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

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

OR

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

For the transition period from to

Commission File Number 001-38662

SUTRO BIOPHARMA, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware **(State or other jurisdiction of incorporation or organization)**	**47-0926186** **(I.R.S. Employer Identification No.)**
310 Utah Avenue, Suite 150 **South San Francisco, California** **(Address of principal executive offices)**	**94080** **(Zip Code)**

(650) 392-8412

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common stock, $0.001 par value	STRO	Nasdaq Global Market

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

None

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the Registrant on June 28, 2019 (the last business day of the Registrant's second fiscal quarter), based upon the closing price of $11.38 of the Registrant's common stock as reported on The Nasdaq Global Market, was approximately $235.6 million.

The number of shares of the registrant's common stock outstanding as of March 9, 2020, was 23,098,969.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed for its 2020 Annual Meeting of Stockholders are incorporated by reference into Part III hereof. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the end of the fiscal year covered by this Annual Report on Form 10-K.

Sutro Biopharma, Inc.

ANNUAL REPORT ON FORM 10-K

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Forward-Looking Statements

This Annual Report on Form 10-K, or Annual Report, contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and section 27A of the Securities Act of 1933, as amended, or the Securities Act. All statements contained in this Annual Report other than statements of historical fact, including statements regarding our future results of operations and financial position, business strategy, market size, potential growth opportunities, nonclinical and clinical development activities, efficacy and safety profile of our product candidates, our ability to maintain and recognize the benefits of certain designations received by product candidates, the timing and results of nonclinical studies and clinical trials, collaboration with third parties, and the receipt and timing of potential regulatory designations, approvals and commercialization of product candidates, are forward-looking statements. The words "believe," "may," "will," "potentially," "estimate," "continue," "anticipate," "predict," "target," "intend," "could," "would," "should," "project," "plan," "expect," and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in Item 1A, "Risk Factors" and elsewhere in this Annual Report. Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties, and assumptions, the forward-looking events and circumstances discussed in this Annual Report may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this report to conform these statements to actual results or to changes in our expectations, except as required by law. You should read this Annual Report with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Except where the context otherwise requires, in this Annual Report on Form 10-K, "we," "us," "our" and the "Company" refer to Sutro Biopharma, Inc.

Trademarks

This Annual Report on Form 10-K includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included in this Annual Report on Form 10-K are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

PART I

Item 1. *Business*

Overview

We are a clinical stage drug discovery, development and manufacturing company focused on deploying our proprietary integrated cell-free protein synthesis platform, XpressCF®, to create a broad variety of optimally designed, next-generation protein therapeutics initially for cancer and autoimmune disorders. We aim to design therapeutics using the most relevant and potent modalities, including cytokine-based targets, immuno-oncology, or I/O agents, antibody-drug conjugates, or ADCs, and bispecific antibodies that are directed primarily against clinically validated targets where the current standard of care is suboptimal. We believe our platform allows us to accelerate the discovery and development of potential first-in-class and best-in-class molecules by enabling the rapid and systematic evaluation of protein structure-activity relationships to create optimized homogeneous product candidates. Our mission is to transform the lives of patients by using our XpressCF® Platform to create medicines with improved therapeutic profiles for areas of unmet need.

Our two most advanced product candidates are wholly owned: STRO-001, an ADC directed against CD74, for patients with multiple myeloma and non-Hodgkin lymphoma, or NHL, and STRO-002, an ADC directed against folate receptor-alpha, or FolRα, for patients with ovarian and endometrial cancers. STRO-001 is currently enrolling patients in a Phase 1 trial, with initial safety and efficacy data reported in 2019. Based on such reported data, STRO-001 has been generally well-tolerated and, unlike certain other ADCs, no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-001 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. In October 2018, we were granted Orphan Drug Designation by the FDA, for STRO-001 for the treatment of multiple myeloma. In March 2019, our second candidate STRO-002 began enrolling patients in a Phase 1 trial focused on ovarian and endometrial cancers with initial safety and efficacy data reported in late 2019. Based on such reported data, STRO-002 has been well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-002 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. Based on our proprietary XpressCF® platform, we have also entered into multi-target, product-focused collaborations with leaders in the field of oncology, including a cytokine derivatives collaboration with Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Kenilworth, NJ, or Merck; a B Cell Maturation Antigen, or BCMA, and an immuno-oncology directed alliance with Celgene Corporation, or Celgene, a wholly owned subsidiary of Bristol-Myers Squibb Company, New York, NY, or BMS; and an oncology-focused collaboration with Merck KGaA, Darmstadt Germany (operating in the United States and Canada under the name “EMD Serono”).

We believe our XpressCF® platform is the first and only current Good Manufacturing Practices, or cGMP, compliant and scalable cell-free protein synthesis technology that has resulted in multiple product candidates in clinical development. We believe key advantages of our cell-free protein synthesis platform over conventional biologic drug discovery and development include:

- ability to rapidly produce a wide variety of protein structures in-house;
- ability to incorporate multiple, different non-natural amino acids in a single protein;
- faster cycle time;
- efficient drug discovery and early pharmacology and safety assessment; and
- rapid and predictable scalability.

We plan to leverage these capabilities to accelerate the discovery and development of potential first-in-class and best-in-class molecules.

The benefits of our XpressCF® and XpressCF+™ Platforms have resulted in collaborations with leaders in the field of oncology, including Merck, BMS and EMD Serono. As a result of discovery efforts enabled through our XpressCF+™ Platform, Merck has the right to develop up to three cytokine derivatives for cancer and autoimmune disorders, with Merck to make a specific payment for the nomination of the third product candidate. Additionally, BMS has the worldwide right to develop and commercialize an anti-cancer ADC and development rights to three additional anti-cancer bispecific antibodies outside of the U.S. The lead candidate in this collaboration is a novel ADC therapeutic directed against BCMA, known as CC-99712, for which an IND submission was filed in the first half of 2019, and is being studied in a Phase 1 trial currently enrolling patients with relapsed and refractory multiple myeloma. Under the collaboration with EMD Serono, we are using our XpressCF+™ Platform to discover and develop monospecific, bispecific or multispecific ADC product candidates against multiple cancer targets. The

most advanced candidate in this collaboration is a bispecific ADC that is currently undergoing preclinical studies and for which we are in the process of manufacturing clinical trial materials. Through December 31, 2019, we have received an aggregate of approximately $370 million in payments from all of our collaborations, which includes approximately $54 million in investments in our stock. We intend to selectively enter into additional collaborations with partners who are seeking efficient and effective drug discovery, preclinical development and manufacturing capabilities for the creation of novel therapeutics.

Our first internally developed product candidate is STRO-001, which we believe has the potential to be a first-in-class and best-in-class ADC directed against CD74, an antigen that is highly expressed in many B cell malignancies. In multiple preclinical models, STRO-001 has demonstrated potent anti-tumor activity. In addition, the properties of STRO-001 suggest a low likelihood of off-target toxicity and potential for an improved therapeutic index. STRO-001 is currently enrolling patients in a Phase 1 trial for multiple myeloma and NHL for which we reported initial safety and efficacy data in 2019. Based on such reported data, STRO-001 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-001 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We expect to report additional safety and efficacy data in the second half of 2020 and to begin the dose expansion phase in the first half of 2021.

We are also internally developing STRO-002, an ADC directed against FolRα, initially targeted for the treatment of ovarian and endometrial cancers. Our experiments show that FolRα expression can be detected in 90% or more of ovarian and endometrial cancers. In preclinical models, STRO-002 has demonstrated the potential for enhanced and selective activity against cells expressing FolRα, superior inhibition of tumor growth and greater linker stability, in comparison to experiments we conducted with a benchmark FolRα-targeting molecule. We began enrolling patients in a STRO-002 Phase 1 trial focused on ovarian and endometrial cancers in March 2019, with initial safety and preliminary efficacy data reported in late 2019. Based on such reported data, STRO-002 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-002 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We expect to report additional safety and efficacy data for STRO-002 in the second quarter of 2020 and to begin the dose expansion phase in the second half of 2020.

BMS (formerly Celgene) is developing CC-99712, an ADC directed against BCMA discovered and manufactured by Sutro as part of the Celgene research collaboration. BMS is currently enrolling a Phase 1 clinical study testing CC-99712 in patients with relapsed and refractory multiple myeloma.

Although we believe our product candidates have the potential to be first-in-class and/or best-in-class and to provide potent anti-tumor activity with reduced off-target toxicity, we will need to complete additional studies to determine the safety and efficacy of our product candidates. The results of these future studies may be different than the results of our earlier studies. We have not received regulatory approval for any of our product candidates, and in order to obtain regulatory approval and commercialize our product candidates, the FDA or foreign regulatory agencies will need to determine that our product candidates are safe and effective. We may not obtain regulatory approval on the timeline we currently expect, or at all, and competing therapies and products may ultimately reach the market faster or have more favorable safety and efficacy profiles than our products candidates.

Beyond these wholly owned programs and collaborations, we are developing a broader pipeline of next-generation protein therapeutics using our XpressCF® Platform. Our protein engineering and chemistry efforts are focused on maximizing therapeutic indices, and our technology allows us to rapidly test our therapeutic hypothesis in significantly more product candidates than conventional protein synthesis allows in order to identify the best molecule to advance to the clinic. Our drug discovery teams are exploring novel immuno-oncology therapies, including cytokine-based therapies. We are also actively pursuing the discovery and development of other novel ADCs, including tumor targeting immunostimulant-ADCs, or IADCs, bispecific antibodies, including T cell-engager discovery programs.

Our Strategy

Our goal is to use our proprietary XpressCF ® Platform to create cytokine-based immuno-oncology therapeutics, ADCs and bispecific antibodies primarily against clinically validated targets. Key elements of our strategy are to:

- **Advance STRO-001 and STRO-002 through clinical development.** We are currently evaluating STRO-001 in a Phase 1 trial for patients with advanced and/or refractory multiple myeloma and NHL.

Based on our preclinical data, we believe STRO-001 has the potential to be a first-in-class and best-in-class ADC directed against CD74, which is highly expressed in many B cell malignancies. We expect to report additional safety and efficacy data in the second half of 2020. In October 2018, we were granted Orphan Drug Designation by the FDA, for STRO-001 for the treatment of multiple myeloma. We began enrolling patients in a STRO-002 Phase 1 trial focused on ovarian and endometrial cancers in March 2019 and expect to report additional safety and efficacy data in the second quarter of 2020. Given that FolRα is a clinically validated target for ovarian cancer, along with STRO-002's homogeneous design, we believe it could be a best-in-class FolRα-targeted ADC and provide greater activity, stability and safety as compared to other investigational agents in development.

- **Maintain worldwide rights to our core product candidates.** We own the worldwide commercial rights to our most advanced product candidates, STRO-001 and STRO-002. We have assembled a management team with extensive experience in the biopharmaceutical industry, including drug discovery and development through commercialization, and our plan is to independently pursue the development and commercialization of our product candidates. As we continue to advance our products, we may opportunistically pursue strategic partnerships that maximize the value of our pipeline.
- **Develop a diverse pipeline of novel product candidates with optimal therapeutic profiles.** We intend to build a broad pipeline of optimally designed, next-generation protein therapeutics for cancer and autoimmune disorders using our XpressCF® Platform. Our cell-free-based protein synthesis system enables the rapid and systematic evaluation of protein structure-activity relationships, which we believe will accelerate the discovery and development of molecules. We aim to take advantage of the most potent modalities, including cytokines, ADCs and bispecific antibodies, to create drugs that are directed primarily against clinically validated targets where the current standard of care is suboptimal.
- **Strategically pursue additional collaborations to broaden the reach of** our XpressCF® Platform**.** To maximize the value of our XpressCF ® Platform technology, we have entered into multi-target, product-focused collaborations with leaders in the field of oncology, including a cytokine derivatives collaboration with Merck, a BCMA and immuno-oncology directed alliance with Celgene (now BMS) and an oncology-focused ADC collaboration with EMD Serono. We intend to selectively enter into additional collaborations with partners who are seeking efficient and effective drug discovery and manufacturing capabilities for the development of novel therapeutics. As with some of our current collaborations, we intend to retain certain development and commercial rights to maximize the future potential value of product candidates discovered and developed using our XpressCF® Platform.
- **Selectively expand the scope of our** XpressCF® **Platform into other therapeutic areas.** Due to the versatility of our platform, we can explore additional therapeutic areas outside of oncology, such as autoimmune diseases. We intend to make further investment in the development of our XpressCF® Platform to expand our pipeline of product candidates.

Cancer Remains a Major Unmet Medical Need

Cancer is the second leading cause of mortality in the United States, accounting for nearly one in every four deaths. Approximately 40% of American men and 39% of American women will develop cancer and, according to the American Cancer Society, there will be 1.8 million new cases of cancer and 607,000 deaths due to cancer in the United States in 2020.

Traditional Cancer Therapeutics

Cancer treatment has traditionally included chemotherapy, radiation, surgery or a combination of these approaches. Chemotherapy agents and other small molecule targeted therapies can be effective in certain types of cancer, but they can also cause toxicities that may lead to life-threatening consequences, lower quality of life or untimely termination of treatment. Furthermore, these agents offer limited efficacy in many types of cancer.

Over the last twenty years, new paradigms of cancer research and treatment have emerged to address the limitations of existing treatments. Some of the most promising new approaches involve biologic therapies, including monoclonal antibodies. Monoclonal antibodies are proteins that bind to antigen targets on tumor cells and inhibit tumor growth, or block processes that provide nourishment for the tumor. As a drug class, monoclonal antibodies have transformed the treatment of oncology and represent some of the top selling therapies on the market. For example, Roche's Avastin, Rituxan/CD20, and Herceptin/HER-2 franchises dominated the market with over $23 billion in combined 2019 annual sales.

Despite the success of conventional monoclonal antibodies, they still have limitations. For example, the response seen with monoclonal antibodies can be variable, with some patients responding, while others do not. In addition, the response is often not durable and many patients relapse or become refractory to treatment. Also, safety and tolerability concerns often limit the use of higher, potentially more efficacious doses. We believe our XpressCF® Platform will provide enhanced therapeutic approaches for treating cancer to address these unmet needs. A new generation of biologics is emerging, including immuno-oncology agents, ADCs and bispecific antibodies. The expectation is that multiple therapeutic modalities will be used in novel combinations to treat patients and provide the most potent anti-cancer effect.

Immuno-Oncology

The immune system is capable of recognizing and eliminating tumor cells. However, some cancer cells over express proteins, called immune checkpoints, which suppress the immune system, and enable the tumor cells to evade destruction. Immuno-oncology has emerged as a promising new therapeutic approach that aims to enhance anti-tumor immune responses by using monoclonal antibodies to overcome these immune checkpoint blockades.

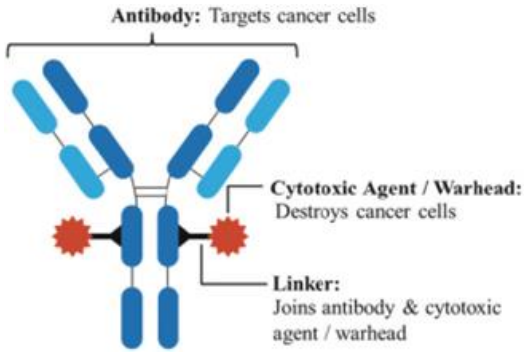
Monoclonal antibody immune checkpoint inhibitors, such as Opdivo, Keytruda and Yervoy, have been approved for the treatment of a number of cancer indications such as, melanoma, non-small cell lung cancer, or NSCLC, renal cancer and bladder cancer. The 2019 combined sales of these three checkpoint inhibitors are projected to be $20 billion and by 2022, sales are projected to exceed $27 billion.

Limitations to Current Immuno-Oncology Approaches

The effectiveness of any cancer immunotherapy is dependent on the status of an individual patient's immune system. While many single-agent immunotherapies have resulted in remarkable clinical results, only a minority of patients have realized durable benefits from these treatments. An immunotherapy cannot succeed if a patient's immune cells are too impaired to benefit from a particular checkpoint inhibitor or cytokine-based therapeutic. As a result, combination therapies have been explored clinically and are designed to provide an additional boost to revive a patient's ability to mount an immune response against their tumor. However, combination therapies will likely have to provide a significant risk-benefit advantage in order to justify the cumulative costs of combining two separate immunotherapies. New single agent approaches to achieving combinatorial stimulation of a patient's immune system may therefore create the preferred option for many patients and physicians.

Antibody-Drug Conjugates

After two decades of industry efforts, several new modalities of highly potent monoclonal antibody-based therapies have emerged, including ADCs. The key components of ADCs include an antibody, a stable linker and a cytotoxic agent (warhead). The antibody is used to target and deliver the cytotoxic agent to tumor cells. ADCs can be mono, bispecific or multi-specific. The intended result of this powerful and targeted approach is greater tumor cell death and less systemic tolerability issues as compared to traditional chemotherapy. The following diagram shows the component parts of an ADC.



Currently, there are more than 100 ADCs being explored in clinical development. Kadcyla and Adcetris were the first of the new generation of ADCs to be approved for the treatment of specific subsets of breast cancer and

lymphoma, respectively. In the last three years , six more ADCs entered or re-entered the market, as Besponsa, Mylotarg, Lumoxiti, and Polivy were approved for the treatment of specific subsets of leukemia and lymphoma; and Padcev and Enhertu were approved for the treatment of bladder/urinary tract cancer and breast cancer, respectively. All eight of these approved therapies demonstrate that ADCs have an emerging role in the armamentarium of cancer therapeutics.

Limitations to Current ADC Approaches

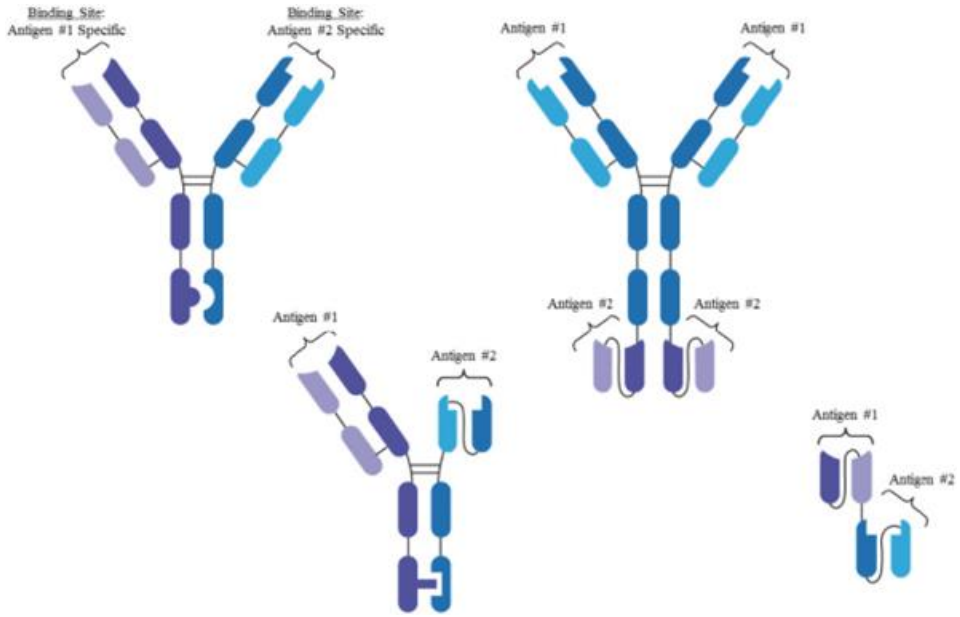
Despite the approvals of these ADCs, there have been challenges in achieving the full clinical potential of this modality. We believe these challenges are directly related to the following:

- *Heterogeneity as a Result of Imprecise and Variable Conjugation.* The approved ADCs and many that are in development use imprecise technologies that opportunistically attach the cytotoxic payload to naturally occurring amino acids within the antibody and result in a heterogeneous mixture. In these mixtures, the number and site location of the linker-warhead can vary significantly from antibody to antibody within the single ADC product. These many different forms in the final product are likely to perform differently, with some forms carrying insufficient cytotoxin to kill the tumor, and some forms carrying too high a load resulting in unintended toxicities. The overall performance of the heterogeneous ADC is therefore the average activity of the different species within the ADC mixture, which may limit both efficacy and tolerability. For these reasons, we believe this current class of ADCs, which are heterogeneous mixtures, are suboptimal for effective cancer treatment. The figure below compares homogeneous and heterogeneous ADCs.

- *Suboptimal Linker-Warhead Positioning.* Conventional ADC technologies use conjugation chemistry to attach linker-warheads to naturally occurring amino acids within an antibody; therefore, the position is dictated by the pre-existing amino acid sequence. Published research studies have demonstrated that linker-warhead positioning along an antibody can have significant effect on the ability of an ADC to kill tumor cells, with some positions resulting in suboptimal killing. This position effect also contributes to the challenge of a heterogeneous ADC mixture. We believe that superior ADCs can be developed using technologies that allow linker-warhead positioning to be fine-tuned to empirically determined sites for maximal therapeutic benefit.
- *Instability Due to Linker Design*. One of the major challenges in ADC technology has been to develop linking chemistries that ensure that warheads are only released from the antibody within a tumor cell, and not released within the blood or healthy tissue as the ADC is delivered systemically and travels through the body. We believe that safer ADCs can be developed by utilizing non-natural amino acids that enable state-of-the-art chemistries to ensure that the warhead is not prematurely released.

Bispecific Antibodies

Bispecific antibodies are engineered proteins that can simultaneously bind to two different types of antigens. Targeting two individual antigens simultaneously is expected to drive a larger clinical impact than conventional monoclonal antibodies. As a class, there are currently 96 bispecific antibodies in clinical development for oncology indications, with projected potential sales on a worldwide basis of up to $3.6 billion by 2024. Bispecific antibodies can be engineered in a variety of different formats as shown below.



Bispecific antibodies come in a wide variety of structural formats that can be used in multiple therapeutic modalities, including dual blocking bispecific antibodies, T cell-engaging bispecific antibodies and dual antigen targeting bispecific antibodies. Given the potential synergistic nature of these approaches, they have the potential to provide a similar, if not improved, therapeutic benefit as compared to a traditional combination approach. In addition, they may also demonstrate an improved safety and tolerability profile. These characteristics could allow for a wider therapeutic index as compared to the comparable combination therapy approach. Additionally, combining two mechanisms in a single bispecific antibody could have advantages in manufacturing, clinical development and patient convenience.

Limitations to Current Bispecific Antibody Approaches

Bispecific antibodies are highly engineered proteins with structural features not found in nature. The generation of these molecules therefore presents significant design and development challenges especially when using conventional cell-based technologies. These challenges include:

- *Optimization Challenges.* Bispecific antibodies simultaneously engage two different targets and therefore have precise requirements for the binding properties and spatial orientation of each domain in order to have pharmacologic activity. Combinatorial pairing of antibody binding arms to identify an optimized bispecific antibody requires many distinct cell lines that must be engineered during the discovery process, a cumbersome process when using conventional cell-based technologies.
- *Challenges to T Cell-Engagers.* Discovery of bispecific T cell-engagers is further limited by the challenge of designing bispecific pairs that can safely activate T cells specifically in the tumor environment without activating peripheral T cells, which would result in severe toxicities.
- *Difficulties in Protein Expression and Manufacturing.* Because bispecific antibodies are highly engineered proteins, conventional cell-based systems have significant difficulties in protein expression, particularly at a larger scale.

We believe that new protein engineering technologies will enable significantly broader design opportunities to discover new bispecific antibodies optimized for therapeutic activity, safety and manufacturability.

