAA, and another for the Company's screening and natural history of disease clinical studies related to CFI deficiency, with total payments of up to $3.2 million and $6.5 million, respectively. In November 2021, the Company provided notice of intent to terminate its MarzAA manufacturing agreements and incurred charges of $3.8 million to write-off prepaid manufacturing costs that will no longer be used for the clinical development of MarzAA, see Note 16, *Restructuring*. The Company can terminate the CFI agreement at its discretion and upon termination will be responsible to pay for those services incurred prior to termination plus reasonable wind-down expenses.

On September 16, 2021, the Company signed a Manufacturing and Research and Development Studies Agreement to support the lyophilized drug product, CB4332. The agreement will cover analytical method qualification to support good manufacturing practices ("GMP") manufacturing. The Company currently has firm work orders related to this agreement totaling $0.2 million and the payment obligations were fully paid off as of December 31, 2021.

COVID-19

The current COVID-19 pandemic has presented a substantial public health and economic challenge around the world and is affecting the Company's employees, potential trial participants and business operations. The full extent to which the COVID-19 pandemic will directly or indirectly impact the Company's business, results of operations and financial condition will depend on future developments that are highly uncertain and cannot be accurately predicted, including new information that may emerge concerning COVID-19, the actions taken to contain it or treat its impact and the economic impact on local, regional, national, and international markets. The COVID-19 pandemic may disrupt the operations of the Company's manufacturers or disrupt supply logistics, which could impact the timing of deliveries and potentially increase expenses under our agreements.

The Company is actively monitoring the impact of COVID-19 and the possible effects on its financial condition, liquidity, operations, clinical trials, suppliers, industry and workforce.

8. Related Parties

On October 24, 2017, the Company announced a strategic research collaboration with Mosaic to develop intravitreal anti-complement factor C3 products for the treatment of dry AMD and other retinal diseases. Dr. Usman, the Company's Chief Executive Officer and a member of the Company's board of directors, and Mr. Lawlor, a member of the Company's board of directors, were also members of the board of directors of Mosaic. On December 21, 2018, the Company amended its collaboration agreement with Mosaic to, among other things, include certain additional products. According to the Mosaic collaboration agreement, as amended, the Company and Mosaic co-funded certain research.

On December 18, 2019, the Company entered into the second amendment to the Mosaic collaboration agreement following completion of the co-funded research. Pursuant to the second amendment, any future services provided by Mosaic will be performed on a fee-for-service basis.

In connection with the Company's collaboration agreement with Biogen, the Company received a $15.0 million upfront license fee on January 10, 2020, see Note 12, *Collaborations*. As a result, the Company paid Mosaic a $3.0 million sublicense fee and recorded such payment as cost of license revenue for the year ended December 31, 2020.

On May 8, 2020, the Company entered into a subsequent amendment to the Mosaic collaboration agreement. As part of this amendment, the Company paid a one-time $0.8 million cash payment to Mosaic, and Mosaic is eligible to receive up to $4.0 million in potential future milestone payments related to regulatory and clinical development events for CB 2782-PEG and an additional anti-complement product candidate in lieu of the Company's obligations to pay Mosaic a double-digit percentage of funds the Company receives from Biogen or any other amounts the Company receives related to sublicense fees, research and development payments, or any other research, regulatory, clinical or commercial milestones and royalties on any other development candidates. The Company now owns one hundred percent of all future payment streams related to these product candidates.

As of June 30, 2020, Mosaic was no longer a related party.

9. Leases

Operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term. In calculating the present value of the lease payments, the Company has elected to utilize its incremental borrowing rate based on the original lease term and not the remaining lease term. The lease includes non-lease components (*e.g.*, common area maintenance) that are paid separately from rent based on actual costs incurred and, therefore, were not included in the right-of-use asset and lease liability but are reflected as an expense in the period incurred.

The Company leases office space for its corporate headquarters, located in South San Francisco, CA. The lease term is through April 30, 2023 and there are no stated renewal options. On July 17, 2020, the Company entered into an amendment to its existing lease agreement to lease additional office space for an aggregated undiscounted future monthly payment of $0.5 million. The amendment was treated as a separate lease with a lease term of 2.6 years and commenced during the fourth quarter of 2020.

In April 2021, the Company entered into a license agreement (the "License Agreement") for the use of laboratory facilities in South San Francisco, CA, for an aggregated undiscounted future payment of $1.9 million. This License Agreement has an original lease term of one year and a renewal period of six months. This License Agreement commenced during the second quarter of 2021.

In October 2021, the Company amended the License Agreement to extend the lease term for a period of one year. The amendment was not accounted for as a separate lease, and resulted in an adjustment to the right-of-use asset and lease liability of $0.6 million. The amended lease will expire at the end of April 2023.

For the years ended December 31, 2021 and 2020, the Company's operating lease expense was $1.7 million and $0.7 million, respectively. The present value assumptions used in calculating the present value of the lease payments were as follows:

	December 31,	
	2021	2020
Weighted-average remaining lease term	1.3 years	2.3 years
Weighted-average discount rate	4.8%	5.7%

The maturity of the Company's operating lease liabilities as of December 31, 2021 were as follows *(in thousands):*

Year Ending December 31,	Amount
2022	$ 2,044
2023	410
Total undiscounted lease payments	2,454
Less: imputed interest	(69)
Total operating lease liability	$ 2,385

Under the terms of the lease agreements, the Company is also responsible for certain variable lease payments that are not included in the measurement of the lease liability. The Company did not incur significant variable lease costs for the years ended December 31, 2021 and 2020.

Supplemental cash flow information related to operating leases was as follows *(in thousands)*:

	Year Ended December 31,	
	2021	2020
Cash paid for amounts included in the measurement of lease liabilities	$ 1,641	$ 602
Prepaid cash payment for lease	208	—
Cash paid for operating leases that were included in operating cash outflows	$ 1,849	$ 602

10. Stock Based Compensation

2018 Omnibus Incentive Plan

In June 2018, stockholders of the Company approved the Company's 2018 Omnibus Incentive Plan (the "2018 Plan"). The 2018 Plan had previously been approved by the Company's Board of Directors (the "Board") and the Compensation Committee (the "Committee") of the Board, subject to stockholder approval. The 2018 Plan became effective on June 13, 2018. On June 9, 2021, the stockholders of the Company approved an amendment previously approved by the Board to increase the number of shares of common stock reserved for issuance under the 2018 Plan by 2,500,000 to a total of 5,300,000 shares. The amendment became effective immediately upon stockholder approval.

Performance-Based Stock Option Grants

In February 2021, the Committee approved the issuance of option grants to purchase 647,000 shares of common stock for executive officers pursuant to the 2018 Plan, which will vest upon (a) the achievement of specified performance goals and (b) the grantees' continued employment during the service period specified in each grant. For the year ended December 31, 2021, no expense has been recognized related to these awards. In

addition, the options never vested and expired since the performance conditions were not satisfied as of December 31, 2021.

The following table summarizes stock option activity under the Company's 2018 Plan and related information:

	Number of Shares Underlying Outstanding Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (thousands)
Outstanding — December 31, 2019	1,577,541	$ 10.85	8.15	$ 1,350
Options granted	1,091,250	6.26		
Options exercised	(44,605)	5.04		
Options forfeited	(250,641)	10.32		
Options expired	(17,930)	51.12		
Outstanding — December 31, 2020	2,355,615	$ 8.59	7.96	$ 1,337
Options granted	1,493,238	5.31		
Options exercised	(5,000)	4.63		
Options forfeited	(1,239,630)	6.26		
Options expired	(593)	566.33		
Outstanding — December 31, 2021	2,603,630	$ 7.70	7.46	$ —
Exercisable — December 31, 2021	1,513,039	$ 9.37	6.35	$ —
Shares available to be granted — December 31, 2021	3,333,791			

The weighted-average grant date fair value of options granted during the years ended December 31, 2021 and 2020 was $4.00 and $5.20, respectively.