Cytokine-Based Immuno-Oncology Therapeutics

Cytokines are small biologically active proteins that play an essential role in immune cell function. Cytokines are important for cell-to-cell communication and are responsible for controlling immune cell growth and differentiation. Recombinant human cytokines were among the first biotechnology products engineered for therapeutic use, and, in the field of oncology, cytokines that stimulate the immune system to attack cancer cells have been viewed as a potential new approach.

Certain cytokines play a central role in T cell function, contributing to the careful balance between helpful and harmful immune responses. These can be powerful activators of the immune system but can also suppress immune responses through certain specialized T cells that have suppressive functions. A previously approved cytokine therapeutic Proleukin had shown therapeutic benefit in a small number of cancer patients but its therapeutic use was limited due to toxicity. Scientists at other companies have focused research on finding ways to modify cytokines so as to reduce toxicity while maintaining therapeutic benefit. The observed efficacy of a modified cytokine in combination with an immune checkpoint inhibitor indicates the potential of this new approach. In light of these data and our prior research into cytokines, we commenced a cytokine-based research program using our XpressCF+™ Platform technology and are now collaborating with Merck on developing cytokine derivatives. We believe that recent advances in immuno-oncology combined with new protein engineering technologies create opportunities to identify novel cytokine-based therapeutics with superior therapeutic indexes.

Our Proprietary XpressCF® Platform

While cytokine-based immuno-oncology therapeutics, ADCs and bispecific antibodies hold significant promise, drug developers working with these complex biologics face significant design and development challenges. Optimizing these complex biological structures is a challenging, trial and error process that requires the refinement of several properties in tandem. This iterative process is cumbersome and fraught with significant limitations. As a result, the drug candidate nominated for development is often plagued by inefficient design properties, which then translates to a suboptimal therapeutic index when investigated in the clinic.

Our XpressCF® Platform seeks to address these significant shortcomings. We believe our cell-free-based protein synthesis technology allows for efficient and proper design exploration to be conducted prior to nominating a lead drug candidate. In addition, we believe we can optimally design these types of complex biologics in a manner that is ideal for subsequent production at relevant scale and manufacture. We are the only company with products in clinical development that has the capability to produce cell-free-based protein synthesis at scale. We believe we have a significant advantage over other development approaches in this space.

Limitations of Current Cell-Based Synthesis Approaches

All existing therapeutic proteins rely on cell-based design, production and manufacturing technologies. The conventional biotechnology approach for the production of these complex biologics relies primarily on CHO cell lines. This first requires low yield transient production from cells that enable characterization of a new protein over several months. This is then followed by development of stable cell lines over several months to a year to enable larger scale preclinical, clinical and commercial production. The characterization process has to be reproduced for every minor variant of the therapeutic protein, which may or may not result in improved properties. Each change requires development of new cell-based methods to generate protein of sufficient quality and quantity to evaluate. Therefore, it is extremely laborious and resource intensive to elucidate principles of structure-activity relationship, and drug discovery is limited by the number of cell lines that can be practically managed in parallel. In addition, they have limited ability to introduce non-natural amino acids into proteins. We believe these limitations hinder the efficiency of drug discovery and often result in suboptimal protein selection.

Overview of Our XpressCF® Platform

Our XpressCF® Platform is fundamentally different from the conventional cell-based protein synthesis approach in that we separate the production of the cell mass from the production of the protein.

We first generate a cellular mass from our propriet ary cell line from which we harvest the inner cellular machinery for making proteins. The cellular mass is generated from our highly engineered variant of Escherichia coli, or E.coli bacteria, and has been optimized to make extract that produces complex mammalian proteins. These cells are grown over the course of several days, harvested, broken apart, clarified and stored as a cell mass for future production of our protein therapeutics. We refer to this proprietary cell mass as extract, or XtractCF™. The extract includes necessary components for energy production, transcription and translation and can be used to support cell-free protein synthesis. This extract can then be used agnostically to manufacture a wide variety of therapeutic proteins and protein fragments without the need to generate further cell lines.

As a result, protein synthesis then becomes a predictable and reproducible biochemical reaction, independent of the constraints of a cell. A specific DNA sequence is added to the extract, which results in the coding and expression of the desired protein in less than 24 hours. Using this process, we express hundreds or thousands of DNA sequences simultaneously within the same cell-free extract system and therefore can make and purify hundreds or thousands of unique proteins at the same time. This allows us to perform rapid expression, testing and characterization of many variants early in discovery to elucidate structure-activity relationships. Structure-activity relationship refers to how changes to the structure of a protein can lead to improvements in a molecule's properties, such as binding, internalization, functional activity and stability, which are properties that are key to the therapeutic protein's efficacy and tolerability in the patient. We are thereby able to optimize many properties with high specificity including: binding efficiency to each antigen target, spatial orientation, linker design, target killing efficiency, immunological activity, protein expression and folding efficiency and stability.

Advantages of Our XpressCF® Platform

We believe our drug discovery platform provides significant advantages over conventional cell-based protein synthesis approaches and has the ability to produce a large number of variants during the development stage, while preserving the ability to design and test large families of molecules for optimized efficacy and safety features. As a result, we believe that our drug discovery platform can accelerate time to IND by nine to fifteen months compared to conventional technologies.

We believe the advantages of our cell-free-based protein synthesis technology platform include:

- *Ability to Rapidly Produce and Evaluate a Wide Variety of Protein Structures In-house* . By decoupling the production of the cell-free extract from the production of the protein, we are able to stockpile large quantities of cell-free extract from which we are able to manufacture a wide variety of proteins without the need to generate individual cell lines, including cytokine-based immuno-oncology therapeutics, ADCs and bispecific antibodies.
- *Ability to Incorporate Non-Natural Amino Acids.* Our technology allows for efficient incorporation of a non-natural amino acid in any location in an antibody or protein with high precision and fidelity, which we believe allows for the design of optimized protein conjugates.
- *Faster Cycle Time.* Our ability to produce thousands of protein variants in parallel overnight allows us to rapidly express, test and characterize many variants early in discovery to elucidate structure-activity relationships and identify opportunities for superior therapeutic profiles, as well as new intellectual property. We are therefore able to efficiently optimize many properties with high specificity in parallel.
- *Efficient Drug Discovery and Early Pharmacology and Safety Assessment.* Our cell-free technology creates the opportunity for accelerated pharmacology and safety assessments during the design and discovery phase of product development. This approach allows us to generate optimized proteins early in our discovery process, which can be transitioned seamlessly to clinical scale production using the same cell-free process.
- *Rapid and Predictable Scalability*. Our cell-free extract does not need to be modified in any manner as we scale from research to preclinical to clinical to commercial production. This enables us to move more rapidly to the clinic by eliminating master cell banking activities and significantly de-risks scale-up to manufacturing.

Our XpressCF® Solution for cytokine, ADCs and bispecific antibodies-based drug therapeutics

As a result, we believe our technology enables new approaches to cytokine, ADCs and bispecific antibody-based drug discovery, development and manufacturing. Key attributes are:

- *Homogeneous Design.* Our XpressCF+™ Platform enables precise and specific placement of non-natural amino acids in defined numbers and positions within our engineered proteins. These non-natural amino acids then serve as highly stable attachment sites, also known as conjugation sites, for chemical functional groups. For example, we attach linker-warheads to non-natural amino acids within our antibodies to create single-species, tumor-killing ADCs. Similarly, we attach polyethylene glycol polymers onto non-natural amino acids within our cytokine-based therapeutics to create single-species immunotherapies designed for extended pharmacokinetics and safety.
- *Experimentally Defined Structure-Activity Relationships*. Our cell-free technology enables rational design of protein therapeutics through a rapid, reiterative process that experimentally defines structure-activity relationship for cytokine-based therapeutics, ADCs and bispecific antibodies. This approach allows us to explore a wide variety of structural features and formats in parallel as we optimize therapeutic candidates. For example, the precise location of chemical conjugation sites directly affects the activity of both ADCs and cytokine-based therapeutics. Our proprietary technology is key to our ability to define the best number and positions of non-natural amino acids for conjugation based on: conjugation efficiency; functional activity/pharmacological properties; and pharmacokinetics and safety. This design flexibility is also an important aspect of our discovery approach to other protein therapeutics. For example, we are able to make and directly compare a variety of pairings and structural formats for our immuno-oncology bispecific antibody and bispecific T cell-engager programs. This allows us to identify antibody pairs and formats with the best binding properties, spatial orientations and structural stability to create the optimal balance of therapeutic activity and safety.
- *Rapid and Efficient Transition from Discovery to the Clinic.* Protein therapeutics can encounter obstacles, or even fail, during the transition from research-grade cell lines to cGMP cell lines appropriate for clinical development and commercialization. Our XpressCF® Platform can rapidly produce different protein types from a single proprietary extract, which can be scaled for discovery, development and ultimately, we believe, commercialization of cytokine-based immuno-oncology therapeutics, ADCs and bispecific antibodies and bispecific T cell-engagers.

Accordingly, we use our XpressCF ® Platform to discover and develop cancer therapeutics by empirically determining the optimum structure-activity relationships for cytokine-based immuno-oncology therapeutics, ADCs, bispecific antibodies, and transitioning those products to cGMP compliant manufacturing. The following chart illustrates the applicability of these attributes across the range of modalities we are developing.

XpressCF® Attributes for Various Therapeutic Modalities

XpressCF® Attribute	ADCs	Bispecific I/O, Bispecific ADCs and Bispecific T cell-engagers	Cytokine-based therapeutics
Homogeneous Design			
Stable, site-specific attachment of chemical functionality	✓	✓ (if needed)	✓
Experimentally Defined Structure-Activity Relationships			
Rapid, direct comparison of a wide variety of protein variants	✓	✓	✓
Rapid and Efficient Transition from Discovery to the Clinic			
Single-source scalability from discovery to clinical / commercial	✓	✓	✓

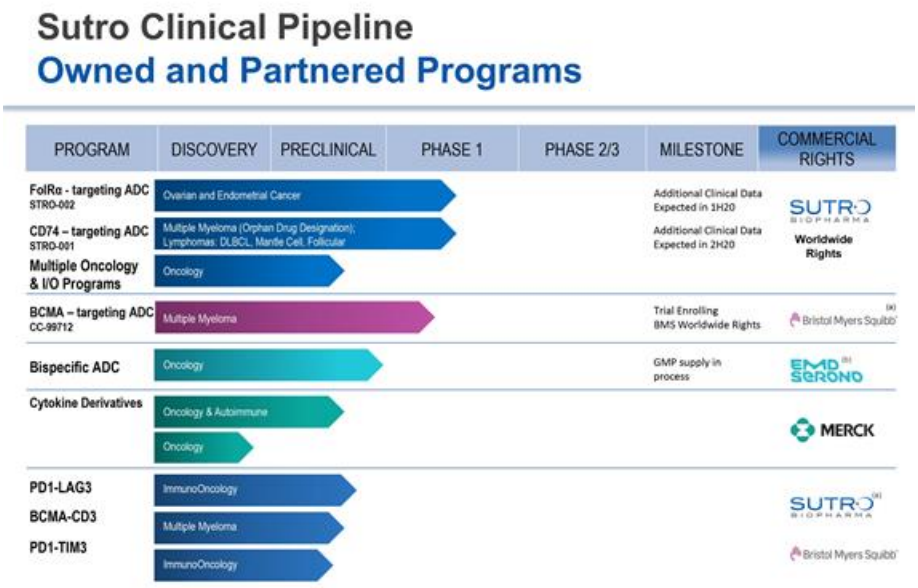
Our Collaborations Demonstrate our Capabilities

Our XpressCF® Platform has garnered the attention of leading pharmaceutical and biopharmaceutical companies and resulted in collaborations to discover and develop novel therapeutics. We have leveraged these strategic partnerships to extend our own capabilities and broaden the scope of our XpressCF® Platform. Through December 31, 2019, all of our collaborations have provided us with an aggregate of approximately $370 million in payments, which includes approximately $54 million in investments in our stock. Our collaborations include:

- ***Merck Programs.*** We have granted Merck the right to jointly develop up to three research programs directed to cytokine derivatives for cancer and autoimmune disorders, including rights to certain prior cytokine-based research efforts.
- ***BMS Programs.*** We have granted BMS the right to jointly develop up to four anti-cancer bispecific antibodies and/or ADCs directed primarily to immuno-oncology targets. The lead candidate generated for this collaboration is a novel ADC therapeutic directed against the target BCMA, known as CC-99712, for which an IND submission was filed in the first half of 2019 and is currently enrolling patients in a Phase 1 trial focused on patients with relapsed and refractory multiple myeloma.
- ***EMD Serono Programs.*** We have granted EMD Serono the right to designate up to six cancer targets against which we would discover, develop and optimize up to three mono, bispecific or multi-specific ADC product candidates per target. The most advanced candidate in this collaboration is a bispecific ADC, which is currently in preclinical development and for which we are in the process of manufacturing clinical trial materials.

- **Our Pipeline of Product Candidates and Discovery/Preclinical Programs**

Our current product candidates and Discovery and Preclinical stage programs, all based on our proprietary XpressCF ® Platform, are summarized in the chart below:



(a) BMS automatically obtained worldwide rights to the BCMA-targeting ADC---the first collaboration product candidate to achieve IND clearance in the United States. Additionally, there are three programs to which BMS currently has ex-U.S. rights and we currently have U.S. rights. Sutro is eligible for milestones and royalties on each of the four product candidates.

(b) EMD Serono is the U.S. healthcare business of Merck KGaA, Darmstadt Germany.

Our Product Candidates

STRO-001, an ADC Directed Against the Cancer Target CD74

Overview

We are developing STRO-001, an optimally designed ADC directed against the cancer target CD74, for multiple myeloma and NHL. STRO-001 was designed and optimized for maximal therapeutic index by placing linker-warheads at specific locations within the antibody using our proprietary XpressCF+™ Platform. We are currently enrolling patients in a STRO-001 Phase 1 trial and we presented initial safety and efficacy data in 2019. Based on such reported data, STRO-001 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-001 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We expect to present further safety and efficacy data relating to STRO-001 in the second half of 2020 and to begin the dose expansion phase in the first half of 2021.

CD74 Overview and Current Limitations

CD74 is a transmembrane glycoprotein, or a protein with an attached sugar that spans the inside and outside of a cell. While normal tissues appear to have minimal CD74 expression levels, CD74 is an important B cell target for multiple myelomas and lymphomas. CD74 is expressed in approximately 90% of B cell cancers, including multiple myeloma and lymphoma. Additionally, in a study conducted with a collaborator, we found that CD74 was highly expressed in 75% to 98% of tissues samples derived from individual patients with a variety of B cell malignancies, as illustrated in the table below.

Comprehensive Immunohistochemistry Study

Tumor Subtype	Tissue Samples CD74 Positive / Total	% Positive
Follicular lymphoma	148 / 151	98%
Multiple myeloma	101 / 134	75%
Diffuse large B cell lymphoma	135 / 140	96%
Mantle cell lymphoma	19 / 21	90%

Currently, there are no approved therapeutics that specifically target CD74 for treatment of B cell malignancies. We believe earlier ADCs being developed against the target CD74 were ineffective either because they failed to achieve sufficient killing of malignant B cells or they were unable to achieve a sufficient therapeutic benefit before toxicities limited further dose escalations.

B Cell Malignancies Overview and Current Limitations

B cell malignancy tumor subtypes include multiple myeloma and NHL, which includes mantle cell lymphoma, diffuse large B cell lymphoma, or DLBCL, and follicular lymphoma. In the United States alone, there are approximately 100,000 new B cell malignancies cases annually, with a prevalence of more than 600,000 cases. Although several therapeutics have recently been approved for the treatment of specific B cell malignancies, including immunotherapies and targeted kinase inhibitors, unmet need persists. These therapeutics are typically used in combination with other agents to provide the most potent anti-cancer effect. While these new therapies have demonstrated improvements in survival, the majority of these patients ultimately relapse during treatment and some experience a resistance to therapy.

Our Solution, STRO-001

Our first internally developed product candidate is STRO-001, which we believe has the potential to be a first-in-class and best-in-class ADC directed against the cancer target CD74, an antigen that is highly expressed in many B cell malignancies and is an attractive target for an ADC therapeutic, given its rapid internalization by the cell. STRO-001 is an ADC targeting the CD74 protein antigen that was developed using our proprietary XpressCF® and XpressCF+™ Platforms. STRO-001 is composed of an antibody stably conjugated to a highly potent cytotoxic drug, a maytansinoid derivative, at two specific sites on the antibody using a non-cleavable linker. STRO-001 degrades inside of tumor cells to release very potent intracellular catabolites whose hydrophilic nature results in poor permeability into surrounding cells. We believe this decreases the potential of off-target effect in normal tissues. From a safety perspective, we designed STRO-001 to have an optimal potency to toxicity ratio. We

rationally selected a homogeneous ADC with a drug-antibody ratio, or DAR, of two. Heterogeneous ADCs typically have DARs that range from zero to eight, with lower DARs generally being associated with less potency and higher DARs generally being associated with a negative impact on pharmacokinetics and toxicity. We chose a DAR of two after demonstrating that DARs of four or six did not increase the efficacy of STRO-001.

Phase 1 Clinical Trial

The Phase 1 trial for STRO-001 is an open-label study that is evaluating STRO-001 as a monotherapy for patients with multiple myeloma and NHL. The trial is being conducted in two parts: dose escalation and dose expansion. The primary objectives of the trial are to determine the safety and tolerability profile of STRO-001, determine the recommended Phase 2 dose and interval and evaluate preliminary anti-tumor activity. The secondary objectives are to characterize the human pharmacokinetics of STRO-001 and additional safety, tolerability and efficacy measures.

Our Phase 1 trial of STRO-001 is enrolling adult patients with advanced and/or refractory multiple myeloma and NHL (including DLBCL, mantle cell lymphoma and follicular lymphoma) who are refractory to, or intolerant of, all established therapies known to provide clinical benefit for their condition. Multiple myeloma and NHL patients are being enrolled in two separate dose escalation cohorts, starting initially with an accelerated dose titration design. We estimate that there will be approximately 35 patients in each cohort. Treatment is currently scheduled on day one of a 21-day cycle.

After the recommended Phase 2 dose level is determined, patients could be enrolled in up to four dose expansion cohorts (myeloma, DLBCL, mantle cell lymphoma and follicular lymphoma) if anti-tumor activity is observed during the dose escalation phase. We may enroll up to 40 patients in each of the four dose expansion cohorts.

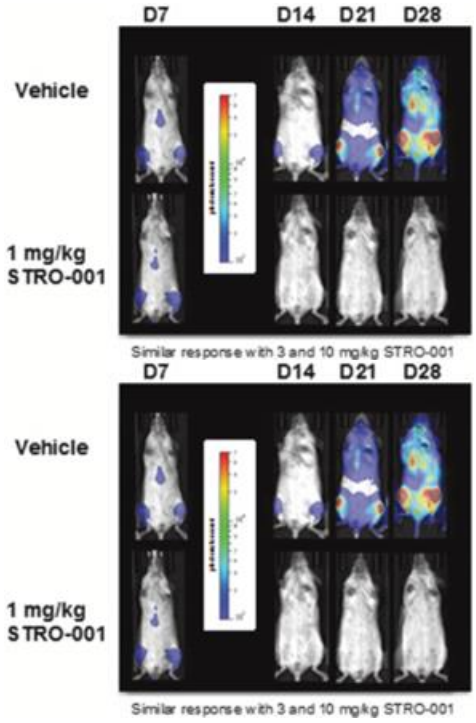
We submitted our IND for STRO-001 in December 2017 and the first patient was dosed in April 2018. In October 2018, we were granted Orphan Drug Designation by the FDA for STRO-001 for the treatment of multiple myeloma. We reported initial safety and efficacy data from our ongoing Phase 1 trial in 2019 and expect additional safety and efficacy data in the second half of 2020. As of July 15, 2019, 25 patients (14 multiple myeloma and 11 NHL), had been treated at seven dose levels reaching as high as 0.91 mg/kg. The patient population was heavily pretreated, with a median number of prior therapies of six. As of July 15, 2019, 21 patients had completed at least one cycle (two doses) of STRO-001 and were evaluable for safety and toxicity for dose escalation recommendation. One multiple myeloma patient progressed after one dose of STRO-001 and was not evaluable for dose limiting toxicities, while two patients were not yet evaluable. Most adverse events were grade 1 or 2 (58%) with the most common grade 1-2 treatment emergent adverse events of fatigue, chills, pyrexia, cough, nausea, headache and infusion reaction occurring in ≥ 20% of patients. Two dose limiting toxicities were observed, one grade 3 and one grade 5 thromboembolic event, which resulted in a protocol amendment requiring screening for thrombosis at baseline. Since implementing this requirement, three out of 10 patients enrolled were found to have preexisting thromboses and were allowed on study with anticoagulation and no additional thromboembolic events have been observed. 19 of 21 (90%) treatment discontinuations have been secondary to disease progression.

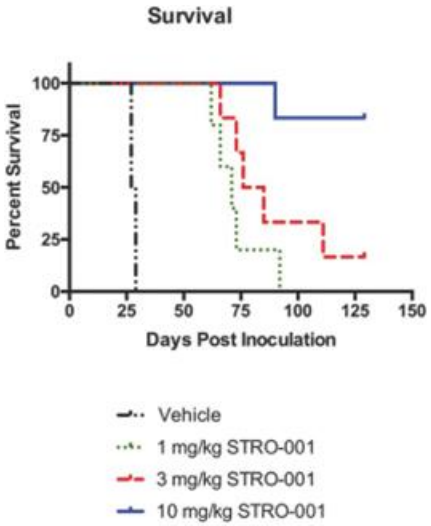
With respect to preliminary signs of efficacy, one patient with DLBCL achieved a complete response after two cycles of treatment with STRO-001 and progressed after 12 doses (six cycles). An additional DLBCL patient achieved a partial response at cycle 3 (six doses). A patient with multiple myeloma had stable disease after six doses (three cycles). Four patients remained on treatment as of July 15, 2019. In addition, pharmacokinetic and anti-drug antibody (ADA) analyses are ongoing.

Based on such reported data, STRO-001 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-001 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. Additional escalation cohorts are planned at 1.27 mg/kg, 1.78 mg/kg, 2.5 mg/kg and 3.5 mg/kg dose levels. We expect to report additional safety and efficacy data for STRO-001 in the second half of 2020 and begin the dose expansion phase in the first half of 2021.

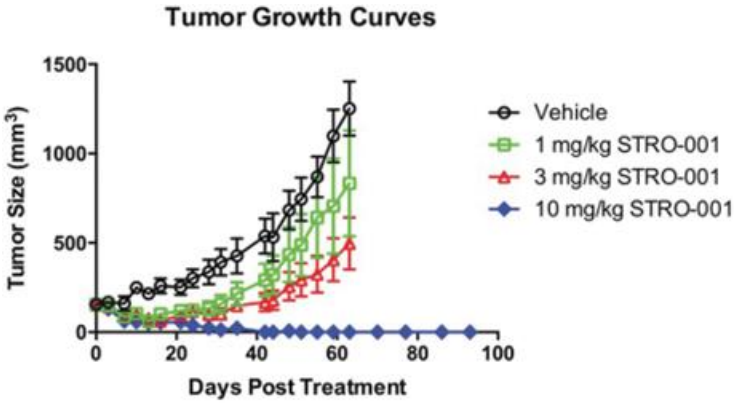
Preclinical Data

While additional clinical testing will be needed to determine the safety and efficacy of STRO-001 and to obtain regulatory approval, if ever achieved, STRO-001 has demonstrated potent *in vitro* cell killing activity across multiple B cell tumor lines. Based on these observations, we have used murine tumor models to determine whether STRO-001 also demonstrates cell killing *in vivo*. In these models, human tumor cell lines are implanted and allowed to grow in mice to subsequently test the activity of anti-cancer agents. Although these murine models do not address safety, they are commonly used to provide experimental proof-of-concept for anti-cancer activity against different tumor types. For example, in tumor bearing mice, single intravenous doses of 1, 3, and 10 mg/kg STRO-001 significantly extended survival in the MM1S-luc bioluminescent disseminated human multiple myeloma xenograft model as shown below on the right. The figure on the left shows bioluminescence imaging of tumor cells during the first month after dosing. This image shows that while the bioluminescent tumor cells disseminated throughout the body in the vehicle treated mice, the tumor cells were cleared from the STRO-001 treated mice. Furthermore, at the high dose, when their bone marrow was assessed at day 129, of the surviving five out of six animals, all appeared to be tumor-free.