The aggregate intrinsic value of options exercised during the years ended December 31, 2021 and 2020 was $3,000 and $0.1 million, respectively.

The fair value of options vested during the years ended December 31, 2021 and 2020 was $2.6 million and $3.0 million, respectively.

Valuation Assumptions

The Company estimated the fair value of stock options granted using the Black-Scholes option-pricing formula and a single option award approach. Due to its limited history as a public company and limited number of sales of its common stock, the Company estimated its volatility considering a number of factors including the use of the volatility of comparable public companies. The expected term of options granted under the Plan, all of which qualify as "plain vanilla" per SEC Staff Accounting Bulletin 107, is determined based on the simplified method due to the Company's limited operating history. The risk-free rate is based on the yield of a U.S. Treasury security with a term consistent with the option. This fair value is being amortized ratably over the requisite service periods of the awards, which is generally the vesting period.

The fair value of employee stock options was estimated using the following weighted-average assumptions:

	Year Ended December 31,	
	2021	2020
Employee Stock Options:		
Expected term (in years)	6.00	5.81
Risk-free interest rate	0.84%	0.91%
Dividend yield	—	—
Volatility	93.25%	113.36%

Total stock-based compensation recognized was as follows *(in thousands):*

	Year Ended December 31,	
	2021	2020
Research and development	$ 1,202	$ 1,487
General and administrative (1)	2,203	2,140
Total stock-based compensation	$ 3,405	$ 3,627

(1) Included in general and administrative stock-based compensation for the years ended December 31, 2021 and 2020 is $0.3 million and $0.3 million in expense related to 56,912 shares and 51,056 shares of common stock, respectively, issued to certain board members in lieu of their cash compensation.

As of December 31, 2021, the Company had unrecognized employee stock-based compensation expense of $3.9 million, related to unvested stock option awards, which is expected to be recognized over an estimated weighted-average period of 2.49 years.

Employee Stock Purchase Plan

In June 2018, the Company's stockholders approved the 2018 Employee Stock Purchase Plan (the "ESPP"). The ESPP had previously been approved by the Board and the Compensation Committee of the Board, subject to stockholder approval which became effective as of June 13, 2018. Under the ESPP, employees meeting certain specific employment qualifications are eligible to participate and can purchase shares of common stock semi-annually on February 9th and August 9th of each year, through payroll deductions. The purchase price is 85% of the lower of the fair market value of the stock at the commencement or end of the offering period. The ESPP permits eligible employees to purchase shares of common stock through payroll deductions for up to 15% of qualified compensation.

The Company's ESPP is subject to an Evergreen provision which shares may be added to the pool as needed. As of December 31, 2021, a total of 359,545 shares of common stock may be granted in accordance with the terms of the ESPP.

For the year ended December 31, 2021, a total of 64,975 shares of common stock for $0.3 million have been issued to employees participating in the two ESPP purchases during 2021 and 235,469 shares are available for issuance under the ESPP as of December 31, 2021.

Stock-based compensation expense for the ESPP was $0.1 million and $0.1 million for the years ended December 31, 2021 and 2020, respectively, and is included in total stock-based compensation recognized.

11. Income Taxes

The Company has incurred cumulative net operating losses since inception and, consequently, has not recorded any income tax expense for the years ended December 31, 2021 and 2020 due to its net operating loss position.

The reconciliation of the federal statutory income tax rate to the Company's effective tax rate for the years ended December 31, 2021 and 2020 are as follows:

	Year Ended December 31,	
	2021	2020
Tax at statutory federal rate	-21.00%	-21.00%
State Tax (benefit)—net of federal benefit	0.00%	0.00%
Permanent differences	0.35%	0.58%
Tax credits	-5.86%	-12.26%
Derecognition due to Sec. 382 and 383 limitations	0.00%	44.55%
Change in valuation allowance	26.26%	-12.25%
Other	0.25%	0.38%
Effective tax rate	0.00%	0.00%

Significant components of the Company's deferred tax assets as of December 31, 2021 and 2020 consist of the following (in thousands):

	Year Ended December 31,	
	2021	2020
Deferred tax assets:		
Accruals and reserves	$ 1,000	$ 1,095
Net operating loss carry forwards	47,541	29,505
Tax credit carry forwards	12,939	7,789
Fixed and intangible assets	3	7
Valuation allowance	(61,483)	(38,396)
Net deferred tax assets:	$ —	$ —

Based on the available objective evidence at December 31, 2021, the Company does not believe it is more likely than not that the net deferred tax assets will be realizable. Accordingly, the Company has provided a full valuation allowance against its net deferred tax assets at December 31, 2021 and 2020. The net valuation allowance increased by approximately $23.1 million and decreased approximately $6.9 million during the years ended December 31, 2021 and 2020, respectively.

As of December 31, 2021, after consideration of certain limitations (see below), the Company had approximately $226.4 million federal and $8.0 million state net operating loss carryforwards ("NOL") available to reduce future taxable income which, if unused, will begin to expire in 2037 for federal and 2032 for state tax purposes. The federal net operating loss carryforward includes $218.9 million that have an indefinite life.

As of December 31, 2021, the Company also had tax credit carry forwards available to offset future tax liabilities of approximately $11.4 million for federal and $7.5 million for state. If unused, the federal credit will begin to expire in 2040 and the state tax credit does not expire.

If the Company experiences a greater than 50 percentage point aggregate change in ownership over a three-year period (a Section 382 ownership change), utilization of its pre-change NOL carry forwards are subject to annual limitation under Section 382 of the Internal Revenue Code (California has similar provisions). The annual limitation is determined by multiplying the value of the Company's stock at the time of such ownership change by the applicable long-term tax-exempt rate. Such limitations may result in expiration of a portion of the NOL carryforwards before utilization. The Company determined that ownership changes occurred December 21, 2007, August 20, 2015, April 13, 2017, February 15, 2018, and February 18, 2020. Approximately $156.3 million and $70.8 million of the NOLs will expire unutilized for federal and California purposes, respectively. The Company has derecognized NOL related deferred tax assets in the tax affected amounts of $32.8 million and $0 for federal and California purposes, respectively.

All of the federal tax credits could expire unutilized as well, whereas none of the California tax credits are subject to expiration. Approximately $15.2 million of gross federal tax credit-related deferred tax assets were derecognized due to the Section 383 limitation. The ability of the Company to use its remaining NOL and tax credit carry forwards may be further limited if the Company experiences a Section 382 ownership change as a result of future changes in its stock ownership.

On March 27, 2020, the "Coronavirus Aid, Relief and Economic Security (CARES) Act" (the "Act") was signed into law. The Act includes provisions relating to refundable payroll tax credits, deferment of the employer portion of certain payroll taxes, net operating loss carryback periods, alternative minimum tax credit refunds, and modifications to the net interest deduction limitations and technical corrections to tax depreciation methods for qualified improvement property. The Company analyzed the provisions of the Act and determined there was no significant impact to its 2020 tax provision.

On June 29, 2020, the California Governor signed Assembly Bill 85 ("A.B. 85"), which now becomes California law. A.B. 85, which includes several tax measures, provides for a three-year suspension of the use of net operating losses for medium and large businesses and a three-year cap on the use of business incentive tax credits to offset no more than $5.0 million of tax per year. Generally, A.B. 85 suspends the use of net operating losses for taxable years 2020, 2021, and 2022 for taxpayers with taxable income of $1.0 million or more. Since the Company is not expected to generate California source taxable income of more than $1.0 million, no material impact is anticipated at this time.

On December 27, 2020, the "Consolidated Appropriations Act, 2021" (the "CAA") was signed into law. The CAA includes provisions meant to clarify and modify certain items put forth in CARES Act, while providing aid to businesses affected by the pandemic. The CAA allows deductions for expenses paid for by Paycheck Protection Program ("PPP") and Economic Injury Disaster Loan ("EIDL") Program, clarifies forgiveness of EIDL advances, and other business provisions. The Company analyzed the provisions of the CAA and determined there was no significant impact to its 2021 tax provision.