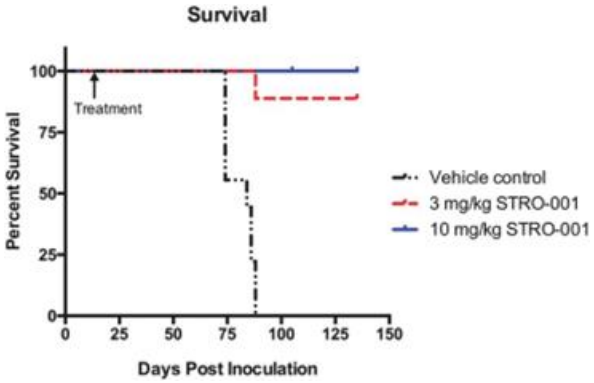




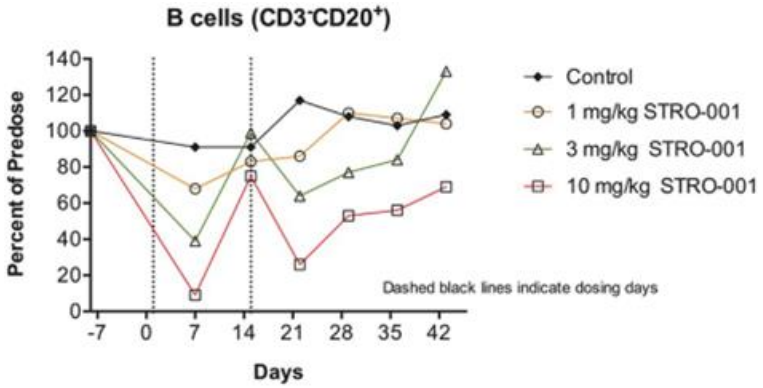
STRO-001 demonstrated similar potent efficacy in a murine xenograft model of human DLBCL, the most common form of NHL. In the study shown below, seven out of seven mice exhibited complete tumor regression with no tumor regrowth 90 days after treatment with a single 10 mg/kg dose of STRO-001. Moderate anti-tumor activity was observed with lower doses of 1 or 3 mg/kg, demonstrating a clear dose-response relationship.



We also examined the potential for STRO-001 to treat human mantle cell lymphoma in a preclinical murine xenograft model. In the study shown below, mice bearing mantle cell tumors had a mean survival of 81 days. In contrast, 90% to 100% of mice treated with a single dose of 3 or 10 mg/kg STRO-001 survived to the end of the study at day 135. Taken together, these studies demonstrate that STRO-001 has potent anti-tumor activity in three different murine models of human B cell malignancy.



We also investigated the safety of STRO-001 in a toxicology study in non-human primates at several dose levels administered on day 1 and day 15. Hematological toxicity was observed consistent with the known effects of the STRO-001 cytotoxic tubulin inhibitor component. No other drug-related toxicities were observed. Importantly, however, we observed clear evidence of STRO-001 pharmacodynamic activity as demonstrated by dose-dependent B cell ablation and recovery as shown below.



STRO-002, an ADC Directed Against the Target Folate Receptor-Alpha (FolRα)

Overview

We are developing STRO-002, an optimally designed ADC directed against the cancer target FolRα, initially targeted for ovarian and endometrial cancers. STRO-002 was designed and optimized for an improved therapeutic index by placing a precise number of linker-warheads at four specific locations within the antibody using our proprietary XpressCF+™ Platform. We began enrolling patients in a STRO-002 Phase 1 trial focused on ovarian and endometrial cancers in March 2019 and presented initial safety and efficacy data in late 2019. Based on such reported data, STRO-002 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-002 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We expect to report additional safety and preliminary efficacy data in the second quarter of 2020 and to begin the dose expansion phase in the second half of 2020.

FolRα Overview

FolRα is a cell-surface glycoprotein, which is believed to be important for supporting DNA synthesis in rapidly dividing cancer cells. FolRα exhibits limited expression and distribution in normal tissues.

High levels of FolRα have been found in multiple cancer types, including epithelial ovarian cancer, endometrial adenocarcinoma, triple negative breast cancer and non-small cell lung cancer. Expression appears to correlate with disease progression in ovarian cancer and continues to be expressed following chemotherapy treatment.

In order to better understand FolRα expression, we tested 187 samples in a tissue microarray from ovarian and endometrial cancer patients. The table below shows that more than 90% of ovarian and endometrial cancer tissue samples express FolRα. Furthermore, medium to high levels of expression were observed for 80% of ovarian cancer samples and 78% of endometrial cancer samples.

	FolRα Expression			
Tumor Type	**Negative**	**Low**	**Medium**	**High**
Ovarian Cancer (90 tissue samples)	10%	10%	16%	64%
Endometrial Cancer (97 tissue samples)	7%	15%	24%	54%

Ovarian Cancer Overview

Ovarian cancer is the most common cause of cancer death from gynecologic tumors in the United States, and the fifth most common cause of cancer death in women. In the United States alone, the American Cancer Society estimates that there will be about 22,000 new cases of ovarian cancer in 2020, and approximately 14,000 women die of this disease. Given that early stages of the disease cause minimal, nonspecific symptoms or is asymptomatic, 60% of patients with ovarian cancer are diagnosed in an advanced stage, for which the prognosis is poor. Standard pre- or post-operative chemotherapy for ovarian cancer is combination therapy with a platinum compound and a taxane, for example, carboplatin and paclitaxel, with or without bevacizumab which achieves a complete response in between 70% to 80% of patients. Increasingly, PARP inhibitors are being used in the maintenance setting. Patients refractory or resistant to platinum-based treatments are then treated with a host of additional palliative chemotherapeutic agents, each showing only marginal benefit. This represents a significant unmet need.

Endometrial Cancer Overview

There is also a significant unmet need in the treatment of recurrent or metastatic endometrial cancer. In the United States alone, the American Cancer Society estimates that there will be about 66,000 new cases of endometrial cancer in 2020, and approximately 12,590 patients will die of this disease. First-line treatment for stage III/IV disease is commonly paclitaxel/carboplatin. Recently, the combination of lenvatinib and pembrolizumab was approved for the treatment of patients with advanced, metastatic endometrial cancer who have disease progression following prior systemic therapy with a platinum doublet. With the lack of available therapies for patients who progress after standard of care therapies, long-term survival prospects are poor and novel treatments offering even a modest improvement in progression-free survival or overall survival may be considered for expedited regulatory approval.

Limitations to Current FolRα-Targeted Therapeutics

There have been a number of folate- or FolRα-targeted therapies in development including naked antibodies, small molecule drug conjugates, ADCs and T cell retargeting molecules. The most clinically active agent targeting FolRα to date has been Immunogen's mirvetuximab soravtansine (IMGN853), an ADC composed of a FolRα-binding antibody linked to the tubulin-disrupting maytansinoid, DM4, via a cleavable linker.

Immunogen's IMGN853 monotherapy showed clinical activity in a Phase 1 trial of patients with platinum-resistant ovarian cancer, providing encouraging clinical validation for FolRα-targeting ADCs in this patient population. In early March 2019, Immunogen announced top-line results from its Phase 3 FORWARD I Study evaluating the safety and efficacy of mirvetuximab soravtansine compared to chemotherapy in patients with FolRα-positive (with medium and high target expression levels), platinum-resistant ovarian cancer. The study did not meet its primary endpoint of progression-free survival, or PFS, in either the entire study population or in the pre-specified subset of patients with high FRα expression. Using a different scoring system, a post-hoc re-analysis of the FRα high expressing population suggested improved outcomes correlated with FRα expression, with the strongest treatment effects for all efficacy endpoints in this population. Immunogen announced in December 2019 that the FDA has provided guidance for potential accelerated approval of mirvetuximab soravtansine, demonstrating that FolRa remains an attractive target.

Our Solution, STRO-002

STRO-002 is directed against the cancer target FolRα, which is highly expressed in multiple cancer types, including ovarian cancer and endometrial cancer. This property, together with the highly restricted expression of FolRα on normal tissues, make FolRα a promising ADC approach.

STRO-002 employs a cleavable linker that releases a cytotoxic drug inside of tumor cells, while being stable and resistant to cleavage in general circulation. The cytotoxic drug used is our proprietary hemiasterlin moiety. From a safety perspective, we designed STRO-002 to have the optimal potency-to-safety ratio. We rationally selected a homogenous ADC with an optimized DAR of four.

Based on preclinical findings, we believe our efficient homogeneous design of STRO-002 could provide anti-tumor activity, stability and safety with the potential to minimize off-target damage and improve clinical impact by reducing dose-limiting toxicities. We believe an improved therapeutic index could differentiate STRO-002 from conventional technology for the treatment of ovarian cancer and endometrial cancer. To test this, we have created a benchmark FolRα-targeting surrogate molecule based on conventional technology that has a heterogeneous ADC, with a similar DAR utilizing a DM4 linker-warhead. We have tested this benchmark molecule against STRO-002 in multiple preclinical models. However, additional preclinical and clinical testing will be needed to determine the safety and efficacy of STRO-002 and to obtain regulatory approval, if ever. STRO-002 may not ultimately provide a greater therapeutic benefit than the current standard of care.

Clinical Development Plan

Our Phase 1 trial for STRO-002 is an open-label study evaluating STRO-002 as a monotherapy for patients with ovarian and endometrial cancers. The trial is being conducted in two-parts, dose escalation and dose expansion. We began enrolling ovarian cancer patients in March 2019, with initial safety and efficacy data reported in late 2019. The primary objectives of the STRO-002 clinical trial are to determine the safety and tolerability profile, to define the recommended Phase 2 dose level and interval and to evaluate preliminary anti-tumor activity. Our secondary objectives are to characterize the human pharmacokinetics and additional safety, tolerability and efficacy measures.

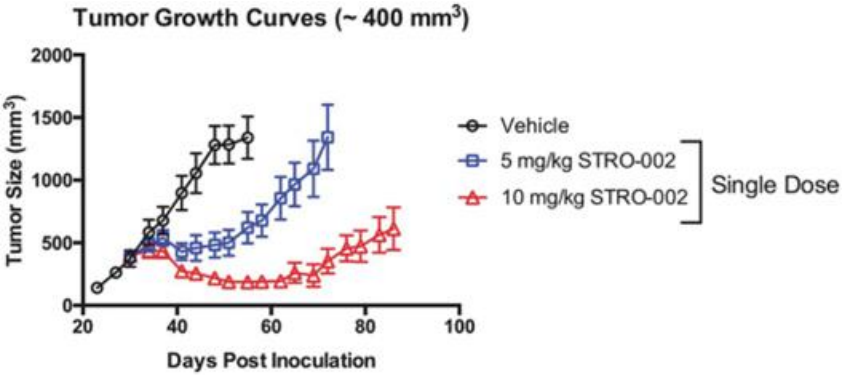
We have initially enrolled adult patients with advanced and/or refractory ovarian cancer, for whom no suitable treatment exists. These patients are considered to have incurable disease and need repeated courses of life-prolonging and palliative treatment. We are currently enrolling ovarian cancer patients regardless of their FolRα expression levels. These ovarian cancer patients have been enrolled in a dose escalation cohort, with STRO-002 administered on day one of a 21-day cycle. If anti-tumor activity is observed during the dose escalation phase, we would then proceed with the enrollment of patients in the dose expansion phase of this clinical study.

As of October 15, 2019, 13 patients had been treated in the Phase I study of STRO-002, with two patients having reached the 6 mg/kg dose level and completed the dose limiting toxicity, or DLT, observation period. There had been no DLTs and no infusion reactions as of October 15, 2019, in these heavily pre-treated patients. Preliminary evidence of anti-tumor activity was observed in a patient who achieved a confirmed partial response by RECIST 1.1 criteria. This patient also achieved and confirmed a response in the ovarian cancer tumor marker, cancer antigen 125 (CA-125) for at least 28 days. Stable disease by RECIST 1.1 had been confirmed in two ongoing patients at cycles 5 and 10 of study treatment. Three ongoing patients at the 4.3 mg/kg dose level had unconfirmed stable disease per RECIST 1.1 criteria at cycle 3 as of October 15, 2019. Ninety-five percent (95%) of adverse events were grade 1 or grade 2. The preliminary pharmacokinetic (PK) profile reveals an estimated half-life for the total antibody of 22-76 hours with increasing exposure in an apparent dose dependent manner. Based on such reported data, STRO-002 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-002 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We expect to report additional safety and efficacy data for STRO-002 in the second quarter of 2020 and to begin the dose expansion phase in the second half of 2020.

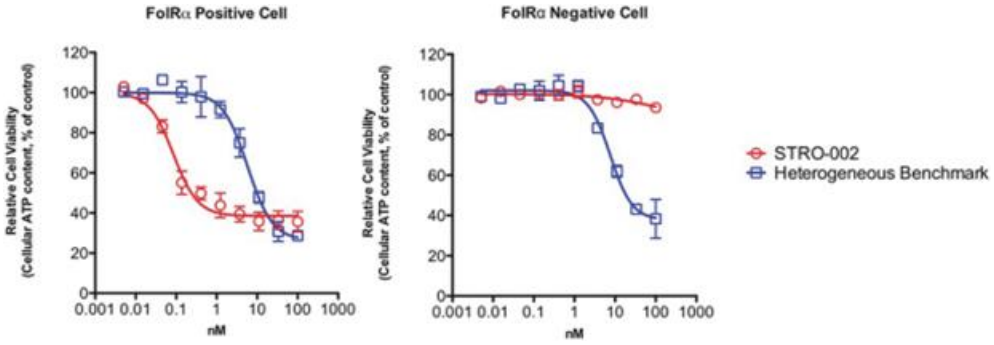
Preclinical Data

STRO-002, in comparison with the benchmark molecule that we created, has demonstrated: enhanced *in vitro* activity on cells expressing FolRα and improved specificity on cells that do not express FolRα; superior inhibition of tumor growth; and greater *in vitro* and *in vivo* linker stability.

STRO-002 has demonstrated potent *in vitro* cell killing activity across multiple ovarian cancer tumor cell lines. Based on these observations, we have used murine tumor models to determine whether STRO-002 also demonstrates cell killing *in vivo*. In these models, human tumor cells are implanted and allowed to grow in mice to subsequently test the activity of anti-cancer agents. Although these murine models do not address safety, they are commonly used to provide experimental proof-of-concept for anti-cancer activity against different tumor types. As shown in the data below, dose-dependent anti-tumor activity was observed in mice implanted with OVCAR3 human ovarian cancer tumor cells. Importantly, this anti-tumor effect was observed in mice bearing large established tumors, with evidence of tumor regression following a single dose of 10 mg/kg STRO-002.

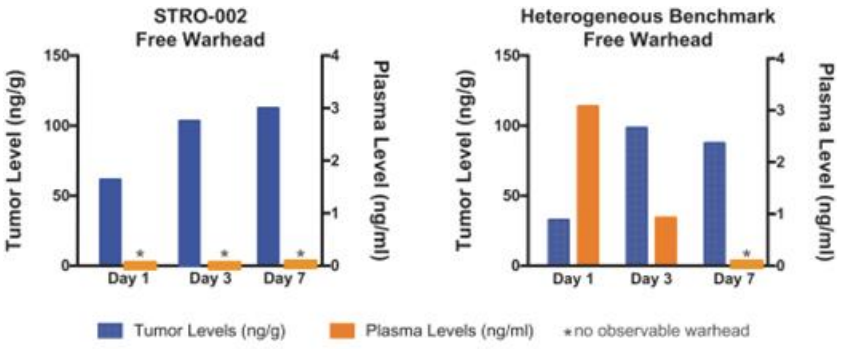


In an effort to better understand the relative activity of our homogeneous STRO-002 molecule, we have performed experiments comparing STRO-002 to a benchmark molecule that we created. STRO-002 and the benchmark molecule have comparable DAR and affinity for FolRα expressing cells; however, the benchmark is made using conventional ADC technology and is therefore a heterogeneous mixture. The data below demonstrates STRO-002 has more potent *in vitro* cell killing activity compared to the benchmark molecule when tested on cells expressing FolRα. In contrast, STRO-002 has minimal if any activity on cells that do not express FolRα, while the benchmark molecule kills cells even in the absence of FolRα. We believe that the data demonstrate that the homogeneous nature of STRO-002 drives more efficient tumor cell killing with better tolerability for normal tissues.



We used a human ovarian cancer xenograft model to understand the *in vivo* stability of STRO-002 compared to our benchmark molecule. In this model we tested for free warhead, released from the ADC, in the blood or tumor tissue one, three or seven days after dosing. The data below on the left show that the released, free warhead from STRO-002 is observed in the tumor starting one day after dosing, without evidence of free warhead circulating in the blood at any time point. In contrast, the data on the right shows that free warhead derived from the benchmark molecule can be observed circulating in the blood one day after dosing, which could contribute to unintended toxicities. In other preclinical studies, the free hemiasterlin warhead is cleared rapidly from the circulation. Taken together, we believe that these data demonstrate the stability of STRO-002 *in vivo*, which we believe will contribute to a superior therapeutic index compared to ADCs made using conventional technology.

Murine Tumor Model – Free Warhead in Tumor vs. Blood After Dosing



We examined the safety of STRO-002 in an exploratory toxicology study in non-human primates. Hematological toxicity was observed consistent with the known effects of the STRO-002 cytotoxic tubulin inhibitor component. No other drug-related toxicities were observed and, importantly, there were no observed ocular effects in the non-human primate study.

Additional Discovery Efforts

Our technology allows us to rapidly incorporate non-natural amino acids in varying numbers and positions, to identify the best cytokine modification for pharmacological activity, pharmacokinetics and safety. Furthermore, our technology enables rapid preclinical development and transition to cGMP manufacturing, ensuring speed to clinic in a promising field. Our drug discovery teams are exploring novel immuno-oncology therapies, including cytokine-based therapies.

We are also actively researching to identify new ADCs to add to our pipeline. We have multiple ADC discovery programs ongoing using our XpressCF+™ Platform. Our protein engineering and chemistry efforts are focused on maximizing therapeutic indices, and our technology allows us to rapidly test our therapeutic hypothesis in significantly more product candidates than conventional protein synthesis allows in order to identify the best molecule to advance to the clinic. We have also expanded our ADC technology platform to include IADCs. Our XpressCF+™ platform has enabled a groundbreaking technology to engineer homogeneous, dually conjugated immunostimulant and cytotoxic warheads on a single ADC molecule. Our novel IADC design is intended to deliver two different drugs directly to the tumor, and not only kill tumor cells but also locally prime an immune response to the patient's particular tumor cells. We believe that our IADC approach creates a new therapeutic opportunity by combining the best features of an ADC with the biology of a personalized vaccine.

Our bispecific antibody drug discovery programs are focused on T cell-engagers. We are using our technology to find the optimum protein structure and T cell-engaging properties to maximize safety and efficacy for this promising class of cancer therapeutics.

Collaboration and License Agreements

Merck Collaboration

In July 2018, we entered into an Exclusive Patent License and Research Collaboration Agreement (the "2018 Merck Agreement") with Merck to jointly develop up to three research programs focusing on cytokine derivatives for cancer and autoimmune disorders.

Upon signing the 2018 Merck Agreement, Merck paid us an upfront payment of $60.0 million for the research and development of two target programs, and Merck purchased $20.0 million of Series E redeemable convertible preferred stock from us. Additionally, Merck purchased from us, concurrently with our initial public offering in a private placement, approximately $10.0 million of shares of our common stock at a price per share equal to the initial public offering price. Under the 2018 Merck Agreement, we are eligible to receive financial support for our research and development efforts based on an agreed-upon level of full-time equivalent personnel effort and

related reimbursement rate and are eligible to receive another payment if a th ird target program is selected. In March 2020, Merck extended the research term of the collaboration's first cytokine-derivative program by one year, which includes a payment to us of $5.0 million. The initial product candidate from this first collaboration program, a promising immune-modulating cytokine derivative, is advancing towards IND-enabling studies.

Under the terms of the 2018 Merck Agreement, we are eligible to receive aggregate milestone payments of up to $1.6 billion, assuming the development and sale of all therapeutic candidates and all possible indications identified under the collaboration. If one or more products from each of the target programs are developed for non-oncology or a single indication, we will be eligible for reduced aggregate milestone payments. In addition, we are eligible to receive tiered royalties ranging from mid-single digit to low teen percentages on the worldwide sales of any commercial products that may result from the collaboration.

The 2018 Merck Agreement expires on a product-by-product and country-by-country basis upon the later of the expiration of the patents covering products licensed under the 2018 Merck Agreement or ten years after the first commercial sale of a product covered by the 2018 Merck Agreement. Upon expiration, Merck will have a fully paid-up, royalty-free, perpetual, and irrevocable non-exclusive license, with the right to grant sublicenses, under certain of our intellectual property rights.

Merck may terminate the 2018 Merck Agreement at any time with 60 days' prior written notice. Either we or Merck has the right to terminate the 2018 Merck Agreement based on the other party's uncured material breach or bankruptcy.

Collaborations with Celgene

In November 2019, BMS acquired Celgene, and Celgene became a wholly owned subsidiary of BMS. In connection with such acquisition, BMS assumed the rights and obligations of the 2014 Celgene Agreement, 2017 Celgene Agreement and 2018 Celgene Master Services Agreement. However, we will continue to refer to our agreements with Celgene throughout this Form 10-K as being with Celgene.

Celgene Collaboration

In September 2014, we entered into a Collaboration and License Agreement with Celgene, or the 2014 Celgene Agreement, to discover and develop bispecific antibodies and ADCs focused primarily on the field of immuno-oncology, using our proprietary integrated cell-free protein synthesis platform, XpressCF®. Under the 2014 Celgene Agreement, we received upfront payments totaling $95.0 million in September 2014, which included an $11.9 million equity investment, and additional payments totaling $60.0 million.

In August 2017, we entered an Amended and Restated Collaboration and License Agreement with Celgene, or the 2017 Celgene Agreement, upon which we received an option fee payment of $12.5 million, to refocus our 2014 Celgene Agreement on four programs, which are:

- *BCMA ADC.* *The most* advanced product candidate under collaboration is a BCMA ADC product candidate, known as CC-99712, which is in clinical development by Celgene for the treatment of multiple myeloma. Celgene submitted an IND for this product candidate in the first half of 2019 and is currently enrolling patients in a Phase 1 clinical trial. Celgene owns worldwide development and commercialization rights to this product. We will continue to be responsible for clinical supply manufacturing and certain development services for the BCMA ADC and are eligible to receive from Celgene aggregate development and regulatory milestone payments of up to $275.0 million, if approved in multiple indications, and tiered royalties ranging from mid to high single digit percentages on worldwide sales of any resulting commercial products.
- *Bispecific Antibodies*. The other three product candidates subject to our Celgene collaboration are bispecific antibodies, all of which have been designated as development candidates by Celgene. With respect to the remaining three collaboration programs (BCMA-CD3, PD1-LAG3 and PD1-TIM3), during the second quarter of 2019 Celgene notified the Company that it decided not to exercise the option to acquire U.S. clinical development and commercialization rights to a second collaboration program. Therefore, Celgene was not required to pay us the $12.5 million option maintenance fee that would have been due upon IND clearance for the first collaboration program. Consequently, the U.S. clinical development and commercialization rights to the other three collaboration programs remain owned by us, without any further option to Celgene. For any products resulting from these three collaboration programs, Celgene will own ex-U.S. development and commercialization rights and will

be obligated to pay us development and regulatory milestone payments and tiered royalties ranging from mid to high single digit percentages. In the event that certain milestones are not achieved in these programs by September 26, 2020, these ex-U.S. rights will revert to us without any cost to us and Celgene's obligations for milestones and royalties on these three programs will terminate.