Accounting for Uncertainty in Income Taxes

The Company only recognizes tax benefits if it is more likely than not that they will be sustained upon audit by the relevant tax authority based upon their technical merits. An uncertain tax position will not be recognized if it has less than a 50% likelihood of being sustained.

The Company had approximately $4.7 million and $3.0 million of unrecognized tax benefits as of December 31, 2021 and 2020, respectively. As the Company has a full valuation allowance on its deferred tax assets, the unrecognized tax benefits have reduced the deferred tax assets and the valuation allowance in the same amount. The Company does not expect the amount of unrecognized tax benefits to materially change in the next twelve months.

A reconciliation of the beginning and ending balance of the unrecognized tax benefits is as follows *(in thousands)*:

Beginning Balance at January 1, 2020	**$**	**1,871**
Increase/(Decrease) of unrecognized tax benefits taken in prior years		(295)
Increase/(Decrease) of unrecognized tax benefits related to current year		1,379
Ending Balance at December 31, 2020	**$**	**2,955**
Increase/(Decrease) of unrecognized tax benefits taken in prior years		—
Increase/(Decrease) of unrecognized tax benefits related to current year		1,749
Ending Balance at December 31, 2021	**$**	**4,704**

Interest and penalties related to unrecognized tax benefits would be included as income tax expense in the Company's consolidated statements of operations. As of December 31, 2021 and 2020, the Company had not recognized any tax-related penalties or interest in its consolidated financial statements.

The Company files income tax returns in the United States federal, California, Kansas, Missouri and New Jersey state jurisdictions. The Company is not currently under examination by income tax authorities in federal, state or other jurisdictions. As of December 31, 2021 and 2020, the Company had no uncertain tax positions which affected its financial position and its results of operations or its cash flow, and will continue to evaluate for uncertain positions in the future. The Company is subject to United States federal and state income tax examinations by authorities for all tax years due to accumulated net operating losses that are being carried forward for tax purposes.

12. Collaborations

Mosaic

In October 2017, the Company entered into a strategic research collaboration with Mosaic to develop intravitreal anti-complement factor 3 (C3) products for the treatment of dry Age-related Macular Degeneration (AMD) and other retinal diseases. The Company entered into two amendments to the Mosaic research collaboration agreements in December 2019 and May 2020. See Note 8, *Related Parties*.

ISU Abxis

In December 2018, the Company entered into an amended and restated license agreement with ISU Abxis (the "A&R ISU Abxis Agreement"), which amended and restated its previous license and collaboration agreement with ISU Abxis previously entered into in September 2013, as subsequently amended in October 2014 and December 2016 (the "Original ISU Abxis Agreement"). Under the A&R ISU Abxis Agreement, ISU Abxis will receive commercialization rights in South Korea to the Company's engineered Factor IX dalcinonacog alfa - DalcA and the Company will receive clinical development and commercialization rights in the rest of world (excluding South Korea) and manufacturing development and manufacturing rights worldwide (including South Korea). The A&R ISU Abxis Agreement eliminates the profit-sharing arrangement in the Original ISU Abxis Agreement and provides for a low single-digit royalty payment to ISU Abxis, on a country-by-country basis, for net product sales of DalcA by the Company or its affiliates in each country other than South Korea. Pursuant to the A&R ISU Abxis Agreement, the Company will also pay up to an aggregate of $19.5 million in milestone payments to ISU Abxis, including $2.5 million in regulatory and development milestone payments and up to $17.0 million in commercial milestone payments, if the applicable milestones are met. As of December 31, 2021, no milestones have been met.

Biogen

On December 18, 2019, the Company and Biogen entered into a License and Collaboration Agreement (the "Biogen Agreement"), under which the Company granted Biogen a worldwide, royalty-bearing, exclusive, with the right to sublicense, license ("Exclusive License") to develop and commercialize CB 2782-PEG and other anti-C3 proteases for potential treatment of dry AMD and other disorders. Pursuant to the Biogen Agreement, the Company will perform certain pre-clinical and manufacturing activities ("Research Services"), and Biogen will be solely responsible for funding the pre-clinical and manufacturing activities and performing IND-enabling activities, worldwide clinical development, and commercialization. The Company will provide the Research Services over a term of thirty months with Biogen having the option to extend the term for two additional twelve-month periods.

Under the terms of the Biogen Agreement, the Company received an up-front payment for the transfer of the Exclusive License (inclusive of certain know-how) of $15.0 million in January 2020. The Company is eligible to receive development milestones and sales milestones of up to $340.0 million. In addition, the Company is eligible to receive royalties in the range of single-digit to low double-digit percentage rates of annual net sales on a product-by-product and country-by-country basis. The Company will also receive reimbursements for costs associated with the performance of the Research Services.

The Company determined that the performance obligations under the Biogen Agreement were the Exclusive License and the Research Services. For the Exclusive License, the Company used the residual approach in determining the standalone selling price, or SSP, which includes the upfront payments, milestones and royalties. For the Research Services, the Company used the historical pricing approach for determining the SSP, which includes the reimbursement of personnel and out-of-pocket costs.

The Biogen Agreement will continue on a product-by-product and country-by-country basis until the tenth anniversary of the first commercial sale of the first product in a country, unless terminated earlier by either party as specified under the agreement. In March 2022, the Company received written notice from Biogn to terminate the Biogen Agreement effective in May 2022. See Note 17, *Subsequent Event*.

For the year ended December 31, 2021, the Company recognized no license revenue from the Biogen Agreement. For the year ended December 31, 2020, the Company recognized the $15.0 million in license revenue upon the transfer of the Exclusive License and the related know-how, and $0.1 million in license revenue for reimbursable out-of-pocket costs incurred.

For the years ended December 31, 2021 and 2020, the Company recognized $7.3 million and $5.8 million in collaboration revenue for reimbursable out-of-pocket and personnel costs incurred related to Research Services.

For the year ended December 31, 2021, the Company recognized $2.0 million in collaboration revenue from the beginning of period deferred revenue balance.

13. Interest and Other Income (Expense), Net

The following table shows the detail of interest and other income (expense), net as follows *(in thousands):*

	Year Ended December 31,	
	2021	2020
Interest income	$ 39	$ 561
Miscellaneous income	9	659
Other	(87)	(91)
Total interest and other income (expense), net	$ (39)	$ 1,129

14. Stockholders' Equity

In the first quarter of 2021, the Company issued and sold an aggregate of 9,185,000 registered shares of its common stock (including 485,000 shares sold pursuant to the exercise of the underwriters' overallotment option) at a price of $5.75 per share. The net proceeds to the Company, after deducting $3.6 million in underwriting discounts and commissions, and offering expenses, were approximately $49.3 million.

The Company had 85 issued and outstanding common stock warrants as of December 31, 2021 and 2020, respectively, with a weighted-average exercise price of $392.70. The warrants expire in August 2022.

2021 ATM Program

On October 15, 2021, the Company entered into an Equity Distribution Agreement (the "ATM Agreement") with Piper Sandler & Co. ("Piper Sandler"), as sales agent, pursuant to which the Company may offer and sell, from time to time, through Piper Sandler, shares of the Company's common stock, par value of $0.001 per

share, with aggregate gross sales proceeds of up to $50.0 million through an "at the market" equity offering program (the "ATM Program"). The Company will pay Piper Sandler a commission of 3.0% of the gross proceeds of any shares sold. The Company also agreed to reimburse Piper Sandler for certain expenses incurred in connection with its services under the ATM Agreement, including up to $50,000 for legal expenses in connection with the establishment of the ATM Program.

Sales of shares of common stock under the ATM Program will be made pursuant to the registration statement on Form S-3 (File No. 333-253874), which was declared effective by the SEC on May 3, 2021, and a related prospectus supplement file with the SEC on October 15, 2021. For the year ended December 31, 2021, no shares of common stock were sold under the ATM Program.