Also, we received a $10.0 million payment in December 2018 for certain manufacturing activities under the 2017 Celgene Agreement. Additionally, we have received and will be eligible to receive financial support for research and development services assigned to us by Celgene, based on an agreed-upon level of full-time equivalent personnel effort and related reimbursement rate.

Celgene may terminate the 2017 Celgene Agreement at any time with 120 days' prior written notice. Either we or Celgene has the right to terminate the 2017 Celgene Agreement based on the other party's uncured material breach, challenge of the validity and enforceability of intellectual property, or bankruptcy.

In March 2018, we entered into a Master Development and Clinical Manufacturing Services Agreement, or the 2018 Celgene Master Services Agreement, with Celgene, wherein Celgene requested us to provide development, manufacturing and supply chain management services, including clinical product supply. The consideration for the services is based on an agreed-upon level of FTE personnel effort and related reimbursement rate in addition to agreed-upon pricing for clinical product supply for use in Phase 1 clinical trials.

EMD Serono Collaboration

In September 2014, we entered into a License Agreement with EMD Serono, or the MDA Agreement, to develop ADCs for multiple cancer targets, which replaced the Collaboration Agreement we had entered into with EMD Serono in May 2014, or the Collaboration Agreement. The most advanced program in the collaboration is a bispecific ADC drug candidate currently in preclinical development. EMD Serono nominated this molecule as a development candidate in 2019 and we are in the process of manufacturing clinical trial materials.

Upon signing the Collaboration Agreement, we received $10.0 million in an upfront payment. In addition, upon signing the MDA Agreement, we received an additional $10.0 million in an upfront payment and receive financial support for our research and development services based on an agreed-upon level of full-time equivalent personnel effort and related reimbursement rate. In April 2019, we entered into a manufacturing supply agreement with EMD Serono to provide them with product candidate materials for IND-enabling and Phase 1 clinical studies. The consideration for any related services is based on an agreed-upon level of FTE personnel effort and related reimbursement rate in addition to agreed-upon pricing for providing the product materials.

We are eligible to receive up to $52.5 million for each product developed under the MDA Agreement, primarily from pre-commercial contingent payments. Relatedly, in September 2019, the Company earned a $1.5 million payment under the MDA Agreement upon designation by EMD Serono of a specific bispecific antibody drug conjugate as a clinical development candidate with their approval to advance it to IND-enabling studies. In addition, we are eligible to receive tiered royalties ranging from low to mid single digit percentages, along with certain additional one-time royalties, on worldwide sales of any commercial products that may result from the MDA Agreement. The MDA Agreement term expires on a product-by-product and country-by-country basis upon the later of the expiration of the patents covering products licensed under the MDA Agreement or ten years after the first commercial sale of a product covered under the MDA Agreement. Upon expiration, EMD Serono will have a fully paid-up, royalty-free, perpetual, and irrevocable non-exclusive license, with the right to grant sublicenses, under certain of our intellectual property rights.

EMD Serono may terminate the MDA Agreement at any time with 90 days' prior written notice or upon our inability to provide EMD Serono access to a specified number of cancer drug targets. Either we or EMD Serono has the right to terminate the MDA Agreement based on the other party's uncured material breach or bankruptcy.

Stanford License

In October 2007, we entered into an Amended and Restated Exclusive Agreement, or the Stanford License, with the Board of Trustees of the Leland Stanford Junior University, or Stanford, that grants us an exclusive license, with the right to sublicense, under the patent rights owned by Stanford covering certain technology rights related to our XpressCF™ expression system.

We are required to make milestone payments to Stanford of up to approximately $930,000 on the accomplishment of certain development and regulatory milestones, of which $180,000 has been paid through December 31, 2019 with a $750,000 payment due upon first commercial sale of the first licensed product consisting of a molecule or compound covered by the licensed patent rights, or the 14th anniversary of the Stanford License in October 2021. Additionally, we owe Stanford annual license maintenance fees of $75,000, which may be creditable against earned royalties in such year, and are required to reimburse Stanford for ongoing patent-related costs. We are also required to pay to Stanford low single digit royalties on net sales and to share any sublicensing income received related to the licensed technology. We may terminate the agreement at any time upon 30 days' written notice.

SutroVax Collaboration

In 2013, we and Johnson & Johnson Innovation, through the Johnson & Johnson Development Corporation, provided initial co-funding for SutroVax, Inc., or SutroVax, with which we have a license agreement and a supply agreement. Under the license agreement, SutroVax has the right to use the XpressCF® and XpressCF+™ Platforms to discover and develop vaccine candidates for the treatment or prophylaxis of infectious diseases. The lead program for SutroVax is a broad-spectrum pneumococcal conjugate vaccine. SutroVax is responsible for performing all research and development activities, and we provide technical support and supply XtractCF™ and other materials to SutroVax. SutroVax is progressing their broader spectrum pneumococcal conjugate vaccine through the late stages of preclinical development and is targeting an IND filing for 2021.

We retain a less than 10% ownership interest in SutroVax and are eligible for four percent (4%) royalties on worldwide net sales of any vaccine candidates for human health use under the license agreement. Also, we retain the right to discover and develop vaccines for the treatment or prophylaxis of any disease that is not caused by an infectious pathogen, including cancer.

Manufacturing

We have significant expertise in the production of therapeutic biologics. Our proprietary XpressCF ® Platform is a cell-free protein synthesis technology that enables rapid and systematic process development, streamlined scale-up and cGMP manufacturing.

Extract and Reagents

We manufacture our cell-free extract and related reagents in our cGMP manufacturing facility in San Carlos, California for our clinical trials and supply commitments. If we are successful in developing an effective strategic relationship with a contract manufacturing organization, or CMO, we would consider supplementing our manufacturing capacity by outsourcing the production of cell-free extract and related reagents to such CMO to cover our needs during product launch and for long-term commercial supply.

Drug Substance and Drug Product

Our process development and manufacturing strategies are tailored to rapidly advance our product candidates, including the use of a supply chain of established CMOs to ensure successful execution. The production of antibodies will be done by either us or CMOs, depending on our internal cGMP production capacity. The production of all other necessary elements for the manufacture of our ADC product candidates, and the final manufacture of the ADC drug product, will be handled entirely by CMOs. Our XpressCF+™ Platform has been successfully used for manufacturing several antibodies containing non-natural amino acids and requires minimal process optimization to support early clinical phase manufacturing. We utilize industry established production steps for the purification of our antibodies. The CMOs we have selected have strong track records in cGMP manufacturing with expertise in clinical or commercial drug manufacturing for the cytotoxic agent, conjugation and fill-finish of therapeutic biologics. All activities from cell-free extract production to formulated drug product are performed to maintain aggressive timelines and minimize delays.

Competition

The biotechnology and biopharmaceutical industries, and the immuno-oncology subsector, are characterized by rapid evolution of technologies, fierce competition and strong defense of intellectual property. Any product candidates that we successfully develop and commercialize will have to compete with existing therapies and new therapies that may become available in the future. While we believe that our proprietary XpressCF® Platform and scientific expertise in the field of biologics and immuno-oncology provide us with competitive advantages, a wide

variety of institutions, including large biopharmaceutical companies, specialty biotechnology companies, academic research departments and public and private research institutions, are actively developing potentially competitive products and technologies. We face substantial competition from biotechnology and biopharmaceutical companies developing products in immuno-oncology. Our competitors include larger and better funded biopharmaceutical, biotechnological and therapeutics companies, including companies focused on cancer immunotherapies, such as AstraZeneca PLC, BMS, GlaxoSmithKline PLC, Merck, Novartis AG, Pfizer Inc., or Pfizer, Roche Holding Ltd, Sanofi S.A and companies focused on ADCs, such as Pfizer, GlaxoSmithKline PLC, Daiichi Sankyo Company, Limited, ImmunoGen, Inc., Seattle Genetics, Inc., Genentech, Inc., , or Genentech, Immunomedics, Inc., and ADC Therapeutics SA, as well as numerous small companies. Moreover, we also compete with current and future therapeutics developed at universities and other research institutions.

If our most advanced product candidates are approved, they will compete with a range of therapeutic treatments that are either in development or currently marketed. Currently marketed oncology drugs and therapeutics range from ADCs, such as Genentech's Kadcyla, to immune checkpoint inhibitors, such as BMS's Opdivo, to T cell-engager immunotherapies, such as Amgen, Inc.'s Blincyto, and CAR-T cell therapies such as Gilead's Yescarta. In addition, numerous compounds are in clinical development for cancer treatment. With respect to B cell based malignancies, such as multiple myeloma, the most common treatments are chemotherapeutic compounds, radiation therapy, stem cell transplantation and immunomodulating agents. The clinical development pipeline for cancer includes small molecules, antibodies, vaccines, cell therapies and immunotherapies from a variety of companies and institutions.

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

Reimbursement

The regulations that govern pricing and reimbursement for new drugs and therapeutic biologics vary widely from country to country. Some countries require approval of the sale price of a drug or therapeutic biologic before it can be marketed. In many countries, the pricing review period begins after marketing approval is granted. In some foreign markets, prescription biopharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, a drug company can obtain regulatory approval for a product in a particular country, but then be subject to price regulations that delay commercial launch of that product.

A drug company's ability to commercialize any products successfully will also depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government authorities, private health insurers and other organizations. Even if one or more products are successfully brought to the market, these products may not be considered cost-effective, and the amount reimbursed for such products may be insufficient to allow them to be sold on a competitive basis. Increasingly, third-party payors who reimburse patients or healthcare providers, such as government and private insurance plans, are requiring that drug companies provide them with predetermined discounts from list prices, and are seeking to reduce the prices charged or the amounts reimbursed for biopharmaceutical products.

Significant delays can occur in obtaining reimbursement for newly-approved drugs or therapeutic biologics, and coverage may be more limited than the purposes for which the drug or therapeutic biologic is approved by the FDA or similar foreign regulatory authorities. Moreover, eligibility for reimbursement does not imply that any drug or therapeutic biologic will be reimbursed in all cases or at a rate that covers a drug company's costs, including research, development, manufacture, sale and distribution.

Interim reimbursement levels for new drugs or therapeutic biologics, if applicable, may also be insufficient to cover a drug company's costs and may not be made permanent. Reimbursement rates may be based on payments allowed for lower cost drugs or therapeutic biologics that are already reimbursed, may be incorporated into existing payments for other services and may reflect budgetary constraints or imperfections in Medicare data. Net prices for drugs or therapeutic biologics 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 or therapeutic biologics from countries where they may be sold at lower prices than in the United States. Further, no uniform policy for coverage and reimbursement exists in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. Therefore, coverage and reimbursement can differ significantly from payor to payor.

Intellectual Property

We strive to protect and enhance the proprietary technology, inventions, and improvements that are commercially important to our business, including seeking, maintaining, and defending patent rights, whether developed internally or licensed from third parties. Our policy is to seek to protect our proprietary position by, among other methods, pursuing and obtaining patent protection in the United States and in jurisdictions outside of the United States related to our proprietary technology, inventions, improvements, platforms and product candidates that are important to the development and implementation of our business. Our patent portfolio is intended to cover, but is not limited to, our technology platforms, our product candidates and components thereof, their methods of use and processes for their manufacture, our proprietary reagents and assays, and any other inventions that are commercially important to our business. We also rely on trade secret protection of our confidential information and know-how relating to our proprietary technology, platforms and product candidates, continuing innovation, and in-licensing opportunities to develop, strengthen, and maintain our proprietary position in our XpressCF® Platform and product candidates. We expect to rely on data exclusivity, market exclusivity, patent term adjustment and patent term extensions when available. Our commercial success may depend in part on our ability to obtain and maintain patent and other proprietary protection for our technology, inventions, and improvements; to preserve the confidentiality of our trade secrets; to maintain our licenses to use intellectual property owned or controlled by third parties; to defend and enforce our proprietary rights, including our patents; to defend against and challenge the assertion by third parties of their purported intellectual property rights; and to operate without the unauthorized infringement on the valid and enforceable patents and other proprietary rights of third parties.

We believe that we have a strong global intellectual property position and substantial know-how and trade secrets relating to our XpressCF ® platform technology, platform and product candidates. Our patent portfolio as of December 31, 2019 contained 19 U.S. issued patents and 150 patents issued in ex-U.S. jurisdictions including Europe, China, Japan, Australia and Singapore and 32 U.S. pending applications as well as 73 patent applications pending in ex-U.S. jurisdictions including Europe, China, Japan, Australia and Singapore owned solely by us. These patents and patent applications include claims relating to:

- bacterial strains, and extracts prepared therefrom, comprising an engineered Release Factor 1 protein, which facilitates incorporation of non-natural amino acids into proteins;
- bacterial strains, and extracts prepared therefrom, comprising combinations of chaperone proteins, which facilitate expression of complex eukaryotic proteins in bacterial extracts;
- antibodies targeting receptors of interest, including CD74, FolRα and BCMA;
- ADCs targeting receptors of interest, including CD74 FolRα and BCMA;
- hemiasterlin, both as a cytotoxin and as a linker-warhead, which is used in our STRO-002 product candidate; and
- para-azidomethylphenylalanine, or pAMF, and proteins comprising pAMF, our workhorse non-natural amino acid which is primarily used when we conjugate molecules to proteins produced with our XpressCF+™ Platform.

Our issued patents, and any patents that may issue from our pending patent applications, in our solely owned patent portfolio are expected to expire between January 2030 and October 2040, absent any patent term adjustments or extensions.

In addition, we have exclusively licensed the following patent portfolio from Stanford: 14 U.S. issued patents and 44 patents issued in ex-U.S. jurisdictions including Europe, China, Canada, India, Australia, South Korea,

Eurasia and Singapore. This patent portfolio includes claims relating to methods related to *in vitro* protein synthesis that we use in our XpressCF® Platform when discovering, developing and manufacturing our product candidates.

Patents in our patent portfolio licensed from Stanford are expected to expire between March 2020 and January 2028, absent any patent term adjustments or extensions.

As for the XpressCF® Platform, product candidates and processes we develop and commercialize, in the normal course of business, we intend to pursue, where appropriate, patent protection or trade secret protection relating to compositions, methods of manufacture, assay methods, methods of use, treatment of indications, dosing and formulations. We may also pursue patent protection with respect to product development processes and technology.

The following table describes the material patents and patent applications owned or licensed by us.

Patent Relevance	Ownership	Type of Patent Protection	Expiration or Anticipated Expiration (absent patent term extension or adjustment)	Pending Jurisdictions	Issued Jurisdictions
XpressCF® Platform	In licensed from Stanford	Utility	2023	None	US, AU, CA, EP, JP
XpressCF® Platform	Owned by Sutro	Utility	2033	US, CA, IL, IN	US, AU, CN, EP, JP, KR, SG
XpressCF® Platform	Owned by Sutro	Utility	2034	US, CA, CN, EP, HK, IN, KR, SG	US, AU, IL, JP
XpressCF® Platform	Owned by Sutro	Utility	2034	None	EP
XpressCF® Platform	Owned by Sutro	Utility	2035	None	US, EP
STRO-001 and STRO-002	Owned by Sutro	Utility	2033	US, BR, CA, EP, IN, HK, KR	US, AU, CN, EP, JP, SG
STRO-001 and STRO-002	Owned by Sutro	Utility	2033	US, BR, CA, EP, HK, IN, JP, KR	US, AU, EP, CN, IL, SG
STRO-001	Owned by Sutro	Utility	2035	US, EP	EP
STRO-001	Owned by Sutro	Utility	2037	US, EP, HK	None
STRO-001	Owned by Sutro	Utility	2037	AU, BR, CA, CN, IL, JP, KR, MX, NZ, RU, SG, ZA	None
STRO-001	Owned by Sutro	Utility	2038	US, EP	None
STRO-002	Owned by Sutro	Utility	2037	US, EP	None
STRO-002	Owned by Sutro	Provisional	2038	US, PCT	None
STRO-002	Owned by Sutro	Utility	2036	US, AU, BR, CA, CN, EP, IL, IN, JP, KR, SG	None

We continually assess and refine our intellectual property strategy as we develop new platform technologies and product candidates. To that end, we are prepared to file additional patent applications if our intellectual property strategy requires such filings, or where we seek to adapt to competition or seize business opportunities. Further, we are prepared to file patent applications, as we consider appropriate under the circumstances, relating to the new technologies that we develop. In addition to filing and prosecuting patent applications in the United States, we often file counterpart patent applications in the European Union and in additional countries where we believe such foreign filing is likely to be beneficial, including but not limited to any or all of Australia, Brazil, Canada, China, Hong Kong, India, Israel, Japan, Mexico, New Zealand, Singapore and South Korea.

The term of individual patents depends upon the laws of the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the earliest date of filing of a non-provisional patent application. However, the term of United States patents may be extended for delays incurred due to compliance with the FDA requirements or by delays encountered during prosecution that are caused by the United States Patent and Trademark Office, or the USPTO. For example, the Hatch-Waxman Act permits a patent term extension for FDA-approved drugs of up to five years beyond the expiration of the patent. The length of the patent term extension is related to the length of time the drug is under regulatory review. Patent extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, and only one patent applicable to an approved drug may be extended. Similar provisions are available in Europe and other jurisdictions to extend the term of a patent that covers an approved drug. In the future, if and when our biopharmaceutical product candidates receive FDA approval, we expect to apply for patent term extensions on patents covering those product candidates. We intend to seek patent term extensions to any of our issued patents in any jurisdiction where these are available; however there is no guarantee that the applicable authorities, including the USPTO and FDA, will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions. Our currently issued patents will likely expire on dates ranging from 2030 to 2035, unless we receive patent term extension or patent term adjustment, or both. If patents are issued on our pending patent applications, the resulting patents are projected to expire on dates ranging from 2033 to 2040, unless we receive patent term extension or patent term adjustment, or both. However, the actual protection afforded by a patent varies on a product-by-product basis, from country-to-country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. No consistent policy regarding the scope of claims allowable in patents in the field of immunotherapy has emerged in the United States. The patent situation outside of the United States is even more uncertain. Changes in the patent laws and rules, either by legislation, judicial decisions, or regulatory interpretation in the United States and other countries may diminish our ability to protect our inventions and enforce our intellectual property rights, and more generally could affect the value of our intellectual property. In particular, our ability to stop third parties from making, using, selling, offering to sell, or importing any of our patented inventions, either directly or indirectly, will depend in part on our success in obtaining, defending, and enforcing patent claims that cover our technology, inventions, and improvements. With respect to both licensed and company-owned intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our platforms and product candidates and the methods used to manufacture those platforms and product candidates. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our platform's product candidates. However, the area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties, and third parties may have blocking patents that could be used to prevent us from commercializing our patented XpressCF® technology, platforms and product candidates and practicing our proprietary technology. Our issued patents and those that may issue in the future may be challenged, invalidated, or circumvented, which could limit our ability to stop competitors from marketing related platforms or product candidates or limit the length of the term of patent protection that we may have for our XpressCF® technology, platforms and product candidates. In addition, the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies. For these reasons, we may have competition for our XpressCF® technology, platforms and product candidates. Moreover, because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any particular product candidate can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of the patent. For this and

more comprehensive risks related to our proprietary technology, inventions, improvements, platforms and product candidates, please see the section entitled "Risk Factors—Risks Related to Intellectual Property."

We intend to file applications for trademark registrations in connection with our product candidates in various jurisdictions, including the United States. We have filed for trademark protection of the Sutro Biopharma mark, the XpressCF® mark and the XpressCF+™ mark with the USPTO. XpressCF ® refers to our cell-free protein synthesis technology as a whole, and XpressCF+™ refers specifically to cell-free protein synthesis incorporating one or more non-natural amino acids. The Sutro Biopharma mark was registered by the USPTO in 2014 and the XpressCF® mark was registered by the USPTO in 2017.

We also rely on trade secret protection for our confidential and proprietary information. Although we take steps to protect our confidential and proprietary information as 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. It is our policy to require our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed or made known to the individual during the course of the individual's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and which are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In many cases our confidentiality and other agreements with consultants, outside scientific collaborators, sponsored researchers and other advisors require them to assign or grant us licenses to inventions they invent as a result of the work or services they render under such agreements or grant us an option to negotiate a license to use such inventions.

We also seek to preserve the integrity and confidentiality of our proprietary technology and processes by maintaining physical security of our premises and physical and electronic security of our information technology systems. Although 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. To the extent that our employees, contractors, consultants, collaborators, and advisors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Government Regulation

Government authorities in the United States, at the federal, state and local level, and in other countries and jurisdictions extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of pharmaceutical products. The processes for obtaining regulatory approvals in the United States and in foreign countries and jurisdictions, along with subsequent compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

FDA Approval Process

In the United States, pharmaceutical products are subject to extensive regulation by the FDA. The Federal Food, Drug, and Cosmetic Act, or the FDC Act, and other federal and state statutes and regulations, govern, among other things, the research, development, testing, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling, and import and export of pharmaceutical products. Biological products used for the prevention, treatment, or cure of a disease or condition of a human being are subject to regulation under the FDC Act, except the section of the FDC Act which governs the approval of new drug applications, or NDAs. Biological products are approved for marketing under provisions of the Public Health Service Act, or PHS Act, via a Biologics License Application, or BLA. However, the application process and requirements for approval of BLAs are very similar to those for NDAs, and biologics are associated with similar approval risks and costs as drugs. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions, such as clinical hold, FDA refusal to approve pending BLAs, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties, and criminal prosecution.

Biological product development for a new product or certain changes to an approved product in the United States typically involves preclinical laboratory and animal tests, the submission to the FDA of an investigational new drug application, or IND, which must become effective before clinical testing may commence, and adequate and well-controlled clinical trials to establish the safety and effectiveness of the biologic for each indication for which FDA approval is sought. Satisfaction of FDA pre-market approval requirements typically takes many years and the actual time required may vary substantially based upon the type, complexity, and novelty of the product or disease.

Preclinical tests include laboratory evaluation of product chemistry, formulation, and toxicity, as well as animal trials to assess the characteristics and potential safety and efficacy of the product. The conduct of the preclinical tests must comply with federal regulations and requirements, including good laboratory practices. The results of preclinical testing are submitted to the FDA as part of an IND along with other information, including information about product chemistry, manufacturing and controls, and a proposed clinical trial protocol. Long-term preclinical tests, such as animal tests of reproductive toxicity and carcinogenicity, may continue after the IND is submitted. A 30-day waiting period after the submission of each IND is required prior to the commencement of clinical testing in humans. If the FDA has neither commented on nor questioned the IND within this 30-day period, the clinical trial proposed in the IND may begin. Clinical trials involve the administration of the investigational biologic to healthy volunteers or patients under the supervision of a qualified investigator. Clinical trials must be conducted: (i) in compliance with federal regulations; (ii) in compliance with good clinical practice, or GCP, an international standard meant to protect the rights and health of patients and to define the roles of clinical trial sponsors, administrators, and monitors; as well as (iii) under protocols detailing the objectives of the trial, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. Each protocol involving testing on U.S. patients and subsequent protocol amendments must be submitted to the FDA as part of the IND.

The FDA may order the temporary, or permanent, discontinuation of a clinical trial at any time, or impose other sanctions, if it believes that the clinical trial either is not being conducted in accordance with FDA requirements or presents an unacceptable risk to the clinical trial patients. The trial protocol and informed consent information for patients in clinical trials must also be submitted to an institutional review board, or IRB, for approval. An IRB may also require the clinical trial at the site to be halted, either temporarily or permanently, for failure to comply with the IRB's requirements, or may impose other conditions.

Clinical trials to support BLAs for marketing approval are typically conducted in three sequential phases, but the phases may overlap. In Phase 1, the initial introduction of the biologic into healthy human subjects or patients, the product is tested to assess metabolism, pharmacokinetics, pharmacological actions, side effects associated with increasing doses, and, if possible, early evidence on effectiveness. In oncology clinical trials, efficacy endpoints are also often explored in Phase 1. Phase 2 usually involves trials in a limited patient population to determine the effectiveness of the drug or biologic for a particular indication, dosage tolerance, and optimum dosage, and to identify common adverse effects and safety risks. If a compound demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2 evaluations, Phase 3 trials are undertaken to obtain the additional information about clinical efficacy and safety in a larger number of patients, typically at geographically dispersed clinical trial sites, to permit the FDA to evaluate the overall benefit-risk relationship of the drug or biologic and to provide adequate information for the labeling of the product. In some instances, trial phases may be truncated or combined into one or more combined-phase or adaptive design trials. In most cases, the FDA requires two adequate and well-controlled Phase 3 clinical trials to demonstrate the efficacy of the biologic. A single Phase 3 trial with other confirmatory evidence may be sufficient in certain oncological conditions where the trial 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.

The manufacturer of an investigational drug in a Phase 2 or 3 clinical trial 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.

After completion of the required clinical testing, a BLA is prepared and submitted to the FDA. FDA approval of the BLA is required before marketing of the product may begin in the United States. The BLA must include the results of all preclinical, clinical, and other testing and a compilation of data relating to the product's pharmacology, chemistry, manufacture, and controls. The cost of preparing and submitting a BLA is substantial. The submission of most BLAs is additionally subject to a substantial application user fee, currently exceeding $2,942,000 for Fiscal Year 2020. The applicant under an approved BLA is also subject to an annual program fee, currently exceeding $325,000 per prescription drug product for Fiscal Year 2020. These fees are typically increased annually. The FDA has 60 days from its receipt of a BLA to determine whether the application will be accepted for filing based on the agency's threshold determination that it is sufficiently complete to permit substantive review. Once the submission

is accepted for filing, the FDA begins an in-depth review. The FDA has agreed to certain performance goals in the review of BLAs. Most such applications for standard review biologic products are reviewed within 10 months of the date the FDA files the BLA; most applications for priority review biologics are reviewed within six months of the date the FDA files the BLA. Priority review can be applied to a biologic that the FDA determines has the potential to treat a serious or life-threatening condition and, if approved, would be a significant improvement in safety or effectiveness compared to available therapies. The review process for both standard and priority review may be extended by the FDA for three additional months to consider certain late-submitted information, or information intended to clarify information already provided in the submission.

The FDA may also refer applications for novel biologic products, or biologic 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. The FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations. Before approving a BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP. Additionally, the FDA will inspect the facility or the facilities at which the biologic product is manufactured. The FDA will not approve the product unless compliance with current Good Manufacturing Practices, or cGMPs, is satisfactory and the BLA contains data that provide substantial evidence that the biologic is safe, pure, potent and effective in the indication studied.

After the FDA evaluates the BLA and the manufacturing facilities, it issues either an approval letter or a complete response letter. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing, or information, in order for the FDA to reconsider the application. If, or when, those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the BLA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. An approval letter authorizes commercial marketing of the biologic with specific prescribing information for specific indications. As a condition of BLA approval, the FDA may require a risk evaluation and mitigation strategy, or REMS, to help ensure that the benefits of the biologic outweigh the potential risks. REMS can include medication guides, communication plans for healthcare professionals, and elements to assure safe use, or ETASU. ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring, and the use of patient registries. The requirement for a REMS can materially affect the potential market and profitability of the product. Moreover, product approval may require substantial post-approval testing and surveillance to monitor the product's safety or efficacy.

Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems are identified following initial marketing. Changes to some of the conditions established in an approved application, including changes in indications, labeling, or manufacturing processes or facilities, require submission and FDA approval of a new BLA or BLA supplement before the change can be implemented. A BLA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing BLA supplements as it does in reviewing BLAs.

Fast Track Designation and Accelerated Approval

The FDA is required to facilitate the development, and expedite the review, of biologics that are intended for the treatment of a serious or life-threatening disease or condition for which there is no effective treatment and which demonstrate the potential to address unmet medical needs for the condition. Under the fast track program, the sponsor of a new biologic candidate may request that the FDA designate the candidate for a specific indication as a fast track biologic concurrent with, or after, the filing of the IND for the candidate. The FDA must determine if the biologic candidate qualifies for fast track designation within 60 days of receipt of the sponsor's request. Under the fast track program and FDA's accelerated approval regulations, the FDA may approve a biologic for a serious or life-threatening illness that provides meaningful therapeutic benefit to patients over existing treatments based upon a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments.

In clinical trials, a surrogate endpoint is a measurement of laboratory or clinical signs of a disease or condition that substitutes for a direct measurement of how a patient feels, functions, or survives. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. A biologic candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval trials, or confirm a clinical benefit during post-marketing trials, will allow the FDA to withdraw the biologic from the

market on an expedited basis. All promotional materials for biologic candidates approved under accelerated regulations are subject to prior review by the FDA.

In addition to other benefits such as the ability to use surrogate endpoints and engage in more frequent interactions with the FDA, the FDA may initiate review of sections of a fast track product's BLA before the application is complete. This rolling review is available if the applicant provides, and the FDA approves, a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, the FDA's time period goal for reviewing an application does not begin until the last section of the BLA is submitted. Additionally, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan drug designation to biological products intended to treat a rare disease or condition—generally a disease or condition that affects fewer than 200,000 individuals in the United States, or if it affects more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and making a product available in the United States for such disease or condition will be recovered from sales of the product. In October 2018, we were granted Orphan Drug Designation by the FDA, for STRO-001 for the treatment of multiple myeloma.

Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the biological product 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. The first BLA applicant to receive FDA approval for a product with particular principal molecular structural features to treat a particular disease with FDA orphan drug designation is entitled to a seven-year exclusive marketing period in the United States for that product for that indication. During the seven-year exclusivity period, the FDA may not approve any other applications to market a biological product containing the same active moiety for the same disease, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. A product is clinically superior if it is safer, more effective or makes a major contribution to patient care. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biological product for the same disease or condition, or the same biological product for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA user fee.

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 are 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.

Pediatric Information

Under the Pediatric Research Equity Act, or PREA, BLAs or supplements to BLAs must contain data to assess the safety and effectiveness of the biological product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the biological product is safe and effective. The FDA may grant full or partial waivers, or deferrals, for submission of data. Unless otherwise required by regulation, PREA does not apply to any biological product for an indication for which orphan designation has been granted, except a product with a new active ingredient that is molecularly targeted cancer product intended for the treatment of an adult cancer and directed at a molecular target determined by FDA to be substantially relevant to the growth or progression of a pediatric cancer that is subject to an NDA or BLA submitted on or after August 18, 2020.

Additional Controls for Biologics

To help reduce the increased risk of the introduction of adventitious agents, the PHS Act emphasizes the importance of manufacturing controls for products whose attributes cannot be precisely defined. The PHS Act also provides authority to the FDA to immediately suspend licenses in situations where there exists a danger to public

health, to prepare or procure products in the event of shortages and critical public health needs, and to authorize the creation and enforcement of regulations to prevent the introduction or spread of communicable diseases in the United States and between states.

After a BLA is approved, the product may also be subject to official lot release as a condition of approval. 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 of the manufacturer's tests performed on the lot. The FDA may also perform certain confirmatory tests on lots of some products, such as viral vaccines, before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency, and effectiveness of biological products. As with drugs, after approval of biologics, manufacturers must address any safety issues that arise, are subject to recalls or a halt in manufacturing, and are subject to periodic inspection after approval.

Post-Approval Requirements

Once a BLA is approved, a product will be subject to certain post-approval requirements. For instance, the FDA closely regulates the post-approval marketing and promotion of biologics, including standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the internet. Biologics may be marketed only for the approved indications and in accordance with the provisions of the approved labeling.

Adverse event reporting and submission of periodic reports is required following FDA approval of a BLA. The FDA also may require post-marketing testing, known as Phase 4 testing, REMS, and surveillance to monitor the effects of an approved product, or the FDA may place conditions on an approval that could restrict the distribution or use of the product. In addition, quality control, biological product manufacture, packaging, and labeling procedures must continue to conform to cGMPs after approval. Biologic manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies. Registration with the FDA subjects entities to periodic unannounced inspections by the FDA, during which the agency inspects manufacturing facilities to assess compliance with cGMPs. Accordingly, manufacturers must continue to expend time, money, and effort in the areas of production and quality-control to maintain compliance with cGMPs. Regulatory authorities may withdraw product approvals or request product recalls if a company fails to comply with regulatory standards, if it encounters problems following initial marketing, or if previously unrecognized problems are subsequently discovered.

FDA Regulation of Companion Diagnostics

A biologic product may rely upon an *in vitro* companion diagnostic for use in selecting the patients that will respond to a therapy. If an *in vitro* diagnostic is essential to the safe and effective use of the therapeutic product, then the FDA generally will require approval or clearance of the diagnostic at the same time that FDA approves the therapeutic product.

Pursuing FDA approval of an *in vitro* companion diagnostic usually would require a pre-market approval, or PMA, for that diagnostic. Based on a final FDA guidance document, and the FDA's past treatment of companion diagnostics, the FDA will likely require PMA approval of an *in vitro* companion diagnostics to identify patient populations suitable for a cancer therapy. The review of these *in vitro* companion diagnostics involves coordination of review by the FDA's Center for Biologics Evaluation and Research and by the FDA's Center for Devices and Radiological Health. Approval of a companion diagnostic is generally required at the time of new drug approval.

The PMA process, including the gathering of clinical and nonclinical data and the submission to and review by the FDA, can take several years or longer. The applicant must prepare and provide the FDA with reasonable assurance of the device's safety and effectiveness, including information about the device and its components regarding, among other things, device design, manufacturing and labeling. PMA applications are subject to an application fee, which exceeds $340,000 for most PMAs for Fiscal Year 2020. In addition, PMAs for devices must generally include the results from extensive preclinical and adequate and well-controlled clinical trials to establish the safety and effectiveness of the device for each indication for which FDA approval is sought. In particular, for a diagnostic, the applicant must demonstrate that the diagnostic produces reproducible results between multiple users at multiple laboratories. As part of the PMA review, the FDA will typically inspect the manufacturer's facilities

for compliance with the Quality System Regulation, or QSR, which imposes elaborate testing, control, documentation and other quality assurance requirements.

PMA approval is not guaranteed, and the FDA may ultimately respond to a PMA submission with a not approvable determination based on deficiencies in the application and require additional clinical trial or other data that may be expensive and time consuming to generate and that can substantially delay or prevent approval. If the FDA concludes that the applicable criteria have been met, the FDA will issue a PMA for the approved indications, which can be more limited than those originally sought by the applicant. The PMA can include post-approval conditions that the FDA believes necessary to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale and distribution.

After a device is placed on the market, it remains subject to significant regulatory requirements. Medical devices may be marketed only for the uses and indications for which they are cleared or approved. Device manufacturers must also register with FDA and list their devices. A medical device manufacturer's manufacturing processes are required to comply with the applicable portions of the QSR, which cover the methods and documentation of the design, testing, production, processes, controls, quality assurance, labeling, packaging and shipping of medical devices. Domestic facility records and manufacturing processes are subject to periodic inspections by the FDA.

Failure to comply with applicable regulatory requirements can result in enforcement action by the FDA, which may include any of the following sanctions: warning or untitled letters, fines, injunctions, civil or criminal penalties, recall or seizure of current or future products, operating restrictions, partial suspension or total shutdown of production, denial of submissions for new products, or withdrawal of PMA approvals.

Other Healthcare Laws

In addition to FDA restrictions on marketing of pharmaceutical products, several other types of state and federal laws have been applied to restrict certain general business and marketing practices in the pharmaceutical industry in recent years. These laws include anti-kickback statutes, false claims statutes and other healthcare laws and regulations.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce, or in return for, purchasing, leasing, ordering or arranging for the purchase, lease or order of any healthcare item or service reimbursable under Medicare, Medicaid, or other federally financed healthcare programs. The Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act, collectively, the ACA, amended the intent element of the federal statute so that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to commit a violation. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other. Although there are a number of statutory exceptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, the exceptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor.

Federal civil and criminal false claims laws, including the federal civil False Claims Act, prohibit any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid. This includes claims made to programs where the federal government reimburses, such as Medicaid, as well as programs where the federal government is a direct purchaser, such as when it purchases off the Federal Supply Schedule. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws. Additionally, the ACA amended the federal Anti-Kickback Statute such that a violation of that statute can serve as a basis for liability under the federal False Claims Act. The majority of states also have statutes or regulations similar to the federal Anti-Kickback Statute and False Claims Act, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Other federal statutes pertaining to healthcare fraud and abuse include the civil monetary penalties statute, which prohibits, among other things, the offer or payment of remuneration to a Medicaid or Medicare beneficiary that the offerer or payor knows or should know is likely to influence the beneficiary to order a receive a reimbursable item or service from a particular supplier, and the additional federal criminal statutes created by the Health Insurance Portability and Accountability Act of 1996, or HIPAA, which prohibits, among other things, knowingly and willfully executing or attempting to execute a scheme to defraud any healthcare benefit program or obtain by means of false or fraudulent pretenses, representations or promises any money or property owned by or under the control of any healthcare benefit program in connection with the delivery of or payment for healthcare benefits, items or services.

In addition, HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, imposes obligations on certain healthcare providers, health plans, and healthcare clearinghouses, known as covered entities, as well as their business associates that perform certain services involving the storage, use or disclosure of individually identifiable health information, including mandatory contractual terms, with respect to safeguarding the privacy, security, and transmission of individually identifiable health information, and require notification to affected individuals and regulatory authorities of certain breaches of security of individually identifiable health information.

Further, pursuant to the ACA, the Centers for Medicare & Medicaid Services, or CMS, has issued a final rule that requires manufacturers of prescription drugs to collect and report information on certain payments or transfers of value to physicians and teaching hospitals, as well as investment interests held by physicians and their immediate family members. The reports must be submitted on an annual basis and the reported data are posted in searchable form on a public website on an annual basis. Failure to submit required information may result in civil monetary penalties. Effective January 1, 2022, transfers of value to physician assistants, nurse practitioners or clinical nurse specialists, certified registered nurse anesthetists, and certified nurse-midwives must also be reported.

In addition, several states now require prescription drug companies to report certain expenses relating to the marketing and promotion of drug products and to report gifts and payments to individual healthcare practitioners in these states. Other states prohibit various marketing-related activities, such as the provision of certain kinds of gifts or meals. Still other states require the posting of information relating to clinical studies and their outcomes. Some states require the reporting of certain pricing information, including information pertaining to and justifying price increases. In addition, states such as California, Connecticut, Nevada, and Massachusetts require pharmaceutical companies to implement compliance programs and/or marketing codes. Additional jurisdictions, such as the City of Chicago and the District of Columbia, require pharmaceutical sales representatives to be licensed and meet continuing education requirements. Several additional states are considering similar proposals. Certain states and local jurisdictions also require the registration of pharmaceutical sales representatives. Compliance with these laws is difficult and time consuming, and companies that do not comply with these state laws face civil penalties.

Efforts to ensure that business arrangements with third parties comply with applicable healthcare laws and regulations involve substantial costs. If a drug company’s operations are found to be in violation of any such requirements, it may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, the curtailment or restructuring of its operations, loss of eligibility to obtain approvals from the FDA, exclusion from participation in government contracting, healthcare reimbursement or other government programs, including Medicare and Medicaid, integrity oversight and reporting obligations and reputational harm. Although effective compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, these risks cannot be entirely eliminated. Any action for an alleged or suspected violation can cause a drug company to incur significant legal expenses and divert management’s attention from the operation of the business, even if such action is successfully defended.

U.S. Healthcare Reform

In the United States, there have been, and continue to be, proposals by the federal government, state governments, regulators and third-party payors to control or manage the increased costs of health care and, more generally, to reform the U.S. healthcare system. For example, in March 2010, the ACA was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things, (i) subjected therapeutic biologics to potential competition by lower-cost biosimilars by creating a licensure framework for follow-on biologic products, (ii) proscribed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs and therapeutic biologics that are inhaled, infused, instilled, implanted or injected, (iii) increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extended the rebate program to individuals enrolled in Medicaid managed care organizations, (iv) established annual fees and taxes on manufacturers of certain branded prescription drugs and therapeutic biologics, (v) established a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer point-of-sale discounts (now 70%) off negotiated prices of applicable brand drugs and therapeutic biologics to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs and therapeutic biologics to be covered under Medicare Part D, (vi) expanded eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability, (vii) expanded the entities eligible for discounts under the Public Health program (viii) created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research, and (ix) established a Center for Medicare Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

The current U.S. presidential administration and Congress have, and we expect they will continue to, seek to modify, repeal, or otherwise invalidate all, or certain provisions of, the ACA. Since January 2017, the current U.S. presidential administration has issued two executive orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. For example, on October 12, 2017, the current U.S. presidential administration issued an executive order that expands the use of association health plans and allows anyone to purchase short-term health plans that provide temporary, limited insurance. This executive order also calls for the halt of federal payments to health insurers for cost-sharing reductions previously available to lower-income Americans to afford coverage. There is still uncertainty with respect to the impact this executive order could have on coverage and reimbursement for healthcare items and services covered by plans that were authorized by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, among other things, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018, the current U.S. presidential administration signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. More recently, in July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. There is still uncertainty with respect to the impact the current U.S. presidential administration and the Congress may have, if any, and any changes will likely take time to unfold, and could have an impact on coverage and reimbursement for healthcare items and services covered by plans that were authorized by the ACA. However, we cannot predict the ultimate content, timing or effect of any healthcare reform legislation or the impact of potential legislation on us.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted to reduce healthcare expenditures. U.S. federal government agencies also currently face potentially significant spending reductions, which may further impact healthcare expenditures. On August 2, 2011, the Budget Control Act of 2011 among other things, created measures for spending reductions by Congress. A joint select committee on deficit reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2029 unless additional Congressional action is taken. Moreover, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. If federal spending is further reduced, anticipated budgetary shortfalls may also impact the ability of relevant agencies, such as the FDA or the National Institutes of Health to continue to function at current levels. Amounts allocated to federal grants and contracts may be reduced or eliminated. These reductions, as well as potential future shutdowns of the U.S. federal government, may also impact the ability of relevant agencies to timely review and approve research and development, manufacturing, and marketing activities, which may delay our ability to develop, market and sell any products we may develop.

Moreover, payment methodologies, including payment for companion diagnostics, may be subject to changes in healthcare legislation and regulatory initiatives. For example, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, or MMA, changed the way Medicare covers and pays for pharmaceutical products. The legislation expanded Medicare coverage for drug purchases by the elderly and introduced a new reimbursement methodology based on average sales prices for physician-administered drugs. In addition, this legislation provided authority for limiting the number of drugs that will be covered in any therapeutic class. While the MMA only applies to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from the MMA may result in a similar reduction in payments from private payors. In addition, CMS has begun bundling the Medicare payments for certain laboratory tests ordered while a patient received services in a hospital outpatient setting and, beginning in 2018, CMS will pay for clinical laboratory services based on a weighted average of reported prices that private payors, Medicare Advantage plans, and Medicaid Managed Care plans pay for laboratory services. Further, on March 16, 2018, CMS finalized its National Coverage Determination, or NCD, for certain diagnostic laboratory tests using next generation sequencing, or NGS, that are approved by the FDA as a companion in vitro diagnostic and used in a cancer with an FDA-approved companion diagnostic indication. Under the NCD, diagnostic tests that gain FDA approval or clearance as an in vitro companion diagnostic will automatically receive full coverage and be available for patients with recurrent, metastatic relapsed, refractory or stages III and IV cancer. Additionally, the NCD extended coverage to repeat testing when the patient has a new primary diagnosis of cancer.

Recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. At the federal level, the current U.S. presidential administration continues to propose drug price control measures, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, on May 11, 2018, the current U.S. presidential administration laid out the administration's "Blueprint" to reduce the cost of prescription medications while preserving innovation and cures. While the Department of Health and Human Services, or HHS, is soliciting feedback on some of these measures, other actions may be immediately implemented by HHS under existing authority. Although a number of these, and other potential, proposals will require authorization through additional legislation to become effective, Congress and the current U.S. presidential administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Additionally, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017 was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA authorization under an FDA expanded access program.

Employees

As of December 31, 2019, we had 168 full-time employees, 8 full-time contract employees and no part-time contract employees. Of these employees, 42 have an M.D. or a Ph.D. None of our employees are represented by a labor union or covered by collective bargaining agreements, and we believe our relationship with our employees is good.

Corporate Information

We were incorporated under the laws of the State of Delaware in April 2003 under the name Fundamental Applied Biology, Inc. We subsequently changed our name to Sutro Biopharma, Inc. Our principal executive offices are located at 310 Utah Avenue, Suite 150, South San Francisco, California 94080, and our telephone number is (650) 392-8412. Our website address is www.sutrobio.com. The information contained on, or that can be accessed through, our website is not part of, and is not incorporated by reference into, this report.

Available Information

We file annual, quarterly and current reports, proxy statements and other documents with the Securities and Exchange Commission, or SEC, under the Securities Exchange Act of 1934, as amended, or Exchange Act. The SEC maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically with the SEC. The public can obtain any documents that we file with the SEC at www.sec.gov. Copies of each of our filings with the SEC can also be viewed and downloaded free of charge at our website, ir.sutrobio.com, after the reports and amendments are electronically filed with or furnished to the SEC.

Item 1A. ***Risk Factors***

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before making your decision to invest in shares of our common stock, you should carefully consider the risks described below, together with the other information contained in this quarterly report, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations". The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that affect us. We cannot assure you that any of the events discussed below will not occur. These events could have a material and adverse impact on our business, financial condition, results of operations and prospects. If that were to happen, the trading price of our common stock could decline, and you could lose all or part of your investment.

Risks Related to Our Business

We are a clinical stage biopharmaceutical company with a limited operating history and no products approved for commercial sale. We have a history of significant losses, expect to continue to incur significant losses for the foreseeable future and may never achieve or maintain profitability, which could result in a decline in the market value of our common stock.

We are a clinical stage biopharmaceutical company with a limited operating history on which to base your investment decision. Biotechnology product development is a highly speculative undertaking and involves a substantial degree of risk.

To date, we have enrolled a limited number of patients in our initial clinical trials, have no products approved for commercial sale, have not generated any revenue from commercial product sales and, as of December 31, 2019, had an accumulated deficit of $195.7 million. For the years ended December 31, 2019 and December 31, 2018, our net loss was $55.7 million and $35.3 million, respectively. Substantially all of our losses have resulted

from expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations. Our technologies and product candidates are in early stages of development, and we are subject to the risks of failure inherent in the development of product candidates based on novel technologies. In addition, we have limited experience as a clinical stage company and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biotechnology industry. Furthermore, we do not expect to generate any revenue from commercial product sales for the foreseeable future, and we expect to continue to incur significant operating losses for the foreseeable future due to the cost of research and development, preclinical studies and clinical trials and the regulatory approval process for our product candidates. We expect our net losses to increase substantially as we progress further into clinical development of our lead programs and create additional infrastructure to support operations as a public company. However, the amount of our future losses is uncertain. Our ability to achieve profitability, if ever, will depend on, among other things, our, or our existing or future collaborators', successful development of product candidates, evaluating the related commercial opportunities, obtaining regulatory approvals to market and commercializing product candidates, manufacturing any approved products on commercially reasonable terms, establishing a sales and marketing organization or suitable third-party alternatives for any approved product and raising sufficient funds to finance business activities. If we, or our existing or future collaborators, are unable to develop our technologies and commercialize one or more of our product candidates or if sales revenue from any product candidate that receives approval is insufficient, we will not achieve profitability, which could have a material and adverse effect on our business, financial condition, results of operations and prospects. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods.