15. Net Loss per Share Attributable to Common Stockholders

Since the Company was in a loss position for all periods presented, diluted net loss per share is the same as basic net loss per share for all periods as the inclusion of all potential common shares outstanding would have been anti-dilutive. Potentially dilutive securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows:

	Year Ended December 31,	
	2021	2020
Options to purchase common stock	2,603,630	2,355,615
Common stock warrants	85	85
Total	2,603,715	2,355,700

16. Restructuring

In November 2021, the Board approved a restructuring of its business based on its decision to stop the clinical development of MarzAA and focus solely on its complement programs and protease medicines platform. The restructuring included a reduction-in-force whereby approximately 35% of employees were terminated. During the year ended December 31, 2021, the Company recorded charges of $0.4 million related to one-time severance costs and related expenses in connection with the workforce reduction, and charges of $3.8 million related to the write-off of prepaid manufacturing costs that will no longer be used for the clinical development of MarzAA. As of December 31, 2021, the remaining restructuring liability was $0.2 million, which the Company expects to pay in the first quarter of 2022.

The following table summarizes restructuring charges recorded in each component of operating expenses in the Company's consolidated statements of operations (in thousands):

	Year Ended December 31, 2021
Research and development	$ 4,025
General and administrative	143
Total restructuring charges	$ 4,168

17. Subsequent Event

Biogen Agreement

In March 2022, the Company received written notice that Biogn is terminating the Biogen Agreement. Pursuant to the terms of the Biogen Agreement, termination will be effective in May 2022. As a result of the termination, Biogen will no longer have an exclusive license to develop, manufacture and commercialize CB 2782-PEG and other anti-C3 proteases for potential treatment of dry AMD and other disorders.

Sublease Agreement

In March 2022, the Company entered into a sublease agreement for one of its leased facilities that commences in April 2022. Under the terms of the sublease agreement, the Company will receive $0.2 million in base lease payments over the term of the sublease, which ends in April 2023.

Advisor Agreement

In March 2022, the Company entered into a financial advisor agreement with Raymond James & Associates, Inc. ("Raymond James") to help the Company evaluate the possible sale or merger of the Company with various third-parties. Raymond James will be paid an advisory fee of up to $1.0 million upon the effective sale or merger of the Company and will be reimbursed up to $20,000 for reasonable legal, travel and out-of-pocket expenses.

Other Event

In March 2022, the Company announced that it intends to further reduce its workforce as part of its restructuring plan. Under the restructuring plan, the Company will provide employees one-time severance payments upon termination, continued benefits for a specific period, and outplacement services. The Company expects to incur total expenses of approximately $0.8 million, which is expected to be paid out during the second quarter of 2022.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

Item 9A. CONTROLS AND PROCEDURES

Evaluation of disclosure controls and procedures

Our management maintains disclosure controls and procedures as defined in Rule 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended (the "Exchange Act") that are designed to provide reasonable assurance that information required to be disclosed in our reports filed or submitted under the Exchange Act is processed, recorded, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and our Interim Chief Financial Officer (our principal executive officer and principal financial officer, respectively), as appropriate, to allow for timely decisions regarding required disclosure.

Our management, including the Chief Executive Officer and Interim Chief Financial Officer, carried out an evaluation of the effectiveness of our disclosure controls and procedures as of the end of the period covered by this report. Based on this evaluation, our Chief Executive Officer and Interim Chief Financial Officer concluded that due to the material weakness in our internal control over financial reporting described below, our disclosure controls and procedures were not effective. In light of this material weakness, our management, including our Chief Executive Officer and Interim Chief Financial Officer, has performed additional analysis and other post-closing procedures and has concluded that, notwithstanding the material weakness in our internal control over financial reporting, the consolidated financial statements for the periods covered by and included in this Annual Report on Form 10-K fairly present, in all material respects, our financial position, results of operations and cash flows for the periods presented in conformity with U.S. GAAP.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Because of its inherent limitations, internal control over financial reporting may not prevent or detect all misstatements. Our internal control system was designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of published financial statements.

Material Weaknesses in Internal Control Over Financial Reporting

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our consolidated financial statements will not be prevented or detected on a timely basis.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2021. Our assessment was based on the framework in the updated *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, our management concluded that, as of December 31, 2021, a material weakness existed in our internal control over financial reporting. Because of the material weakness, management concluded that the Company did not maintain effective internal control over financial reporting as of December 31, 2021.

Our material weakness related to the following control deficiency:

We did not design and maintain effective controls related to the review of certain contracts, including the proper application of U.S. GAAP. Specifically, we did not design and maintain controls to properly review the retention bonuses granted to our employees in November 2021 after our reduction in workforce to assess the appropriate accounting treatment under U.S. GAAP.

The deficiency described above, if not remediated, could result in a misstatement of one or more account balances or disclosures in our consolidated financial statements that would not be prevented or detected, and, accordingly, we determined that this control deficiency constitutes a material weakness based on the criteria set forth in the 2013 Framework.

This Annual Report on Form 10-K does not include a report of our independent registered public accounting firm on the effectiveness of internal control over financial reporting due to an exemption for smaller reporting companies established by the rules of the SEC.

Remediation Plans

To address our material weakness, we are evaluating our accounting policy over monitoring and reviewing contracts so that contracts with a significant impact are reviewed and U.S. GAAP is properly applied. We are also formalizing our internal control documentation and strengthening supervisory reviews by our management. While these actions and planned actions are subject to ongoing management evaluation and will require validation and testing of the design and operating effectiveness of internal controls over a sustained period, we are committed to continuous improvement and will continue to diligently review our internal control over financial reporting.

Changes in internal control over financial reporting

We are taking actions to remediate the material weaknesses relating to our internal control over financial reporting as described above. Except as described above, there were no changes in our internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Exchange Act) during the fiscal quarter ended December 31, 2021 that have materially affected or are reasonably likely to materially affect our internal control over financial reporting.

Item 9B. OTHER INFORMATION

None.

Item 9C. DISCLOSURES REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information required by this Item is incorporated by reference to the information set forth in the sections titled "Information About Our Board of Directors" and "Information About Our Executive Officers Who Are Not Directors," "Corporate Governance," "Corporate Governance – Code of Business Conduct and Ethics," "Delinquent Section 16(a) Reports," "Corporate Governance – Committees of the Board of Directors – Nominating and Corporate Governance Committee," "Corporate Governance – Committees of the Board of Directors – Audit Committee" and "Corporate Governance – Committees of the Board of Directors – Compensation Committee" in our definitive proxy statement to be filed with the SEC on Schedule 14A in connection with our 2021 Annual Meeting of Shareholders, or the Proxy Statement, which is expected to be filed not later than 120 days after December 31, 2021.

Item 11. EXECUTIVE COMPENSATION

Information required by this Item is incorporated by reference to the information set forth in the sections titled "Executive Compensation," "Director Compensation" and "Committees of the Board of Directors — Compensation Committee Interlocks and Insider Participation" in the Proxy Statement and is incorporated herein by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information required by this Item is included in the sections titled "Securities Authorized For Issuance Under Equity Compensation Plans" and "Security Ownership of Certain Beneficial Owners and Management" in the Proxy Statement and is incorporated herein by reference.

Item 13. CERTAIN RELATIONSHIPS, RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Information required by this Item is included in the sections titled "Corporate Governance – Board of Directors Independence" and "Transactions With Related Persons" in the Proxy Statement and is incorporated herein by reference.

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information required by this Item is included in the sections titled "Independent Registered Public Accounting Firm Fees and Services" in the Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. EXHIBIT AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

   See Index to Consolidated Financial Statements at Part II, Item 8 Financial Statements and Supplementary Data, herein.

2. Consolidated Financial Statement Schedules

   All schedules are omitted because they are not applicable or the required information is shown under Item 8. “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

3. See LIST OF EXHIBITS

(b) See LIST OF EXHIBITS

Item 16. FORM 10-K SUMMARY

None.