We will need substantial additional funds to advance development of our product candidates. This additional financing may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, limit or terminate our product development programs, commercialization efforts or other operations.

The development of biopharmaceutical product candidates is capital-intensive. If our product candidates enter and advance through preclinical studies and clinical trials, we will need substantial additional funds to expand our development, regulatory, manufacturing, marketing and sales capabilities. We have used substantial funds to develop our technology and product candidates and will require significant funds to conduct further research and development and preclinical testing and clinical trials of our product candidates, to seek regulatory approvals for our product candidates and to manufacture and market products, if any, which are approved for commercial sale. In addition, we expect to incur additional costs associated with operating as a public company.

Since our inception, we have invested a significant portion of our efforts and financial resources in research and development activities for our two product candidates STRO-001, our initial clinical program, and STRO-002, our second clinical program, and the development of our in-house manufacturing capabilities. Clinical trials for our product candidates will require substantial funds to complete. As of December 31, 2019, we had $133.5 million in cash, cash equivalents and marketable securities. We expect to incur substantial expenditures in the foreseeable future as we seek to advance STRO-001 and STRO-002 and any future product candidates through clinical development, manufacturing, the regulatory approval process and, if approved, commercial launch activities, as well as in connection with the continued development of our manufacturing capabilities. Based on our current operating plan, we believe that our available cash, cash equivalents and marketable securities will be sufficient to fund our operations through at least the next 12 months. However, our future capital requirements and the period for which we expect our existing resources to support our operations may vary significantly from what we expect and we may need to seek additional funds sooner than planned. Our monthly spending levels vary based on new and ongoing research and development and other corporate activities. Because the length of time and activities associated with successful research and development of our product candidates is highly uncertain, we are unable to estimate the actual funds we will require for development and any marketing and commercialization activities for approved products. The timing and amount of our operating expenditures will depend largely on:

- the timing and progress of preclinical and clinical development activities;
- the costs associated with the development of our internal manufacturing facility and processes;
- the number and scope of preclinical and clinical programs we decide to pursue;
- the progress of the development efforts of parties with whom we have entered or may in the future enter into collaborations and research and development agreements;
- the timing and amount of milestone and other payments we may receive under our collaboration agreements;

- our ability to maintain our current licenses and research and development programs and to establish new collaboration arrangements;
- the costs involved in prosecuting and enforcing patent and other intellectual property claims;
- the costs of manufacturing our product candidates and those of our collaborators using our proprietary XpressCF ® Platform;
- the cost and timing of regulatory approvals;
- the cost of commercialization activities if our product candidates or any future product candidates are approved for sale, including marketing, sales and distribution costs; and
- our efforts to enhance operational systems and hire additional personnel, including personnel to support development of our product candidates and satisfy our obligations as a public company.

If we are unable to obtain funding on a timely basis or on acceptable terms, we may have to delay, reduce or terminate our research and development programs and preclinical studies or clinical trials, limit strategic opportunities or undergo reductions in our workforce or other corporate restructuring activities. We also could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies or product candidates that we would otherwise pursue on our own. We do not expect to realize revenue from sales of commercial products or royalties from licensed products in the foreseeable future, if at all, and, in no event, before our product candidates are clinically tested, approved for commercialization and successfully marketed. To date, we have primarily financed our operations through payments received under our collaboration agreements, the sale of equity securities and debt financing. We will be required to seek additional funding in the future and currently intend to do so through additional collaborations and/or licensing agreements, public or private equity offerings or debt financings, credit or loan facilities, or a combination of one or more of these funding sources. Our ability to raise additional funds will depend on financial, economic and other factors, many of which are beyond our control. Additional funds may not be available to us on acceptable terms or at all. Subject to limited exceptions, the Loan and Security Agreement we entered into with Oxford and SVB in February 2020 under which we borrowed $25.0 million prohibits us from incurring indebtedness without the prior written consent of Oxford or SVB. If we raise additional funds by issuing equity securities, our stockholders will suffer dilution and the terms of any financing may adversely affect the rights of our stockholders. If we raise additional funds through licensing or collaboration arrangements with third parties, we may have to relinquish valuable rights to our product candidates, or grant licenses on terms that are not favorable to us. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Our current debt financing involves, and future debt financings, if available, are likely to involve, restrictive covenants limiting our flexibility in conducting future business activities, and, in the event of insolvency, debt holders would be repaid before holders of our equity securities receive any distribution of our corporate assets. Failure to obtain capital when needed on acceptable terms may force us to delay, limit or terminate our product development and commercialization of our current or future product candidates, which could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Our product candidates are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability. If we or our collaborators are unable to complete development of or commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.

We have no products on the market and all of our product candidates for cancer therapy are in early stages of development. In particular, our product candidates, STRO-001 and STRO-002 are in the dose escalation phase of their respective Phase 1 clinical trials, and enrollment has begun for patients in the Phase 1 clinical trial for the BCMA ADC candidate resulting from our BMS collaboration. Additionally, we have programs that are in earlier stages of discovery and preclinical development and may never advance to clinical-stage development. Our ability to achieve and sustain profitability depends on obtaining regulatory approvals for and successfully commercializing our product candidates, either alone or with third parties, and we cannot guarantee you that we will ever obtain regulatory approval for any of our product candidates. We have limited experience in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the U.S. Food and Drug Administration, or FDA. Before obtaining regulatory approval for the commercial distribution of our product candidates, we or an existing or future collaborator must conduct extensive preclinical tests and clinical trials to demonstrate the safety and efficacy in humans of our product candidates.

We may not have the financial resources to continue development of, or to modify existing or enter into new collaborations for, a product candidate if we experience any issues that delay or prevent regulatory approval of, or our ability to commercialize, product candidates, including:

- negative or inconclusive results from our clinical trials or the clinical trials of others for product candidates similar to ours, leading to a decision or requirement to conduct additional preclinical testing or clinical trials or abandon a program;
- product-related side effects experienced by patients in our clinical trials or by individuals using drugs or therapeutic biologics similar to our product candidates;
- difficulty achieving successful continued development of our internal manufacturing processes, including process development and scale-up activities to supply products for preclinical studies, clinical trials and commercial sale;
- our inability to transfer successfully our manufacturing expertise and techniques to third-party contract manufacturers;
- inability of us or any third-party contract manufacturer to scale up manufacturing of our product candidates and those of our collaborators to supply the needs of clinical trials and commercial sales, and to manufacture such products in conformity with regulatory requirements using our proprietary XpressCF® Platform;
- delays in submitting investigational new drug applications, or INDs, or comparable foreign applications or delays or failures in obtaining the necessary approvals from regulators to commence a clinical trial, or a suspension or termination of a clinical trial once commenced;
- conditions imposed by the FDA or comparable foreign authorities regarding the scope or design of our clinical trials;
- delays in enrolling patients in our clinical trials;
- high drop-out rates of our clinical trial patients;
- inadequate supply or quality of product candidate components or materials or other supplies necessary for the conduct of our clinical trials;

- inability to obtain alternative sources of supply for which we have a single source for product candidate components or materials;
- occurrence of health epidemics or contagious diseases, such as the Coronavirus Disease 2019, or COVID-19, and potential effects on our business, clinical trial sites, supply chain and manufacturing facilities;
- greater than anticipated costs of our clinical trials;
- harmful side effects or inability of our product candidates to meet efficacy endpoints during clinical trials;
- failure to demonstrate in our clinical trials a sufficient response rate or duration of response;
- failure to demonstrate a benefit-risk profile acceptable to the FDA or other regulatory agencies;
- unfavorable FDA or other regulatory agency inspection and review of one or more of our clinical trial sites or manufacturing facilities;
- failure of our third-party contractors or investigators to comply with regulatory requirements or otherwise meet their contractual obligations in a timely manner, or at all;
- delays and changes in regulatory requirements, policy and guidelines, including the imposition of additional regulatory oversight around clinical testing generally or with respect to our technology in particular; or
- varying interpretations of our data by the FDA and similar foreign regulatory agencies.

We or our collaborators' inability to complete development of or commercialize our product candidates or significant delays in doing so due to one or more of these factors, could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Our business is dependent on the success of our product candidates based on our proprietary XpressCF ® Platform and, in particular, our proprietary product candidates, STRO-001 and STRO-002. Existing and future preclinical studies and clinical trials of our product candidates may not be successful. If we are unable to commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.

We have invested a significant portion of our efforts and financial resources in the development of our proprietary XpressCF ® Platform and our proprietary product candidates, STRO-001 and STRO-002. Our ability to generate commercial product revenues, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of STRO-001 and STRO-002. We have not previously submitted a new drug application, or NDA, or a biologics license application, or BLA, to the FDA, or similar regulatory approval filings to comparable foreign authorities, for any product candidate, and we cannot be certain that our product candidates will be successful in clinical trials or receive regulatory approval. Further, our product candidates may not receive regulatory approval even if they are successful in clinical trials. If we do not receive regulatory approvals for our product candidates, we may not be able to continue our operations. Even if we successfully obtain regulatory approvals to market our product candidates, our revenues will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval and have commercial rights. If the markets for patient subsets that we are targeting are not as significant as we estimate, we may not generate significant revenues from sales of such products, if approved.

We plan to seek regulatory approval to commercialize our product candidates both in the United States and in selected foreign countries. While the scope of regulatory approvals generally is similar in other countries, in order to obtain separate regulatory approvals in other countries, we must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy. Other countries also have their own regulations governing, among other things, clinical trials and commercial sales, as well as pricing and distribution of our product candidates, and we may be required to expend significant resources to obtain regulatory approval and to comply with ongoing regulations in these jurisdictions.

The success of STRO-001 and STRO-002 and our other future product candidates will depend on many factors, including the following:

- successful enrollment of patients in, and the completion of, our clinical trials;
- receiving required regulatory approvals for the development and commercialization of our product candidates;

- establishing our commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and non-patent exclusivity for our product candidates and their components;
- enforcing and defending our intellectual property rights and claims;
- achieving desirable therapeutic properties for our product candidates' intended indications;
- launching commercial sales of our product candidates, if and when approved, whether alone or in collaboration with third parties;
- acceptance of our product candidates, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other therapies; and
- maintaining an acceptable safety profile of our product candidates through clinical trials and following regulatory approval.

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

Additionally, we have in the past and may in the future create benchmark molecules for comparative purposes. For example, we have created a benchmark folate receptor-alpha, or FolRα targeting antibody-drug conjugate, or ADC, using conventional technology that results in a heterogeneous ADC mixture. We have compared STRO-002 to this benchmark molecule in multiple preclinical models. We believe the results of these tests help us understand how the therapeutic index of STRO-002 compares to competitors' product candidates. However, we cannot be certain that any benchmark molecule that we create is the same as the molecule we are attempting to recreate, and the results of the tests comparing any such benchmark molecule to any other potential or current product candidate may be different than the actual results of a head-to-head test of any such other potential or current product candidate against a competitor molecule. Additional preclinical and clinical testing will be needed to evaluate the therapeutic index of our potential or current product candidates, and to understand its therapeutic potential relative to other product candidates in development. While we believe our ADCs may be superior to other investigative agents in development, without head-to-head comparative data, we will not be able to make claims of superiority to other products in our promotional materials, if our product candidates are approved.

Our business is subject to risks arising from epidemic diseases, such as the recent outbreak of the COVID-19 illness.

The recent outbreak of COVID-19, which has been declared by the World Health Organization to be a pandemic, has spread across the globe and is impacting worldwide economic activity. A pandemic, including COVID-19, or other public health epidemic poses the risk that we or our employees, contractors, suppliers, and other partners may be prevented from conducting business activities for an indefinite period of time, including due to spread of the disease within these groups or due to shutdowns that may be requested or mandated by governmental authorities. While it is not possible at this time to estimate the impact that COVID-19 could have on our business, the continued spread of COVID-19 and the measures taken by the governments of countries affected could disrupt the supply chain and the manufacture or shipment of both drug substance and finished drug product for our product candidates for preclinical testing and clinical trials and adversely impact our business, financial condition or results of operations. We often attend and present clinical updates at various medical and investor conferences throughout the year. The COVID-19 outbreak has caused, and is likely to continue to cause, cancellations or reduced attendance of these conferences and we may need to seek alternate methods to present clinical updates and to engage with the medical and investment communities. The spread of COVID-19 may also slow potential enrollment of clinical trials and reduce the number of eligible patients for our clinical trials. The COVID-19 outbreak and mitigation measures may also have an adverse impact on global economic conditions which could have an adverse effect on our business and financial condition and our potential to conduct financings on terms acceptable to us, if at all. The extent to which the COVID-19 outbreak impacts our results will depend on future developments that are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of the virus and the actions to contain its impact.

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

From time to time, we estimate the timing of the anticipated accomplishment of various scientific, clinical, regulatory and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of scientific studies and clinical trials and the submission of

regulatory filings. From time to time, we may publicly announce the expected timing of some of these milestones. All of these milestones are and will be based on numerous assumptions. The actual timing of these milestones can vary dramatically compared to our estimates, in some cases for reasons beyond our control. If we do not meet these milestones as publicly announced, or at all, the commercialization of our products may be delayed or never achieved and, as a result, our stock price may decline.

Our approach to the discovery and development of our therapeutic treatments is based on novel technologies that are unproven and may not result in marketable products.

We are developing a pipeline of product candidates using our proprietary XpressCF ® Platform. We believe that product candidates identified with our product discovery platform may offer an improved therapeutic approach by taking advantage of precision design and rapid empirical optimization, thereby reducing the dose-limiting toxic effects associated with existing products. However, the scientific research that forms the basis of our efforts to develop product candidates based on our XpressCF® Platform is ongoing. Further, the scientific evidence to support the feasibility of developing therapeutic treatments based on our XpressCF® Platform is both preliminary and limited.

To date, we have tested our first clinical stage product candidates, STRO-001 and STRO-002, and our partner BMS has tested CC-99712 in a limited number of clinical trial patients. We may ultimately discover that our XpressCF® Platform and any product candidates resulting therefrom do not possess certain properties required for therapeutic effectiveness. XpressCF® product candidates may also be unable to remain stable in the human body for the period of time required for the drug to reach the target tissue or they may trigger immune responses that inhibit the ability of the product candidate to reach the target tissue or that cause adverse side effects in humans. We currently have only limited data, and no conclusive evidence, to suggest that we can introduce these necessary properties into these product candidates derived from our XpressCF® Platform. We may spend substantial funds attempting to introduce these properties and may never succeed in doing so. In addition, product candidates based on our XpressCF® Platform may demonstrate different chemical and pharmacological properties in patients than they do in laboratory studies. Although our XpressCF® Platform and certain product candidates have produced successful results in animal studies, they may not demonstrate the same chemical and pharmacological properties in humans and may interact with human biological systems in unforeseen, ineffective or harmful ways. In our STRO-001 Phase 1 trial, most observed adverse events were grade 1 or 2 (58%) with the most common grade 1-2 treatment emergent adverse events of fatigue, chills, pyrexia, cough, nausea, headache and infusion reaction occurring in ≥ 20% of patients. Two dose limiting toxicities were observed, one grade 3 and one grade 5 thromboembolic event. The thromboembolic events were in patients with very bulky disease and other pre-existing factors for thrombosis and the trial protocol was amended to screen for, and treat, pre-existing thromboembolism/thrombotic events, and since the amendment, no additional thromboembolic events have been observed. In October 2019, we presented initial safety data from our ongoing Phase 1 trial of STRO-002. Based on initial data from the trial through October 15, 2019, STRO-002 has been generally well-tolerated with no dose-limiting toxicities having been observed. The most common treatment emergent adverse events were grade 1 or 2 and included fatigue, nausea, vomiting, headache, dizziness, abdominal pain, and insomnia. Infusion reactions and ocular toxicity signals were not observed. Two related treatment emergent adverse events of grade 3 neutropenia were observed and both of these resolved. If product candidates based on our XpressCF® Platform are unable to demonstrate sufficient safety and efficacy data to obtain marketing approval, we may never succeed in developing a marketable product, we may not become profitable and the value of our common stock will decline.

The regulatory approval process for novel product candidates such as ours can be more expensive and take longer than for other, better known or extensively studied product candidates. We are not aware of any company currently developing a therapeutic using our approach to ADC development and no regulatory authority has granted approval for such a therapeutic. We believe the FDA has limited experience with therapeutics in oncology or other disease areas developed in cell-free-based synthesis systems, which may increase the complexity, uncertainty and length of the regulatory approval process for our product candidates. For example, our XpressCF® ADC product candidates contain cleavable or non-cleavable linker-warhead combinations or novel warheads that may result in unforeseen events when administered in a human. We and our existing or future collaborators may never receive approval to market and commercialize any product candidate. Even if we or an existing or future collaborator obtains regulatory approval, the approval may be for targets, disease indications or patient populations that are not as broad as we intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. We or an existing or future collaborator may be required to perform additional or unanticipated clinical trials to obtain approval or be subject to post-marketing testing requirements to maintain regulatory approval. If the products resulting from our XpressCF® Platform prove to be ineffective, unsafe or commercially unviable, our entire platform and pipeline would have little, if any, value, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

Results of preclinical studies and early clinical trials may not be predictive of results of future clinical trials.

The outcome of preclinical studies and early clinical trials may not be predictive of the success of later clinical trials, and interim results of clinical trials do not necessarily predict success in future clinical trials. 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 could face similar setbacks. The design of a clinical trial can determine whether its 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. While certain relevant members of our company have significant clinical experience, we in general 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, or future collaborators, 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 patients. If we fail to receive positive results in clinical trials of our product candidates, the development timeline and regulatory approval and commercialization prospects for our most advanced product candidates, and, correspondingly, our business and financial prospects would be negatively impacted.

The market may not be receptive to our product candidates based on a novel therapeutic modality, and we may not generate any future revenue from the sale or licensing of product candidates.

Even if regulatory approval is obtained for a product candidate, we may not generate or sustain revenue from sales of the product due to factors such as whether the product can be sold at a competitive cost, competition in the therapeutic area(s) we have received or may receive approval for, and whether it will otherwise be accepted in the market. Historically, there have been concerns regarding the safety and efficacy of ADCs, and an ADC drug was voluntarily withdrawn from the market for an extended period of time. These historical concerns may negatively impact the perception market participants have on ADCs, including our product candidates. Additionally, the product candidates that we are developing are based on our proprietary XpressCF® Platform, which is a new technology. Market participants with significant influence over acceptance of new treatments, such as physicians and third-party payors, may not adopt an ADC product, or a product or treatment based on our novel cell-free production technologies, and we may not be able to convince the medical community and third-party payors to accept and use, or to provide favorable reimbursement for, any product candidates developed by us or our existing or future collaborators. Market acceptance of our product candidates will depend on, among other factors:

- the timing of our receipt of any marketing and commercialization approvals;
- the terms of any approvals and the countries in which approvals are obtained;
- the safety and efficacy of our product candidates;
- the prevalence and severity of any adverse side effects associated with our product candidates;
- limitations or warnings contained in any labeling approved by the FDA or other regulatory authority;
- relative convenience and ease of administration of our product candidates;
- the willingness of patients to accept any new methods of administration;
- the success of our physician education programs;
- the availability of coverage and adequate reimbursement from government and third-party payors;
- the pricing of our products, particularly as compared to alternative treatments; and
- the availability of alternative effective treatments for the disease indications our product candidates are intended to treat and the relative risks, benefits and costs of those treatments.

Because our product candidates are based on new technology, we expect that they will require extensive research and development and have substantial manufacturing and processing costs. In addition, our estimates regarding potential market size for any indication may be materially different from what we discover to exist at the time we commence commercialization, if any, for a product, which could result in significant changes in our

business plan and have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if any product candidate we commercialize fails to achieve market acceptance, it could have a material and adverse effect on our business, financial condition, results of operations and prospects.

We have entered, and may in the future seek to enter, into collaborations with third parties for the development and commercialization of our product candidates using our XpressCF® Platform. If we fail to enter into such collaborations, or such collaborations are not successful, we may not be able to capitalize on the market potential of our XpressCF® Platform and resulting product candidates.

Since 2014, we have entered into collaborations with Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Kenilworth, NJ, USA, or Merck, Celgene Corporation, or Celgene, a wholly owned subsidiary of Bristol-Myers Squibb Company, New York, NY, or BMS, and Merck KGaA, Darmstadt Germany (operating in the United States and Canada under the name "EMD Serono") to develop certain cancer and other therapeutics. In addition, we may in the future seek third-party collaborators for research, development and commercialization of other therapeutic technologies or product candidates. Biopharmaceutical companies are our prior and likely future collaborators for any marketing, distribution, development, licensing or broader collaboration arrangements. With respect to our existing collaboration agreements, and what we expect will be the case with any future collaboration agreements, we have and would expect to have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Moreover, our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates currently pose, and will continue to pose, the following risks to us:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on preclinical studies or clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors such as an acquisition that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- collaborators with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such product or products;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to litigation or potential liability;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts management attention and resources; and
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates.

As a result of the foregoing, our current and any future collaboration agreements may not lead to development or commercialization of our product candidates in the most efficient manner or at all. Moreover, if a collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated. Any failure to successfully develop or commercialize our product candidates pursuant to our current or any future collaboration agreements could have a material and adverse effect on our business, financial condition, results of operations and prospects.

To date, no product developed on a cell-free manufacturing platform has received approval from the FDA, so the requirements for the manufacturing of products using our XpressCF® Platform are uncertain.

We have invested in our own current Good Manufacturing Practices, or cGMP, compliant manufacturing facility in San Carlos, California. In this facility, we are developing and implementing novel cell-free production technologies to supply our planned preclinical and clinical trials. However, before we may initiate a clinical trial or commercialize any of our product candidates, we must demonstrate to the FDA that the chemistry, manufacturing and controls for our product candidates meet applicable requirements, and in the European Union, or EU, a manufacturing authorization must be obtained from the appropriate EU regulatory authorities. The FDA has allowed Phase 1 clinical trial use of our product candidates STRO-001 and STRO-002 and our partner BMS' CC-99712 product candidate, portions of which are manufactured in our San Carlos manufacturing facility; however, because no product manufactured on a cell-free manufacturing platform has yet been approved in the United States, there is no manufacturing facility that has demonstrated the ability to comply with FDA requirements for later stage clinical development or commercialization, and, therefore, the time frame for demonstrating compliance to the FDA's satisfaction is uncertain. Delays in establishing that our manufacturing process and facility comply with cGMPs or disruptions in our manufacturing processes, implementation of novel in-house technologies or scale-up activities, may delay or disrupt our development efforts.

We expect that development of our own manufacturing facility will provide us with enhanced control of material supply for preclinical studies, clinical trials and the commercial market, enable the more rapid implementation of process changes and allow for better long-term margins. However, we have limited experience as a company in establishing and operating a manufacturing facility and there exist only a small number of contract manufacturing organizations, or CMOs, with the experience necessary to manufacture our product candidates. We may have difficulty hiring experts for internal manufacturing or finding and maintaining relationships with external CMOs and, accordingly, our production capacity could be limited.

Our existing collaborations with Merck, BMS and EMD Serono are important to our business. If our collaborators cease development efforts under our existing or future collaboration agreements, or if any of those agreements are terminated, these collaborations may fail to lead to commercial products and we may never receive milestone payments or future royalties under these agreements.

We have entered into collaborations with other biotechnology companies to develop several of our product candidates, and such collaborations currently represent a significant portion of our product pipeline and discovery and preclinical programs. Substantially all of our revenue to date has been derived from our existing collaboration agreements with Merck, BMS and EMD Serono, and a significant portion of our future revenue and cash resources is expected to be derived from these agreements or other similar agreements into which we may enter in the future. Revenue from research and development collaborations depends upon continuation of the collaborations, payments for research and development services and product supply, and the achievement of milestones, contingent payments and royalties, if any, derived from future products developed from our research. If we are unable to successfully advance the development of our product candidates, achieve milestones or earn contingent payments under our collaboration agreements, future revenue and cash resources will be substantially less than expected.

We are unable to predict the success of our collaborations and we may not realize the anticipated benefits of our strategic collaborations. Our collaborators have discretion in determining and directing the efforts and resources, including the ability to discontinue all efforts and resources, they apply to the development and, if approval is obtained, commercialization and marketing of the product candidates covered by such collaborations. As a result, our collaborators may elect to de-prioritize our programs, change their strategic focus or pursue alternative technologies in a manner that results in reduced, delayed or no revenue to us. For example, Celgene, now BMS, was advancing four preclinical collaboration programs, one of which is an ADC targeting B-cell maturation antigen (CC-99712), or BCMA, for the treatment of multiple myeloma. BMS has worldwide development and commercialization rights with respect to this BCMA ADC, for which the FDA recently cleared the IND application and a Phase 1 clinical trial has commenced enrolling patients. In 2019 Celgene, now BMS, decided to not exercise the option to acquire U.S. clinical development and commercialization rights to a second collaboration program. Therefore, Celgene did not pay us the $12.5 million option maintenance fee due on IND clearance for the first collaboration program, described above. Additionally, while BMS has ex-US rights to three additional collaboration programs, if certain program milestones are not achieved by September 26, 2020, the ex-US rights to those collaboration programs will automatically revert to us at no cost to us. Our collaborators may have other marketed products and product candidates under collaboration with other companies, including some of our competitors, and their corporate objectives may not be consistent with our best interests. Our collaborators may also be unsuccessful in developing or commercializing our products. If our collaborations are unsuccessful, our business, financial condition, results of operations and prospects could be adversely affected. In addition, any

dispute or litigation proceedings we may have with our collaborators in the future could delay development programs, create uncertainty as to ownership of intellectual property rights, distract management from other business activities and generate substantial expense.

Moreover, to the extent that any of our existing or future collaborators were to terminate a collaboration agreement, we may be forced to independently develop these product candidates, including funding preclinical studies or clinical trials, assuming marketing and distribution costs and defending intellectual property rights, or, in certain instances, abandon product candidates altogether, any of which could result in a change to our business plan and have a material adverse effect on our business, financial condition, results of operations and prospects.

We may not successfully engage in strategic transactions, including any additional collaborations we seek, which could adversely affect our ability to develop and commercialize product candidates, impact our cash position, increase our expenses and present significant distractions to our management.

From time to time, we may consider strategic transactions, such as additional collaborations, acquisitions of companies, asset purchases and out- or in-licensing of product candidates or technologies that we believe will complement or augment our existing business. In particular, we will evaluate and, if strategically attractive, seek to enter into additional collaborations, including with major biotechnology or biopharmaceutical companies. The competition for collaborators is intense, and the negotiation process is time-consuming and complex. Any new collaboration may be on terms that are not optimal for us, and we may not be able to maintain any new collaboration if, for example, development or approval of a product candidate is delayed, sales of an approved product candidate do not meet expectations, or the collaborator terminates the collaboration. 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 strategic partners. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the strategic partner's resources and expertise, the terms and conditions of the proposed collaboration and the proposed strategic partner's evaluation of a number of factors. These factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge and industry and market conditions generally. Moreover, if we acquire assets with promising markets or technologies, we may not be able to realize the benefit of acquiring such assets due to an inability to successfully integrate them with our existing technologies and may encounter numerous difficulties in developing, manufacturing and marketing any new products resulting from a strategic acquisition that delay or prevent us from realizing their expected benefits or enhancing our business.

We cannot assure you that following any such collaboration, or other strategic transaction, we will achieve the expected synergies to justify the transaction. For example, such transactions may require us to incur non-recurring or other charges, increase our near- and long-term expenditures and pose significant integration or implementation challenges or disrupt our management or business. These transactions would entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products, product candidates or technologies, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. Also, such strategic alliance, joint venture or acquisition may be prohibited. For example, our Loan and Security Agreement, in the absence of the related lenders' prior written consent, restricts our ability to pursue certain mergers, acquisitions, amalgamations or consolidations that we may believe to be in our best interest.

Accordingly, although there can be no assurance that we will undertake or successfully complete any transactions of the nature described above, any transactions that we do complete may be subject to the foregoing or other risks and would have a material and adverse effect on our business, financial condition, results of operations and prospects. Conversely, any failure to enter any additional collaboration or other strategic transaction that would be beneficial to us could delay the development and potential commercialization of our product candidates and have a negative impact on the competitiveness of any product candidate that reaches market.

We expect to rely on third parties to conduct certain of our preclinical studies or clinical trials. If those third parties do not perform as contractually required, fail to satisfy regulatory or legal requirements or miss expected deadlines, our development program could be delayed with potentially material and adverse effects on our business, financial condition, results of operations and prospects.

We have relied in some cases and intend to rely in the future on third-party clinical investigators, clinical research organizations, or CROs, clinical data management organizations and consultants to assist or provide the design, conduct, supervision and monitoring of preclinical studies and clinical trials of our product candidates. Because we intend to rely on these third parties and will not have the ability to conduct all preclinical studies or clinical trials independently, we will have less control over the timing, quality and other aspects of preclinical studies and clinical trials than we would have had we conducted them on our own. These investigators, CROs and consultants will not be our employees and we will have limited control over the amount of time and resources that they dedicate to our programs. These third parties may have contractual relationships with other entities, some of which may be our competitors, which may draw time and resources from our programs. The third parties with which we may contract might not be diligent, careful or timely in conducting our preclinical studies or clinical trials, resulting in the preclinical studies or clinical trials being delayed or unsuccessful.

If we cannot contract with acceptable third parties on commercially reasonable terms, or at all, or if these third parties do not carry out their contractual duties, satisfy legal and regulatory requirements for the conduct of preclinical studies or clinical trials or meet expected deadlines, our clinical development programs could be delayed and otherwise adversely affected. In all events, we will be responsible for ensuring that each of our preclinical studies and clinical trials are conducted in accordance with the general investigational plan and protocols for the trial. The FDA requires preclinical studies to be conducted in accordance with good laboratory practices and clinical trials to be conducted in accordance with good clinical practices, including for designing, conducting, recording and reporting the results of preclinical studies and clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of clinical trial participants are protected. Our reliance on third parties that we do not control will not relieve us of these responsibilities and requirements. Any adverse development or delay in our preclinical studies or clinical trials as a result of our reliance on third parties could have a material and adverse effect on our business, financial condition, results of operations and prospects.

If we are unable to obtain sufficient raw and intermediate materials on a timely basis or if we experience other manufacturing or supply difficulties, our business may be adversely affected.

The manufacture of certain of our product candidates requires the timely delivery of sufficient amounts of raw and intermediate materials. We work closely with our suppliers to ensure the continuity of supply, but cannot guarantee these efforts will always be successful. Further, while efforts are made to diversify our sources of raw and intermediate materials, in certain instances we acquire raw and intermediate materials from a sole supplier. While we believe that alternative sources of supply exist where we rely on sole supplier relationships, there can be no assurance that we will be able to quickly establish additional or replacement sources for some materials. A reduction or interruption in supply, and an inability to develop alternative sources for such supply, could adversely affect our ability to manufacture our product candidates in a timely or cost-effective manner.

We currently manufacture a portion of our product candidates internally and also rely on third-party manufacturing and supply partners to supply components of our product candidates. Our inability to manufacture sufficient quantities of our product candidates, or the loss of our third-party suppliers, or our or their failure to comply with applicable regulatory requirements or to supply sufficient quantities at acceptable quality levels or prices, or at all, would materially and adversely affect our business.

Manufacturing is a vital component of our business strategy. To ensure timely and consistent product supply we currently use a hybrid product supply approach wherein certain elements of our product candidates are manufactured internally at our manufacturing facilities in San Carlos, California, and other elements are manufactured at qualified third-party CMOs. Since our own manufacturing facilities may be limited or unable to manufacture certain of our preclinical and clinical trial product materials and supplies, we rely on third-party contract manufacturers to manufacture such clinical trial product materials and supplies for our or our collaborator's needs. There can be no assurance that our preclinical and clinical development product supplies will not be limited, interrupted, or of satisfactory quality or continue to be available at acceptable prices. In particular, any replacement of our manufacturer could require significant effort and expertise because there may be a limited number of qualified replacements.

The manufacturing process for a product candidate is subject to FDA and foreign regulatory authority review. We, and our suppliers and manufacturers, must meet applicable manufacturing requirements and undergo rigorous facility and process validation tests required by regulatory authorities in order to comply with regulatory standards, such as cGMPs. If we or our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or comparable foreign regulatory authorities, we may not be able to rely on our or their manufacturing facilities for the manufacture of elements of our product candidates. Moreover, we do not control the manufacturing process at our contract manufacturers, and are completely dependent on them for compliance with current regulatory requirements. In the event that any of our manufacturers fails to comply with such requirements or to perform its obligations in relation to quality, timing or otherwise, or if our supply of components or other materials becomes limited or interrupted for other reasons, we may be forced to manufacture the materials ourselves or enter into an agreement with another third party, which we may not be able to do on reasonable terms, if at all. In some cases, the technical skills or technology required to manufacture our product candidates may be unique or proprietary to the original manufacturer and we may have difficulty applying such skills or technology ourselves, or in transferring such to another third party. These factors would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to enable us, or to have another third party, manufacture our product candidates. If we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines; and we may be required to repeat some of the development program. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget.

We expect to continue to rely on third-party manufacturers if we receive regulatory approval for any product candidate. To the extent that we have existing, or enter into future, manufacturing arrangements with third parties, we will depend on these third parties to perform their obligations in a timely manner consistent with contractual and regulatory requirements, including those related to quality control and assurance. If we are unable to obtain or maintain third-party manufacturing for product candidates, or to do so on commercially reasonable terms, we may not be able to develop and commercialize our product candidates successfully. Our or a third party's failure to execute on our manufacturing requirements and comply with cGMPs could adversely affect our business in a number of ways, including:

- an inability to initiate or continue clinical trials of product candidates under development;
- delay in submitting regulatory applications, or receiving regulatory approvals, for product candidates;
- loss of the cooperation of an existing or future collaborator;
- subjecting third-party manufacturing facilities or our manufacturing facilities to additional inspections by regulatory authorities;
- requirements to cease distribution or to recall batches of our product candidates; and
- in the event of approval to market and commercialize a product candidate, an inability to meet commercial demands for our products.

Additionally, we and our contract manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes, unstable political environments, or epidemics or contagious diseases, such as the COVID-19 outbreak. If we or our contract manufacturers were to encounter any of these difficulties, our ability to provide our product candidates to patients in clinical trials, or to provide product for treatment of patients once approved, would be jeopardized.

We, or third-party manufacturers, may be unable to successfully scale-up manufacturing of our product candidates in sufficient quality and quantity, which would delay or prevent us from developing our product candidates and commercializing approved products, if any.

In order to conduct clinical trials of our product candidates, we will need to manufacture them in large quantities. We, or any manufacturing partners, may be unable to successfully increase the manufacturing capacity for any of our product candidates in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities. If we, or any manufacturing partners, are unable to successfully scale up the manufacture of our product candidates in sufficient quality and quantity, the development, testing, and clinical trials of that product candidate may be delayed or infeasible, and regulatory approval or commercial launch of any resulting product may be delayed or not obtained, which could significantly harm our business.

The manufacture of biologics is complex and we or our third-party manufacturers may encounter difficulties in production. If we or any of our third-party manufacturers encounter such difficulties, our ability to provide supply of our product candidates for clinical trials, our ability to obtain marketing approval, or our ability to provide supply of our products for patients, if approved, could be delayed or stopped.

Our product candidates are considered to be biologics and the process of manufacturing biologics is complex, time-consuming, highly regulated and subject to multiple risks. We and our contract manufacturers must comply with cGMPs, regulations and guidelines for the manufacturing of biologics used in clinical trials and, if approved, marketed products. To date, we and our contract manufacturers have limited experience in the manufacturing of cGMP batches of our product candidates.

Manufacturing biologics is highly susceptible to product loss due to contamination, equipment failure, improper installation or operation of equipment, vendor or operator error, inconsistency in yields, variability in product characteristics and difficulties in scaling the production process. 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 at our manufacturing facilities or those of our third-party manufacturers, such facilities may need to be closed for an extended period of time to investigate and remedy the contamination, which could delay clinical trials and adversely harm our business. Moreover, if the FDA determines that our manufacturing facilities or those of our third-party manufacturers are not in compliance with FDA laws and regulations, including those governing cGMPs, the FDA may deny BLA approval until the deficiencies are corrected or we replace the manufacturer in our BLA with a manufacturer that is in compliance.

In addition, there are risks associated with large scale manufacturing for clinical trials or commercial scale including, among others, cost overruns, potential problems with process scale-up, process reproducibility, stability issues, compliance with cGMPs, lot consistency, timely availability of raw materials and other technical challenges. Even if we or our collaborators obtain regulatory approval for any of our product candidates, there is no assurance that manufacturers will be able to manufacture the approved product to specifications acceptable to the FDA or other regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential launch of the product or to meet potential future demand. If our manufacturers are unable to produce sufficient quantities for clinical trials or for commercialization, commercialization efforts would be impaired, which would have an adverse effect on our business, financial condition, results of operations and prospects.

Scaling up a biologic manufacturing process is a difficult and uncertain task, and we may not be successful in transferring our production system or our third-party manufacturers may not have the necessary capabilities to complete the implementation and development process. If we are unable to adequately validate or scale-up the manufacturing process at our own manufacturing facilities or those of our current manufacturers, we will need to transfer to another manufacturer and complete the manufacturing validation process, which can be lengthy. If we are able to adequately validate and scale-up the manufacturing process for our product candidates at our manufacturing facility or with a contract manufacturer, we will still need to negotiate with such contract manufacturer an agreement for commercial supply and it is not certain we will be able to come to agreement on terms acceptable to us.

We cannot assure you that any stability or other issues relating to the manufacture of any of our product candidates or products will not occur in the future. If we or our third-party manufacturers were to encounter any of these difficulties, our ability to provide any product candidates to patients in planned clinical trials and products to patients, once approved, would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of planned clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely. Any adverse developments affecting clinical or commercial manufacturing of our product candidates or products, such as epidemics or contagious diseases, may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls, or other interruptions in the supply of our product candidates or products. We may also have to take inventory write-offs and incur other charges and expenses for product candidates or products that fail to meet specifications, undertake costly remediation efforts or seek more costly manufacturing alternatives. Accordingly, failures or difficulties faced at any level of our supply chain could adversely affect our business and delay or impede the development and commercialization of any of our product candidates or products, if approved, and could have an adverse effect on our business, prospects, financial condition and results of operations.

As part of our process development efforts, we also may make changes to our manufacturing processes at various points during development, for various reasons, such as controlling costs, achieving scale, decreasing processing time, increasing manufacturing success rate or other reasons. Such changes carry the risk that they will not achieve their intended objectives, and any of these changes could cause our product candidates to perform differently and affect the results of our ongoing clinical trials or future clinical trials. In some circumstances, changes in the manufacturing process may require us to perform *ex vivo* comparability studies and to collect additional data from patients prior to undertaking more advanced clinical trials. For instance, changes in our process during the course of clinical development may require us to show the comparability of the product used in earlier clinical phases or at earlier portions of a trial to the product used in later clinical phases or later portions of the trial.

We may not be successful in our efforts to use our XpressCF ® Platform to expand our pipeline of product candidates and develop marketable products.

The success of our business depends in large part upon our ability to identify, develop and commercialize products based on our XpressCF ® Platform. STRO-001 and STRO-002 are our most advanced clinical stage programs and our preclinical and research programs may fail to identify other potential product candidates for clinical development for a number of reasons. Our research methodology may be unsuccessful in identifying potential product candidates or our potential product candidates may be shown to have harmful side effects or may have other characteristics that may make the products unmarketable or unlikely to receive marketing approval. If any of these events occur, we may be forced to abandon our development efforts for a program or for multiple programs, which would materially harm our business and could potentially cause us to cease operations. Research programs to identify new product candidates require substantial technical, financial and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful.

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

Because we have limited financial and managerial resources, we focus our research and development efforts on certain selected product candidates. As a result, we may forgo or delay pursuit of opportunities with other 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 research and development programs and product candidates for specific indications may not yield any commercially viable product candidates. 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.

Failure to successfully validate, develop and obtain regulatory approval for companion diagnostics for our product candidates could harm our drug development strategy and operational results.

If companion diagnostics are developed in conjunction with clinical programs, the FDA may require regulatory approval of a companion diagnostic as a condition to approval of the product candidate. . For example, if we use a diagnostic test to determine which patients are most likely to benefit from STRO-001 for the treatment of multiple myeloma and non-Hodgkin lymphoma by designing our pivotal trial or trials of STRO-001 in that indication to require that clinical trial patients have elevated CD74 expression as a criterion for enrollment, then we will likely be required to obtain FDA approval or clearance of a companion diagnostic, concurrent with approval of STRO-001, to test for elevated CD74 expression; we may also be required to demonstrate to the FDA the predictive utility of the companion diagnostic—namely, that the diagnostic selects for patients in whom the biologic therapy will be effective or more effective compared to patients not selected for by the diagnostic. Similarly, as we are developing STRO-002 for a potential indication in patients with elevated FolRα expression levels, we may be required to obtain FDA approval or clearance of a companion diagnostic, concurrent with approval of STRO-002, to test for elevated FolRα expression. In addition, our partner BMS may be required to develop and obtain FDA clearance for a companion diagnostic to assess BCMA expression in patients in connection with their development of CC-99712. We do not have experience or capabilities in developing or commercializing diagnostics and plan to rely in large part on third parties to perform these functions. We do not currently have any agreement in place with any third party to develop or commercialize companion diagnostics for any of our product candidates. Companion diagnostics are subject to regulation by the FDA and foreign regulatory authorities as medical devices and require separate regulatory approval or clearance prior to commercialization.

If we or our collaborators, or any third party, are unable to successfully develop companion diagnostics for our product candidates, or experience delays in doing so:

- the development of our product candidates may be adversely affected if we are unable to appropriately select patients for enrollment in our planned clinical trials;
- our product candidates may not receive marketing approval if their safe and effective use depends on a companion diagnostic; and
- we may not realize the full commercial potential of any product candidates that receive marketing approval if, among other reasons, we are unable to appropriately identify patients with the specific genetic alterations targeted by our product candidates.

In addition, although we believe genetic testing is becoming more prevalent in the diagnosis and treatment of various diseases and conditions, our product candidates may be perceived negatively compared to alternative treatments that do not require the use of companion diagnostics, either due to the additional cost of the companion diagnostic or the need to complete additional procedures to identify genetic markers prior to administering our product candidates. If any of these events were to occur, our business would be harmed, possibly materially.

We face competition from entities that have developed or may develop product candidates for cancer, including companies developing novel treatments and technology platforms. If these companies develop technologies or product candidates more rapidly than we do or their technologies are more effective, our ability to develop and successfully commercialize product candidates may be adversely affected.

The development and commercialization of drugs and therapeutic biologics is highly competitive. Our product candidates, if approved, will face significant competition and our failure to effectively compete may prevent us from achieving significant market penetration. Most of our competitors have significantly greater resources than we do and we may not be able to successfully compete. We compete with a variety of multinational biopharmaceutical companies, specialized biotechnology companies and emerging biotechnology companies, as well as with technologies and product candidates being developed at universities and other research institutions. Our competitors have developed, are developing or will develop product candidates and processes competitive with our product candidates and processes. Competitive therapeutic treatments include those that have already been approved and accepted by the medical community and any new treatments, including those based on novel technology platforms, that enter the market. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the treatment of conditions for which we are trying, or may try, to develop product candidates. There is intense and rapidly evolving competition in the biotechnology, biopharmaceutical and antibody and immunoregulatory therapeutics fields. While we believe that our XpressCF® Platform, associated intellectual property and our scientific and technical know-how give us a competitive advantage in this space, competition from many sources exists or may arise in the future. Our competitors include larger and better funded biopharmaceutical, biotechnological and therapeutics companies, including companies focused on cancer immunotherapies, such as AstraZeneca PLC, BMS, GlaxoSmithKline PLC, Merck & Co., Inc., Novartis AG, Pfizer Inc., Roche Holding Ltd, Sanofi S.A, and companies focused on ADCs, such as Pfizer, Inc., GlaxoSmithKline PLC, Daiichi Sankyo Company, Limited, ImmunoGen, Inc., Seattle Genetics, Inc., Genentech, Inc., Immunomedics, Inc., and ADC Therapeutics SA, as well as numerous small companies. Moreover, we also compete with current and future therapeutics developed at universities and other research institutions.

We are aware of several companies that are developing ADCs, cytokine derivatives, bispecific antibodies and cancer immunotherapies. Many of these companies are well-capitalized and, in contrast to us, have significant clinical experience, and may include our existing or future collaborators. In addition, these companies compete with us in recruiting scientific and managerial talent.

Our success will depend partially on our ability to develop and protect therapeutics that are safer and more effective than competing products. Our commercial opportunity and success will be reduced or eliminated if competing products are safer, more effective, or less expensive than the therapeutics we develop.

If our most advanced product candidates are approved, they will compete with a range of therapeutic treatments that are either in development or currently marketed. Currently marketed oncology drugs and therapeutics range from ADCs, such as Genentech's Kadcyla, to immune checkpoint inhibitors such as BMS's Opdivo to T cell-engager immunotherapies such as Amgen, Inc.'s Blincyto, and CAR-T cell therapies such as Gilead's Yescarta. In addition, numerous compounds are in clinical development for cancer treatment. With respect to B cell-based malignancies, such as multiple myeloma, the most common treatments are chemotherapeutic compounds, radiation therapy, stem cell transplantation and immunomodulating agents. The clinical development pipeline for cancer includes small molecules, antibodies, vaccines, cell therapies and immunotherapies from a variety of companies and institutions.

Many of our competitors have significantly greater financial, technical, manufacturing, marketing, sales and supply resources or experience than we have. If we successfully obtain approval for any product candidate, we will face competition based on many different factors, including the safety and effectiveness of our products, the ease with which our products can be administered and the extent to which patients accept relatively new routes of administration, the timing and scope of regulatory approvals for these products, the availability and cost of manufacturing, marketing and sales capabilities, price, reimbursement coverage and patent position. Competing products could present superior treatment alternatives, including by being more effective, safer, less expensive or marketed and sold more effectively than any products we may develop. Competitive products may make any products we develop obsolete or noncompetitive before we recover the expense of developing and commercializing our product candidates. Such competitors could also recruit our employees, which could negatively impact our level of expertise and our ability to execute our business plan.

Any inability to attract and retain qualified key management and technical personnel would impair our ability to implement our business plan.