LIST OF EXHIBITS

Exhibit No.	Exhibit title	Incorporated by reference				Filed or Furnished herewith
		Form	File No.	Exhibit No.	Filing Date	
2.1(a)	Agreement and Plan of Merger dated as of March 5, 2015, by and among Targacept, Catalyst Biosciences, Inc. and Talos Merger Sub, Inc.	8-K	000-51173	2.1	Mar. 6, 2015	
2.1(b)	Amendment No. 1 to Agreement and Plan of Merger by and among Targacept, Talos Merger Sub, Inc., and Catalyst dated May 6, 2015.	8-K	000-51173	10.1	May 12, 2015	
2.1(c)	Amendment No. 2 to Agreement and Plan of Merger by and among Targacept, Talos Merger Sub, Inc., and Catalyst dated May 13, 2015.	8-K	000-51173	10.1	May 14, 2015	
3.1	Fourth Amended and Restated Certificate of Incorporation of the Company.	S-8	333-133881	4.1	May 8, 2006	
3.2	Certificate of Amendment to Fourth the Amended and Restated Certificate of Incorporation of the Company.	8-K	000-51173	3.1	Aug. 20, 2015	
3.3	Second Certificate of Amendment to the Fourth Amended and Restated Certificate of Incorporation of the Company.	8-K	000-51173	3.1	Feb. 10, 2017	
3.4	Bylaws of the Company, as amended.	8-K	000-51173	3.1	Jun. 6, 2020	
3.5	Certificate of Designation of Preferences, Rights and Limitations, filed with the Delaware Secretary of State on April 10, 2017, with respect to the Series A Preferred Stock.	8-K	000-51173	3.1	Apr. 13, 2017	
4.1	Description of Securities.	10-K	000-51173	4.1	Feb. 20, 2020	
4.2	Warrant to Purchase Stock of Catalyst Biosciences, Inc., issued to Silicon Valley Bank on March 3, 2005.	10-K	000-51173	4.3	Mar. 9, 2016	
4.3	Form of Warrant to Purchase Stock of Catalyst Biosciences, Inc., issued to purchasers of convertible promissory notes.	10-K	000-51173	4.5	Mar. 9, 2016	
10.1**	Catalyst Biosciences, Inc. (formerly Targacept, Inc.) 2015 Stock Incentive Plan (as Amended and Restated Effective June 9, 2016).	DEF 14A	000-51173	Appendix A	Apr. 25, 2016	
10.2**	Catalyst Biosciences, Inc. 2016 Inducement Stock Incentive Plan.	8-K	000-51173	10.1	Apr. 20, 2016	
10.3**	Catalyst's 2004 Stock Plan.	S-4	333-204423	10.31(a)	May 22, 2015	

Exhibit No.	Exhibit title	Incorporated by reference				Filed or Furnished herewith
		Form	File No.	Exhibit No.	Filing Date	
10.4**	Form of Incentive Stock Option Award Notice.	8-K	000-51173	10.1	July 14, 2017	
10.5**	Form of Non-qualified Stock Option Award Notice.	8-K	000-51173	10.2	July 14, 2017	
10.6**	Catalyst Biosciences, Inc. 2018 Omnibus Incentive Plan.	DEF 14A	000-51173	Appendix A	May 1, 2020	
10.7**	Catalyst Biosciences, Inc. 2018 Employee Stock Purchase Plan.	DEF 14A	000-51173	Appendix B	May 11, 2018	
10.8**	Form of Stock Option Award Agreement.					X
10.25	License Agreement, dated as of April 15, 2021, by and between SL 2T, LLC and Catalyst Biosciences, Inc.	10-Q	000-51173	10.1	August 5, 2021	
10.9**	Amended and Restated Employment Agreement, dated as of August 28, 2018, by and between Catalyst Biosciences, Inc. and Dr. Nassim Usman, Ph.D.	8-K	000-51173	10.1	Aug. 31, 2018	
10.10**	Amended and Restated Employment Agreement, dated as of August 29, 2018, by and between Catalyst Biosciences, Inc. and Dr. Howard Levy, M.B.B.Ch., Ph.D., M.M.M.	8-K	000-51173	10.2	Aug. 31, 2018	
10.12++	Amended and Restated License Agreement, dated December 17, 2018, by and between Catalyst Biosciences, Inc. and ISU Abxis.	10-K/A	000-51173	10.16	April 29, 2019	
10.13+	Development and Manufacturing Services Agreement, by and between CMC ICOS Biologics, Inc. and Biosciences, Inc., dated as of May 20, 2016.	10-Q	000-51173	10.1	Aug. 4, 2016	
10.14+	Termination Agreement, dated December 8, 2016, between Catalyst Biosciences, Inc. and Wyeth LLC, a wholly-owned subsidiary of Pfizer Inc.	10-K	000-51173	10.16	Mar. 8, 2017	
10.15(a)	Lease Agreement, dated November 8, 2017 by and between BXP 611 Gateway Center, LP and Catalyst Biosciences, Inc..	8-K	000-51173	10.1	Nov. 17, 2017	
10.15(b)	First Amendment to Office Lease, dated as of August 9, 2018, by and between BXP 611 Gateway Center, LP and Catalyst Biosciences, Inc.	8-K	000-51173	10.1	Aug. 15, 2018	
10.16++	Clinical Supply Agreement, effective as of October 4, 2019, by and between Catalyst Biosciences, Inc. and Catalent Indiana, LLC.	8-K	000-51173	10.1	October 15, 2019	

Exhibit No.	Exhibit title	Incorporated by reference				Filed or Furnished herewith
		Form	File No.	Exhibit No.	Filing Date	
10.17++	License and Collaboration Agreement, dated December 18, 2019, by and between Biogen International GMBH and Catalyst Biosciences, Inc.	10-K	000-51173	10.17	February 20, 2020	
10.18++	Amended and Restated Collaboration Agreement, dated December 18, 2019, by and between Mosaic Biosciences, Inc. and Catalyst Biosciences, Inc.	10-K	000-51173	10.18	February 20, 2020	
10.19	Cooperation Agreement, dated January 13, 2020, by and between CCUR Holdings, Inc. and certain of its affiliates and Catalyst Biosciences, Inc.	8-K	000-51173	10.1	January 10, 2020	
10.20	Description of Annual Cash Incentive Program.	10-K	000-51173	10.20	February 20, 2020	
10.21**	Form of Indemnification Agreement between the Company and each of its directors and members of executive management.	8-K	000-51173	10.3	August 31, 2018	
10.22++	Amended and Restated Collaboration Agreement, dated May 8, 2020, by and between Mosaic Biosciences, Inc. and Catalyst Biosciences, Inc.	10-Q	000-51173	10.1	August 6, 2020	
10.23	Second Amendment to Office Lease, dated July 17, 2020, by and between 611 Gateway Center, L.P. and Catalyst Biosciences, Inc.	10-Q	000-51173	10.1	November 5, 2020	
10.24	Offer Letter by and between Clinton Musil and Catalyst Biosciences, Inc. dated June 9, 2020.	10-Q	000-51173	10.2	November 5, 2020	
21.1	List of subsidiaries of Catalyst Biosciences, Inc.	10-K	000-51173	21.1	March 9, 2016	
23.1	Consent of EisnerAmper LLP, Independent Registered Public Accounting Firm.					X
24.1	Power of Attorney (included as part of the signature page hereto).					X
31.1	Certification of the Chief Executive Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of the Interim Chief Financial Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X

Exhibit No.	Exhibit title	Incorporated by reference				Filed or Furnished herewith
		Form	File No.	Exhibit No.	Filing Date	
32.1	Certification of the Chief Executive Officer pursuant to Rule 13a-14(b) of the Exchange Act and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2	Certification of the Interim Chief Financial Officer pursuant to Rule 13a-14(b) of the Exchange Act and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101	The following materials from the Company's Annual Report on Form 10-K for the year ended December 31, 2021, formatted in Inline XBRL (eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets as of December 31, 2021 and December 31, 2020; (ii) the Consolidated Statement of Operations for the years ended December 31, 2021 and 2020; (iii) the Consolidated Statements of Comprehensive Loss for the years ended December 31, 2021 and 2020; (iv) the Consolidated Statements of Stockholders' Equity as of December 31, 2021; (v) the Consolidated Statements of Cash Flows for the twelve months ended December 31, 2021 and 2020; and (vi) the Notes to the Consolidated Financial Statements.					X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)					

** Denotes management contract, compensatory plan or arrangement.

+ Confidential treatment has been granted with respect to certain portions of this Exhibit, which portions have been omitted and filed separately with the SEC as part of an application for confidential treatment.

++ Pursuant to Item 601(b)(10) of Regulation S-K, certain confidential portions of this exhibit were omitted by means of marking such portions with an asterisk because the identified confidential portions (i) are not material and (ii) would be competitively harmful if publicly disclosed.

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.

CATALYST BIOSCIENCES, INC

By: /s/ Nassim Usman, Ph.D.

Nassim Usman, Ph.D.
President and Chief Executive Officer

Date: March 31, 2022

CATALYST BIOSCIENCES, INC.

By: /s/ Seline Miller

Seline Miller
Interim Chief Financial Officer

Date: March 31, 2022

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Nassim Usman and Seline Miller, and each of them, with full power of substitution and resubstitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this annual report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

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

Signature	Title	Date
/s/ Nassim Usman, Ph.D. **Nassim Usman, Ph.D.**	President and Chief Executive Officer (*Principal Executive Officer*)	March 31, 2022
/s/ Seline Miller **Seline Miller**	Interim Chief Financial Officer (Interim Financial and Principal Accounting Officer)	March 31, 2022
/s/ Augustine Lawlor **Augustine Lawlor**	Chairman of the Board of Directors	March 31, 2022
/s/ Errol B. De Souza, Ph.D. **Errol B. De Souza, Ph.D.**	Director	March 31, 2022
/s/ Andrea Hunt **Andrea Hunt**	Director	March 31, 2022
/s/ Jeanne Jew **Jeanne Jew**	Director	March 31, 2022
/s/ Geoffrey Ling, M.D., Ph.D. **Geoffrey Ling, M.D., Ph.D.**	Director	March 31, 2022
/s/ Sharon Tetlow **Sharon Tetlow**	Director	March 31, 2022
/s/ Eddie Williams **Eddie Williams**	Director	March 31, 2022

Exhibit 10.8

CATALYST BIOSCIENCES INC. 2018 OMNIBUS INCENTIVE PLAN

NOTICE OF STOCK OPTION AWARD

Grantee's Name and Address: _____

You (the "Grantee") have been granted an option to purchase shares of Common Stock (the "Option"), subject to the terms and conditions of this Notice of Stock Option Award (the "Notice"), the Catalyst Biosciences, Inc. 2018 Omnibus Incentive Plan, as amended from time to time (the "Plan") and the Stock Option Award Agreement (the "Option Agreement") attached hereto, as follows. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Notice.

Grant Date		_____
Vesting Commencement Date		_____
Exercise Price per Share	$	_____
Total Number of Shares Subject to the Option (the "Shares")		_____
Total Exercise Price	$	_____
Type of Option:	Incentive Stock Option	
	Non-Qualified Stock Option	
Expiration Date:	[Ten (10) Year Anniversary of Grant Date]	
Post-Termination Exercise Period:	[Ninety (90) Days]	

Vesting Schedule:

Subject to the Grantee's Continuous Service and other limitations set forth in this Notice, the Plan and the Option Agreement, the Option may be exercised, in whole or in part, in accordance with the following schedule (the "Vesting Schedule"):

[Vesting Schedule]

During any authorized leave of absence, the vesting of the Option as provided in this schedule shall be suspended after the leave of absence exceeds a period of [three (3) months]. Vesting of the Option shall resume upon the Grantee's termination of the leave of absence and return to service to the Company or a Related Entity. The Vesting Schedule of the Option shall be extended by the length of the suspension.

IN WITNESS WHEREOF, the Company and the Grantee have executed this Notice and agree that the Option is to be governed by the terms and conditions of this Notice, the Plan, and the Option Agreement.

Catalyst Biosciences, Inc.,
a Delaware corporation

By: _____

Title: _____

THE GRANTEE ACKNOWLEDGES AND AGREES THAT THE SHARES SUBJECT TO THE OPTION SHALL VEST, IF AT ALL, ONLY DURING THE PERIOD OF THE GRANTEE'S CONTINUOUS SERVICE (NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED THE OPTION OR ACQUIRING SHARES HEREUNDER). THE GRANTEE FURTHER ACKNOWLEDGES AND AGREES THAT NOTHING IN THIS NOTICE, THE OPTION AGREEMENT, OR THE PLAN SHALL CONFER UPON THE GRANTEE ANY RIGHT WITH RESPECT TO FUTURE AWARDS OR CONTINUATION OF THE GRANTEE'S CONTINUOUS SERVICE, NOR SHALL IT INTERFERE IN ANY WAY WITH THE GRANTEE'S RIGHT OR THE RIGHT OF THE COMPANY OR RELATED ENTITY TO WHICH THE GRANTEE PROVIDES SERVICES TO TERMINATE THE GRANTEE'S CONTINUOUS SERVICE, WITH OR WITHOUT CAUSE, AND WITH OR WITHOUT NOTICE. THE GRANTEE ACKNOWLEDGES THAT UNLESS THE GRANTEE HAS A WRITTEN EMPLOYMENT AGREEMENT WITH THE COMPANY TO THE CONTRARY, THE GRANTEE'S STATUS IS AT WILL.

By clicking "Accept" on the button below, the Grantee acknowledges receipt of a copy of the Plan and the Option Agreement, and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts the Option subject to all of the terms and provisions hereof and thereof. The Grantee has reviewed this Notice, the Plan, and the Option Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Notice, and fully understands all provisions of this Notice, the Plan and the Option Agreement. The Grantee hereby agrees that all questions of interpretation and administration relating to this Notice, the Plan and the Option Agreement shall be resolved by the Administrator in accordance with Section 13 of the Option Agreement. The Grantee further agrees to the venue selection in accordance with Section 12 of the Option Agreement. The Grantee further agrees to notify the Company upon any change in the residence address indicated in this Notice.

CATALYST BIOSCIENCES INC. 2018 OMNIBUS INCENTIVE PLAN

STOCK OPTION AWARD AGREEMENT

1. Grant of Option. Catalyst Biosciences, Inc., a Delaware corporation (the "Company"), hereby grants to the Grantee (the "Grantee") named in the Notice of Stock Option Award (the "Notice"), an option (the "Option") to purchase the Total Number of Shares of Common Stock subject to the Option (the "Shares") set forth in the Notice, at the Exercise Price per Share set forth in the Notice (the "Exercise Price") subject to the terms and provisions of the Notice, this Stock Option Award Agreement (the "Option Agreement") and the Company's 2018 Omnibus Incentive Plan, as amended from time to time (the "Plan"), which are incorporated herein by reference. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Option Agreement.

If designated in the Notice as an Incentive Stock Option, the Option is intended to qualify as an Incentive Stock Option as defined in Section 422 of the Code. However, notwithstanding such designation, the Option will qualify as an Incentive Stock Option under the Code only to the extent the $100,000 limitation of Section 422(d) of the Code is not exceeded. The $100,000 limitation of Section 422(d) of the Code is calculated based on the aggregate Fair Market Value of the Shares subject to options designated as Incentive Stock Options which become exercisable for the first time by the Grantee during any calendar year (under all plans of the Company or any Parent or Subsidiary of the Company). For purposes of this calculation, Incentive Stock Options shall be taken into account in the order in which they were granted, and the Fair Market Value of the shares subject to such options shall be determined as of the grant date of the relevant option.

2. Exercise of Option.

(a) Right to Exercise. The Option shall be exercisable during its term in accordance with the Vesting Schedule set out in the Notice and with the applicable provisions of the Plan and this Option Agreement. The Grantee shall be subject to reasonable limitations on the number of requested exercises during any monthly or weekly period as determined by the Administrator. In no event shall the Company issue fractional Shares.

(b) Method of Exercise. The Option shall be exercisable by delivery of an exercise notice (a form of which is attached as Exhibit A) or by such other procedure as specified from time to time by the Administrator which shall state the election to exercise the Option, the whole number of Shares in respect of which the Option is being exercised, and such other provisions as may be required by the Administrator. The exercise notice shall be delivered in person, by certified mail, or by such other method (including electronic transmission) as determined from time to time by the Administrator to the Company accompanied by payment of the Exercise Price. As a condition to the exercise of the Option, the Grantee must also make arrangements with the Company for payment of any tax withholding obligations.

(c) Taxes. The Company or any Related Entity shall be entitled, if necessary or desirable, to deduct and withhold (or, in the sole discretion of the Company, secure payment from the Grantee in lieu of withholding) the amount of any tax withholding due with respect to this Option. In the [Company's] [Grantee's] sole discretion, such tax withholding may be accomplished by the withholding of Shares which would otherwise be issued upon Option exercise to the Grantee in an amount whose Fair Market Value equal to the amount required to be withheld (provided the amount withheld does not exceed the maximum statutory tax rate for an employee in the applicable jurisdictions or such lesser amount as is necessary to avoid adverse accounting treatment).

3. Method of Payment. Payment of the Exercise Price shall be made by any of the following, or a combination thereof, at the election of the Grantee; provided, however, that such exercise method does not then violate any Applicable Law and, provided further, that the portion of the Exercise Price equal to the par value of the Shares must be paid in cash or other legal consideration permitted by the Delaware General Corporation Law:

(a) cash;

(b) check;

(c) surrender of Shares held for the requisite period, if any, necessary to avoid a charge to the Company's earnings for financial reporting purposes, or delivery of a properly executed form of attestation of ownership of Shares as the Administrator may require which have a Fair Market Value on the date of surrender or attestation equal to the aggregate Exercise Price of the Shares as to which the Option is being exercised;

(d) payment through a "net exercise" such that, without the payment of any funds, the Grantee may exercise the Option and receive the net number of Shares equal to (i) the number of Shares as to which the Option is being exercised, multiplied by (ii) a fraction, the numerator of which is the Fair Market Value per Share (on such date as is determined by the Administrator) less the Exercise Price per Share, and the denominator of which is such Fair Market Value per Share (the number of net Shares to be received shall be rounded down to the nearest whole number of Shares); or

(e) while the Common Stock is listed on a national stock exchange or a national market system, payment through a broker-dealer sale and remittance procedure pursuant to which the Grantee (i) shall provide written instructions to a Company-designated brokerage firm to effect the immediate sale of some or all of the purchased Shares and remit to the Company sufficient funds to cover the aggregate exercise price payable for the purchased Shares and (ii) shall provide written directives to the Company to deliver the certificates for the purchased Shares directly to such brokerage firm in order to complete the sale transaction.

4. Restrictions on Exercise. The Option may not be exercised if the issuance of the Shares subject to the Option upon such exercise would constitute a violation of any Applicable Laws. If the exercise of the Option within the applicable time periods set forth in Section 5, 6 and 7 of this Option Agreement is prevented by the provisions of this Section 4, the Option shall remain exercisable until one (1) month after the date the Grantee is notified by the Company that the Option is exercisable, but in any event no later than the Expiration Date set forth in the Notice.

5. Termination or Change of Continuous Service. In the event the Grantee's Continuous Service terminates, the Grantee may, but only during the Post-Termination Exercise Period, exercise the portion of the Option that was vested at the date of such termination (the "Termination Date"). The Post-Termination Exercise Period shall commence on the Termination Date. In no event, however, shall the Option be exercised later than the Expiration Date set forth in the Notice. [In the event of the Grantee's change in status from Employee, Director or Consultant to any other status of Employee, Director or Consultant, the Option shall remain in effect and the Option shall continue to vest in accordance with the Vesting Schedule set forth in the Notice; provided, however, that with respect to any Incentive Stock Option that shall remain in effect after a change in status from Employee to Director or Consultant, such Incentive Stock Option shall cease to be treated as an Incentive Stock Option and shall be treated as a Non-Qualified Stock Option on the day three (3) months and one (1) day following such change in status.] Except as provided in Sections 6 and 7 below, to the extent that the Option was unvested on the Termination Date, or if the Grantee does not exercise the vested portion of the Option within the Post-Termination Exercise Period, the Option shall terminate.

6. Disability of Grantee. In the event the Grantee's Continuous Service terminates as a result of his or her Disability, the Grantee may, but only within twelve (12) months commencing on the Termination Date (but in no event later than the Expiration Date), exercise the portion of the Option that was vested on the Termination Date; provided, however, that if such Disability is not a "disability" as such term is defined in Section 22(e)(3) of the Code and the Option is an Incentive Stock Option, such Incentive Stock Option shall cease to be treated as an Incentive Stock Option and shall be treated as a Non-Qualified Stock Option on the day three (3) months and one (1) day following the Termination Date. To the extent that the Option was unvested on the Termination Date, or if the Grantee does not exercise the vested portion of the Option within the time specified herein, the Option shall terminate. Section 22(e)(3) of the Code provides that an individual is permanently and totally disabled if he or she is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than twelve (12) months.

7. Death of Grantee. In the event of the termination of the Grantee's Continuous Service as a result of his or her death, or in the event of the Grantee's death during the Post-Termination Exercise Period, the person who acquired the right to exercise the Option pursuant to Section 8 may exercise the portion of the Option that was vested at the date of termination within twelve (12) months commencing on the date of death (but in no event later than the Expiration Date). To the extent that the Option was unvested on the date of death, or if the vested portion of the Option is not exercised within the time specified herein, the Option shall terminate.

8. Transferability of Option. The Option, if an Incentive Stock Option, may not be transferred in any manner other than by will or by the laws of descent and distribution and may be exercised during the lifetime of the Grantee only by the Grantee. The Option, if a Non-Qualified Stock Option, may not be transferred in any manner other than by will or by the laws of descent and distribution, provided, however, that a Non-Qualified Stock Option may be transferred during the lifetime of the Grantee to the extent and in the manner authorized by the Administrator. Notwithstanding the foregoing, the Grantee may designate one or more beneficiaries of the Grantee's Incentive Stock Option or Non-Qualified Stock Option in the event of the Grantee's death on a beneficiary designation form provided by the Administrator. Following the death of the Grantee, the Option, to the extent provided in Section 7, may be exercised (a) by the person or persons designated under the deceased Grantee's beneficiary designation or (b) in the absence of an effectively designated beneficiary, by the Grantee's legal representative or by any person empowered to do so under the deceased Grantee's will or under the then applicable laws of descent and distribution. The terms of the Option shall be binding upon the executors, administrators, heirs, successors and transferees of the Grantee.

9. Term of Option. The Option must be exercised no later than the Expiration Date set forth in the Notice or such earlier date as otherwise provided herein. After the Expiration Date or such earlier date, the Option shall be of no further force or effect and may not be exercised.

10. Tax Consequences. The Grantee may incur tax liability as a result of the Grantee's purchase or disposition of the Shares. THE GRANTEE SHOULD CONSULT A TAX ADVISER BEFORE EXERCISING THE OPTION OR DISPOSING OF THE SHARES.

11. Entire Agreement: Governing Law. The Notice, the Plan and this Option Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and the Grantee with respect to the subject matter hereof, and may not be modified adversely to the Grantee's interest except by means of a writing signed by the Company and the Grantee. Nothing in the Notice, the Plan and this Option Agreement (except as expressly provided therein) is

intended to confer any rights or remedies on any persons other than the parties. The Notice, the Plan and this Option Agreement are to be construed in accordance with and governed by the internal laws of the State of Delaware without giving effect to any choice of law rule that would cause the application of the laws of any jurisdiction other than the internal laws of the State of Delaware to the rights and duties of the parties. Should any provision of the Notice, the Plan or this Option Agreement be determined to be illegal or unenforceable, such provision shall be enforced to the fullest extent allowed by law and the other provisions shall nevertheless remain effective and shall remain enforceable.

12. Venue and Jurisdiction. The parties agree that any suit, action, or proceeding arising out of or relating to the Notice, the Plan or this Option Agreement shall be brought exclusively in the United States District Court for Delaware (or should such court lack jurisdiction to hear such action, suit or proceeding, in a Delaware state court) and that the parties shall submit to the jurisdiction of such court. The parties irrevocably waive, to the fullest extent permitted by law, any objection the party may have to the laying of venue for any such suit, action or proceeding brought in such court. If any one or more provisions of this Section 12 shall for any reason be held invalid or unenforceable, it is the specific intent of the parties that such provisions shall be modified to the minimum extent necessary to make it or its application valid and enforceable.

13. Construction. The captions used in the Notice and this Option Agreement are inserted for convenience and shall not be deemed a part of the Option for construction or interpretation. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

14. Administration and Interpretation. Any question or dispute regarding the administration or interpretation of the Notice, the Plan or this Option Agreement shall be submitted by the Grantee or by the Company to the Administrator. The resolution of such question or dispute by the Administrator shall be final and binding on all persons.

15. Notices. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery, upon deposit for delivery by an internationally recognized express mail courier service or upon deposit in the United States mail by certified mail (if the parties are within the United States), with postage and fees prepaid, addressed to the other party at its address as shown in these instruments, or to such other address as such party may designate in writing from time to time to the other party.

END OF AGREEMENT

EXHIBIT A

CATALYST BIOSCIENCES INC. 2018 OMNIBUS INCENTIVE PLAN

EXERCISE NOTICE

[COMPANY
ADDRESS]
Attention: Secretary

1. Exercise of Option. Effective as of today, [DATE], the undersigned (the "Grantee") hereby elects to exercise the Grantee's option to purchase shares of the Common Stock (the "Shares") of Catalyst Biosciences, Inc. (the "Company") under and pursuant to the Company's 2018 Omnibus Incentive Plan, as amended from time to time (the "Plan") and the Stock Option Award Agreement (the "Option Agreement") and Notice of Stock Option Award (the "Notice") dated [ ], 20[ ] and this Exercise Notice (the "Exercise Notice"). Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Exercise Notice.

2. Representations of the Grantee. The Grantee acknowledges that the Grantee has received, read and understood the Notice, the Plan and the Option Agreement and agrees to abide by and be bound by their terms and conditions.

3. Rights as Stockholder. Until the stock certificate evidencing such Shares is issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder shall exist with respect to the Shares, notwithstanding the exercise of the Option. The Company shall issue (or cause to be issued) such stock certificate promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the stock certificate is issued, except as provided in Section 10 of the Plan.

4. Delivery of Payment. The Grantee herewith delivers to the Company the full Exercise Price for the Shares, which, to the extent selected, shall be deemed to be satisfied by use of the broker-dealer sale and remittance procedure to pay the Exercise Price provided in Section 3(e) of the Option Agreement.

5. Tax Consultation. The Grantee understands that the Grantee may suffer adverse tax consequences as a result of the Grantee's purchase or disposition of the Shares. The Grantee represents that the Grantee has consulted with any tax consultants the Grantee deems advisable in connection with the purchase or disposition of the Shares and that the Grantee is not relying on the Company for any tax advice.

6. Taxes. The Grantee agrees to satisfy all applicable foreign, federal, state and local income and employment tax withholding obligations and herewith delivers to the Company the full amount of such obligations or has made arrangements acceptable to the Company to satisfy such obligations. In the case of an Incentive Stock Option, the Grantee also agrees, as partial consideration for the designation of the Option as an Incentive Stock Option, to notify the Company in writing within thirty (30) days of any disposition of any shares acquired by exercise of the Option if such disposition occurs within two (2) years from the Grant Date or within one (1) year from the date the Shares were transferred to the Grantee.

7. Successors and Assigns. The Company may assign any of its rights under this Exercise Notice to single or multiple assignees, and this Exercise Notice shall inure to the benefit of the successors and assigns of the Company.

This Exercise Notice shall be binding upon the Grantee and his or her heirs, executors, administrators, successors and assigns.

8. Construction. The captions used in this Exercise Notice are inserted for convenience and shall not be deemed a part of this Exercise Notice for construction or interpretation. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

9. Administration and Interpretation. The Grantee hereby agrees that any question or dispute regarding the administration or interpretation of this Exercise Notice shall be submitted by the Grantee or by the Company to the Administrator. The resolution of such question or dispute by the Administrator shall be final and binding on all persons.

10. Governing Law; Severability. This Exercise Notice is to be construed in accordance with and governed by the internal laws of the State of Delaware without giving effect to any choice of law rule that would cause the application of the laws of any jurisdiction other than the internal laws of the State of Delaware to the rights and duties of the parties. Should any provision of this Exercise Notice be determined by a court of law to be illegal or unenforceable, such provision shall be enforced to the fullest extent allowed by law and the other provisions shall nevertheless remain effective and shall remain enforceable.

11. Notices. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery, upon deposit for delivery by an internationally recognized express mail courier service or upon deposit in the United States mail by certified mail (if the parties are within the United States), with postage and fees prepaid, addressed to the other party at its address as shown below beneath its signature, or to such other address as such party may designate in writing from time to time to the other party.

12. Further Instruments. The parties agree to execute such further instruments and to take such further action as may be reasonably necessary to carry out the purposes and intent of this agreement.

13. Entire Agreement. The Notice, the Plan and the Option Agreement are incorporated herein by reference and together with this Exercise Notice constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and the Grantee with respect to the subject matter hereof, and may not be modified adversely to the Grantee's interest except by means of a writing signed by the Company and the Grantee. Nothing in the Notice, the Plan, the Option Agreement and this Exercise Notice (except as expressly provided therein) is intended to confer any rights or remedies on any persons other than the parties.

Submitted by:	Accepted by:
GRANTEE:	Catalyst Biosciences, Inc.
_____	By: _____
(Signature)	Title: _____
Address:	Address:
_____	**[COMPANY ADDRESS]**

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements of Catalyst Biosciences, Inc. on Form S-8 (Nos. 333-133881, 333-133882, 333-160331, 333-185888, 333-189143, 333-206523, 333-206526, 333-212345, 333-219301, 333-225902, and 333-239712), and Form S-3 (Nos. 333-228970 and 333-253874) of our report dated March 31, 2022, on our audits of the financial statements as of December 31, 2021 and 2020, and for each of the years then ended, which report is included in this Annual Report on Form 10-K to be filed on or about March 31, 2022.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Iselin, New Jersey
March 31, 2022

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Nassim Usman, certify that:

1. I have reviewed this report on Form 10-K of Catalyst Biosciences, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiary, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 31, 2022

/s/ Nassim Usman, Ph.D.

Nassim Usman, Ph.D.
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Seline Miller, certify that:

1. I have reviewed this report on Form 10-K of Catalyst Biosciences, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiary, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 31, 2022

/s/ Seline Miller

Seline Miller
Interim Chief Financial Officer (Interim Financial and Principal Accounting Officer)

Exhibit 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

In connection with the Annual Report on Form 10-K of Catalyst Biosciences, Inc. (the "Company") for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Nassim Usman, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2022

/s/ Nassim Usman, Ph.D.

Nassim Usman, Ph.D.
President and Chief Executive Officer

Exhibit 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

In connection with the Annual Report on Form 10-K of Catalyst Biosciences, Inc. (the "Company") for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Seline Miller, Interim Chief Financial Officer (Interim Financial and Principal Accounting Officer) of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 31, 2022

/s/ Seline Miller

Seline Miller
Interim Chief Financial Officer (Interim Financial and Principal Accounting Officer)