Our success largely depends on the continued service of key management, advisors and other specialized personnel, including William J. Newell, our chief executive officer, Edward Albini, our chief financial officer, Trevor J. Hallam, Ph.D., our chief scientific officer, Arturo Molina, M.D., our chief medical officer and Shabbir T. Anik, Ph.D., our chief technical operations officer. The loss of one or more members of our management team or other key employees or advisors could delay our research and development programs and have a material and adverse effect on our business, financial condition, results of operations and prospects. The relationships that our key managers have cultivated within our industry make us particularly dependent upon their continued employment with us. We are dependent on the continued service of our technical personnel because of the highly technical nature of our product candidates and XpressCF® Platform technologies and the specialized nature of the regulatory approval process. Because our management team and key employees are not obligated to provide us with continued service, they could terminate their employment with us at any time without penalty. Our future success will depend in large part on our continued ability to attract and retain other highly qualified scientific, technical and management personnel, as well as personnel with expertise in clinical testing, manufacturing, governmental regulation and commercialization. We face competition for personnel from other companies, universities, public and private research institutions, government entities and other organizations. If we are unable to continue to attract and retain high-quality personnel, the rate and success at which we can discover and develop product candidates will be limited which could have a material and adverse effect on our business, financial condition, results of operations and prospects.

We will need to grow our organization, and we may experience difficulties in managing our growth and expanding our operations.

As of December 31, 2019, we had 168 full-time employees. As our development and commercialization plans and strategies develop, and as we transition into operating as a public company, we expect to expand our employee base for managerial, operational, financial and other resources. In addition, we have limited experience in product development and began our first clinical trials for our first two product candidates in 2018 and 2019. As our product candidates enter and advance through preclinical studies and clinical trials, we will need to expand our development, regulatory and manufacturing capabilities or contract with other organizations to provide these capabilities for us. In the future, we expect to have to manage additional relationships with collaborators or partners, suppliers and other organizations. Our ability to manage our operations and future growth will require us to continue to improve our operational, financial and management controls, reporting systems and procedures. We may not be able to implement improvements to our management information and control systems in an efficient or timely manner and may discover deficiencies in existing systems and controls. Our inability to successfully manage our growth and expand our operations could have a material and adverse effect on our business, financial condition, results of operations and prospects.

If any of our product candidates are approved for marketing and commercialization and we are unable to develop sales, marketing and distribution capabilities on our own or enter into agreements with third parties to perform these functions on acceptable terms, we will be unable to commercialize successfully any such future products.

We currently have no sales, marketing or distribution capabilities or experience. If any of our product candidates are approved, we will need to develop internal sales, marketing and distribution capabilities to commercialize such products, which would be expensive and time consuming, or enter into collaborations with third parties to perform these services. If we decide to market our products directly, we will need to commit significant financial and managerial resources to develop a marketing and sales force with technical expertise and supporting distribution, administration and compliance capabilities. If we rely on third parties with such capabilities to market our products or decide to co-promote products with collaborators, we will need to establish and maintain marketing and distribution arrangements with third parties, and there can be no assurance that we will be able to enter into such arrangements on acceptable terms or at all. In entering into third-party marketing or distribution arrangements, any revenue we receive will depend upon the efforts of the third parties and there can be no assurance that such third parties will establish adequate sales and distribution capabilities or be successful in gaining market acceptance of any approved product. If we are not successful in commercializing any product approved in the future, either on our own or through third parties, our business, financial condition, results of operations and prospects could be materially and adversely affected.

Our future growth may depend, in part, on our ability to operate in foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future growth may depend, in part, on our ability to develop and commercialize our product candidates in foreign markets for which we may rely on collaboration with third parties. We are not permitted to market or promote any of our product candidates before we receive regulatory approval from the applicable regulatory authority in that foreign market, and may never receive such regulatory approval for any of our product candidates. To obtain separate regulatory approval in many other countries, we must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of our product candidates, and we cannot predict success in these jurisdictions. If we fail to comply with the regulatory requirements in international markets and do not receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed and our business will be adversely affected. We may not obtain foreign regulatory approvals on a timely basis, if at all. Our failure to obtain approval of any of our product candidates by regulatory authorities in another country may significantly diminish the commercial prospects of that product candidate and our business, financial condition, results of operations and prospects could be materially and adversely affected. Moreover, even if we obtain approval of our product candidates and ultimately commercialize our product candidates in foreign markets, we would be subject to the risks and uncertainties, including the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements and reduced protection of intellectual property rights in some foreign countries.

Price controls imposed in foreign markets may adversely affect our future profitability.

In some countries, particularly member states of the EU, the pricing of prescription drugs is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after receipt of marketing approval for a product. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various EU member states and parallel distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. In some countries, we or current or future collaborators may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of our therapeutic candidates to other available therapies in order to obtain or maintain reimbursement or pricing approval. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If reimbursement of any product candidate approved for marketing is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business, financial condition, results of operations or prospects could be materially and adversely affected.

Price controls imposed in the U.S. may affect our future profitability.

Recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. Current and future presidential budget proposals and future legislation may contain further drug price control measures that could be enacted. Congress and current and future U.S. presidential administrations may continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. If such pricing controls are enacted and are set at unsatisfactory levels, our business, financial condition, results of operations or prospects could be materially and adversely affected.

Our business entails a significant risk of product liability and our ability to obtain sufficient insurance coverage could have a material and adverse effect on our business, financial condition, results of operations and prospects.

As we are conducting clinical trials of our product candidates, we may be exposed to significant product liability risks inherent in the development, testing, manufacturing and marketing of therapeutic treatments. Product liability claims could delay or prevent completion of our development programs. If we succeed in marketing products, such claims could result in an FDA investigation of the safety and effectiveness of our products, our manufacturing processes and facilities or our marketing programs and potentially a recall of our products or more serious enforcement action, limitations on the approved indications for which they may be used or suspension or withdrawal of approvals. Regardless of the merits or eventual outcome, liability claims may also result in decreased demand for our products, injury to our reputation, costs to defend the related litigation, a diversion of management's time and our resources, substantial monetary awards to trial participants or patients and a decline in our stock price. While we currently have product liability insurance that we believe is appropriate for our stage of development, we may need to obtain higher levels prior to later stages of clinical development or marketing any of our product candidates. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Our employees may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

As with all companies, we are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with FDA regulations, provide accurate information to the FDA, comply with manufacturing standards we may establish, comply with federal and state healthcare fraud and abuse laws and regulations, inappropriately share confidential and proprietary information externally, report financial information or data accurately or 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, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such 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 material and adverse effect on our business, financial condition, results of operations and prospects, including the imposition of significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, the curtailment or restructuring of our operations, loss of eligibility to obtain approvals from the FDA, exclusion from participation in government contracting, healthcare reimbursement or other government programs, including Medicare and Medicaid, integrity oversight and reporting obligations, or reputational harm.

We depend on our information technology systems, and any failure of these systems, or those of our CROs or other contractors or consultants we may utilize, could harm our business. Security breaches, loss of data, and other disruptions could compromise sensitive information related to our business or prevent us from accessing critical information and expose us to liability, which could adversely affect our business, results of operations, financial condition and prospects.

We collect and maintain information in digital form that is necessary to conduct our business, and we are increasingly dependent on information technology systems and infrastructure to operate our business. In the ordinary course of our business, we collect, store and transmit large amounts of confidential information, including intellectual property, proprietary business information and personal information. It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential information. We have established physical, electronic and organizational measures to safeguard and secure our systems to prevent a data compromise, and rely on commercially available systems, software, tools, and monitoring to provide security for our information technology systems and the processing, transmission and storage of digital information. We have also outsourced elements of our information technology infrastructure, and as a result a number of third-party vendors may or could have access to our confidential information. Our internal information technology systems and infrastructure, and those of our current and any future collaborators, CROs, contractors and consultants and other third parties on which we rely, are vulnerable to damage from computer viruses, malware, natural disasters, terrorism, war, telecommunication and electrical failures, cyber-attacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to systems inside our organization.

The risk of a security breach or disruption or data loss, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. In addition, the prevalent use of mobile devices that access confidential information increases the risk of data security breaches, which could lead to the loss of confidential information or other intellectual property. The costs to us or our CROs or other contractors or consultants we may utilize to mitigate network security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant, and while we have implemented security measures to protect our data security and information technology systems, our efforts to address these problems may not be successful, and these problems could result in unexpected interruptions, delays, cessation of service and other harm to our business and our competitive position. We are also aware of publicly disclosed security breaches at certain third-parties on which we rely, although we have not been informed of any resulting breach to our data. If such an event were to occur, whether to us or a third-party on which we rely, and cause interruptions in our operations, it could result in a material disruption of our product development programs. For example, the loss of clinical trial data from completed or ongoing or planned clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Moreover, if a computer security breach affects our systems or results in the unauthorized release of personally identifiable information, our reputation could be materially damaged. In addition, such a breach may require notification to governmental agencies, the media or individuals pursuant to various federal and state privacy and security laws, if applicable, including the Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and its implementing rules and regulations, as well as regulations promulgated by the Federal Trade Commission and state breach notification laws. We would also be exposed to a risk of loss or litigation and potential liability, which could materially adversely affect our business, results of operations, financial condition and prospects.

Our information technology systems could face serious disruptions that could adversely affect our business.

Our information technology and other internal infrastructure systems, including corporate firewalls, servers, leased lines and connection to the Internet, face the risk of systemic failure that could disrupt our operations. A significant disruption in the availability of our information technology and other internal infrastructure systems could cause interruptions and delays in our research and development and manufacturing work.

The terms of our Loan and Security Agreement require us to meet certain covenants and place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

The Loan and Security Agreement is secured by a lien covering all of our assets, excluding our intellectual property and certain other assets. Subject to the terms of the Loan and Security Agreement, we have the option to prepay all, but not less than all, of the amounts borrowed under the Loan and Security Agreement, subject to certain penalty payments, prior to the March 1, 2024 maturity date, at which time all amounts borrowed will be due and payable.

The Loan and Security Agreement we entered into in February 2020 with Oxford and SVB contains customary affirmative and negative covenants, indemnification provisions and events of default. The affirmative covenants include, among others, covenants requiring us to maintain our legal existence and governmental approvals, deliver certain financial reports and maintain certain intellectual property rights. The negative covenants include, among others, restrictions on transferring or licensing our assets, changing our business, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, and creating other liens on our assets, in each case subject to customary exceptions. If we default under the Loan and Security Agreement, the lenders will be able to declare all obligations immediately due and payable and take control of our collateral, potentially requiring us to renegotiate our agreement on terms less favorable to us or to immediately cease operations. Further, if we are liquidated, the rights of Oxford and SVB to repayment would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation. Oxford, acting as collateral agent for the lenders, could declare a default under the Loan and Security Agreement upon the occurrence of any event that Oxford and SVB interpret as a material adverse change as defined under the Loan and Security Agreement, thereby requiring us to repay the loan immediately or to attempt to reverse the declaration of default through negotiation or litigation. Any declaration by the collateral agent of an event of default could significantly harm our business and prospects and could cause the price of our common stock to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be affected adversely.

Our research, development and manufacturing involve the use of hazardous chemicals and materials, including radioactive materials. We maintain quantities of various flammable and toxic chemicals in our facilities in South San Francisco and San Carlos, California that are required for our research, development and manufacturing activities. We are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous chemicals and materials. We believe our procedures for storing, handling and disposing these materials in our South San Francisco and San Carlos facilities comply with the relevant guidelines of the two municipalities, the counties of San Francisco and San Mateo, the state of California and the Occupational Safety and Health Administration of the U.S. Department of Labor. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of animals and biohazardous materials. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials, this insurance may not provide adequate coverage against potential liabilities. While we maintain pollution legal liability insurance for our manufacturing facility in San Carlos, California, we do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological or hazardous materials in our other locations. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Our current operations are in two cities in the San Francisco Bay Area, and 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 current operations are located in our facilities in South San Francisco and San Carlos, California. Any unplanned event, such as earthquake, flood, fire, explosion, extreme weather condition, epidemic or contagious disease, power shortage, telecommunication failure or other natural or man-made accidents or incidents that result in us being unable to fully utilize our facilities, or the manufacturing facilities of our third-party contract manufacturers, may have a material and adverse effect on our ability to operate our business, particularly on a daily basis, and have significant negative consequences on our financial and operating conditions. Loss of access to these facilities may result in increased costs, delays in the development of our product candidates or interruption of our business operations. Earthquakes, epidemics or contagious diseases, or other natural disasters could further disrupt our operations, and have a material and adverse effect on our business, financial condition, results of operations and prospects. If a natural disaster, power outage, epidemic or contagious disease, or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our research or manufacturing facilities or 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 may prove inadequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which could have a material adverse effect on our business. As part of our risk management policy, we maintain insurance coverage at levels that we believe are appropriate for our business. However, in the event of an accident or incident at these facilities, we cannot assure you that the amounts of insurance will be sufficient to satisfy any damages and losses. If our facilities, or the manufacturing facilities of our third-party contract manufacturers, are unable to operate because of an accident or incident or for any other reason, even for a short period of time, any or all of our research and development programs may be harmed. Any business interruption could have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes an “ownership change” (generally defined as a greater than 50 percentage points change (by value) in the ownership of its equity over a rolling three-year period), the corporation’s ability to use its pre-change net operating loss, or NOL, carryforwards and certain other pre-change tax attributes to offset its post-change income and taxes may be limited. We have experienced such ownership changes in the past and may experience such ownership changes in the future, some of which are outside our control.

As of December 31, 2019, we had federal NOL carryforwards of approximately $120.7 million, and our ability to utilize those NOL carryforwards could be limited by an “ownership change” as described above, which could result in increased tax liability to our company.

On December 22, 2017, the current U.S. presidential administration, signed into law the Tax Cuts and Jobs Act of 2017, or the Tax Reform Act. The legislation significantly changes U.S. tax law by, among other things, lowering the corporate income tax rates. The Tax Reform Act permanently reduces the U.S. corporate income tax rate from a maximum of 35% to a flat 21% rate, effective January 1, 2018. Additionally, the Tax Reform Act will no longer allow deductions for compensation in excess of $1.0 million for certain employees, even if paid as commissions or performance-based compensation. We may be subject to these limitations as provided for under Section 162(m) of the Code in the future. The Tax Reform Act also limits the amount taxpayers are able to deduct for federal NOL carryforwards generated in taxable years beginning after December 31, 2017 to 80% of the taxpayer’s taxable income. The law also generally repeals all carrybacks. However, any NOLs generated in taxable years after December 31, 2017 can be carried forward indefinitely. Losses arising in taxable years beginning before December 31, 2017 may still be carried back two years and are subject to their current expiration period. As of December 31, 2019, we had approximately $88.7 million of federal NOLs that were generated prior to 2018, which will expire at various dates beginning in 2032, if not used to reduce income taxes payable in the future. Federal NOLs generated by us subsequent to 2017 may only offset 80% of taxable income.

Our financial results may be adversely affected by changes in accounting principles generally accepted in the United States.

Generally accepted accounting principles in the United States, or U.S. GAAP, are subject to interpretation by the Financial Accounting Standards Board, or the FASB, the American Institute of Certified Public Accountants, the SEC and various bodies formed to promulgate and interpret appropriate accounting principles. For example, in May 2014, the FASB issued accounting standards update No. 2014-09 (Topic 606), Revenue from Contracts with Customers, which supersedes nearly all existing revenue recognition guidance under U.S. GAAP. We adopted this new accounting standard as of January 1, 2019. Any difficulties in implementing this guidance could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors' confidence in us. Additionally, the implementation of this guidance or a change in other principles or interpretations could have a significant effect on our financial results, and could affect the reporting of transactions completed before the announcement of a change. Furthermore, we have adopted Topic 606 through the modified retrospective method. This will impact the comparability of our financial results which might lead investors to draw incorrect conclusions which could harm investor interest in holding or purchasing our equity.

Risks Related to Intellectual Property

If we are not able to obtain and enforce patent protection for our technologies or product candidates, development and commercialization of our product candidates may be adversely affected.

Our success depends in part on our ability to obtain and maintain patents and other forms of intellectual property rights, including in-licenses of intellectual property rights of others, for our product candidates, methods used to manufacture our product candidates and methods for treating patients using our product candidates, as well as our ability to preserve our trade secrets, to prevent third parties from infringing upon our proprietary rights and to operate without infringing upon the proprietary rights of others. We may not be able to apply for patents on certain aspects of our product candidates in a timely fashion or at all. Further, we may not be able to prosecute all necessary or desirable patent applications, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. We may not have the right to control the preparation, filing and prosecution of all patent applications that we license from third parties, or to maintain the rights to patents licensed to third parties. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Our existing issued and granted patents and any future patents we obtain may not be sufficiently broad to prevent others from using our technology or from developing competing products and technology. There is no guarantee that any of our pending patent applications will result in issued or granted patents, that any of our issued or granted patents will not later be found to be invalid or unenforceable or that any issued or granted patents will include claims that are sufficiently broad to cover our product candidates or to provide meaningful protection from our competitors. Moreover, the patent position of biotechnology and biopharmaceutical companies can be highly uncertain because it involves complex legal and factual questions. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our current and future proprietary technology and product candidates are covered by valid and enforceable patents or are effectively maintained as trade secrets. If third parties disclose or misappropriate our proprietary rights, it may materially and adversely affect our position in the market.

The U.S. Patent and Trademark Office, or USPTO, and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case. The standards applied by the USPTO and foreign patent offices in granting patents are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable in biotechnology and biopharmaceutical patents. As such, we do not know the degree of future protection that we will have on our proprietary products and technology. While we will endeavor to try to protect our product candidates with intellectual property rights such as patents, as appropriate, the process of obtaining patents is time consuming, expensive and sometimes unpredictable.

Once granted, patents may remain open to opposition, interference, re-examination, post-grant review, *inter partes* review, nullification or derivation action in court or before patent offices or similar proceedings for a given period after allowance or grant, during which time third parties can raise objections against such initial grant. In the course of such proceedings, which may continue for a protracted period of time, the patent owner may be compelled to limit the scope of the allowed or granted claims thus attacked, or may lose the allowed or granted claims altogether. In addition, there can be no assurance that:

- others will not or may not be able to make, use or sell compounds that are the same as or similar to our product candidates but that are not covered by the claims of the patents that we own or license;
- we or our licensors, or our existing or future collaborators are the first to make the inventions covered by each of our issued patents and pending patent applications that we own or license;
- we or our licensors, or our existing or future collaborators are the first to file patent applications covering certain aspects of our inventions;
- others will not independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- a third party may not challenge our patents and, if challenged, a court would hold that our patents are valid, enforceable and infringed;
- any issued patents that we own or have licensed will provide us with any competitive advantages, or will not be challenged by third parties;
- we may develop additional proprietary technologies that are patentable;
- the patents of others will not have a material or adverse effect on our business, financial condition, results of operations and prospects; and
- our competitors do not conduct research and development activities in countries where we do not have enforceable patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets.

If we or our licensors or collaborators fail to maintain the patents and patent applications covering our product candidates, our competitors might be able to enter the market, which could have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

In addition to seeking patent protection for certain aspects of our product candidates, we also consider trade secrets, including confidential and unpatented know-how important to the maintenance of our competitive position. We protect trade secrets and confidential and unpatented know-how, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to such knowledge, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants that obligate them to maintain confidentiality and assign their inventions to us. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts in the United States and certain foreign jurisdictions are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed which could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Other companies or organizations may challenge our or our licensors' patent rights or may assert patent rights that prevent us from developing and commercializing our products.

Therapeutics in oncology or other disease areas developed in cell-free-based synthesis systems are a relatively new scientific field. We have obtained grants and issuances of, and have obtained a license from a third party on an exclusive basis to, patents related to our proprietary XpressCF® Platform. The issued patents and pending patent applications in the United States and in key markets around the world that we own or license claim many different methods, compositions and processes relating to the discovery, development, manufacture and commercialization of antibody-based and other therapeutics.

As the field of antibody-based therapeutics continues to mature, patent applications are being processed by national patent offices around the world. There is uncertainty about which patents will issue and, if they do, as to when, to whom, and with what claims. In addition, third parties may attempt to invalidate our intellectual property rights. Even if our rights are not directly challenged, disputes could lead to the weakening of our intellectual property rights. Our defense against any attempt by third parties to circumvent or invalidate our intellectual property rights could be costly to us, could require significant time and attention of our management and could have a material and adverse effect on our business, financial condition, results of operations and prospects or our ability to successfully compete.

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

Obtaining a valid and enforceable issued or granted patent covering our technology in the United States and worldwide can be extremely costly, and our or our licensors' or collaborators' intellectual property rights may not exist in some countries outside the United States or may be less extensive in some countries than in the United States. In jurisdictions where we or our licensors or collaborators have not obtained patent protection, competitors may seek to use our or their technology to develop their own products and further, may export otherwise infringing products to territories where we or they have patent protection, but where it is more difficult to enforce a patent as compared to the United States. Competitor products may compete with our future products in jurisdictions where we do not have issued or granted patents or where our or our licensors' or collaborators' issued or granted patent claims or other intellectual property rights are not sufficient to prevent competitor activities in these jurisdictions. The legal systems of certain countries, particularly certain developing countries, make it difficult to enforce patents and such countries may not recognize other types of intellectual property protection, particularly relating to biopharmaceuticals. This could make it difficult for us or our licensors or collaborators to prevent the infringement of our or their patents or marketing of competing products in violation of our or their proprietary rights generally in certain jurisdictions. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our and our licensors' or collaborators' efforts and attention from other aspects of our business, could put our and our licensors' or collaborators' patents at risk of being invalidated or interpreted narrowly and our and our licensors' or collaborators' patent applications at risk of not issuing and could provoke third parties to assert claims against us or our licensors or collaborators. We or our licensors or collaborators may not prevail in any lawsuits that we or our licensors or collaborators initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful.

We generally file a provisional patent application first (a priority filing) at the USPTO. An international application under the Patent Cooperation Treaty, PCT, is usually filed within twelve months after the priority filing. Based on the PCT filing, national and regional patent applications may be filed in the United States, EU, Japan, Australia and Canada and, depending on the individual case, also in any or all of, inter alia, Brazil, China, Hong Kong, India, Israel, Mexico, New Zealand, Russia, South Africa, South Korea and other jurisdictions. We have so far not filed for patent protection in all national and regional jurisdictions where such protection may be available. In addition, we may decide to abandon national and regional patent applications before grant. Finally, the grant proceeding of each national or regional patent is an independent proceeding which may lead to situations in which applications might in some jurisdictions be refused by the relevant registration authorities, while granted by others. It is also quite common that depending on the country, various scopes of patent protection may be granted on the same product candidate or technology.

The laws of some jurisdictions do not protect intellectual property rights to the same extent as the laws in the United States, and many companies have encountered significant difficulties in protecting and defending such rights in such jurisdictions. If we or our licensors or collaborators encounter difficulties in protecting, or are otherwise precluded from effectively protecting, the intellectual property rights important for our business in such jurisdictions, the value of these rights may be diminished and we may face additional competition from others in those jurisdictions. Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors or collaborators are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position in the relevant

jurisdiction may be impaired and our business, financial condition, results of operations and prospects may be adversely affected.

We, our licensors or collaborators, or any future strategic partners may need to resort to litigation to protect or enforce our patents or other proprietary rights, all of which could be costly, time consuming, delay or prevent the development and commercialization of our product candidates, or put our patents and other proprietary rights at risk.

Competitors may infringe our patents or other intellectual property. If we were to initiate legal proceedings against a third party to enforce a patent covering one of our products or our technology, the defendant could counterclaim that our patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that an individual connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on one or more of our products or certain aspects of our platform technology. Such a loss of patent protection could have a material and adverse effect on our business, financial condition, results of operations and prospects. Interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms or at all, or if a non-exclusive license is offered and our competitors gain access to the same technology. 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. Patents and other intellectual property rights also will not protect our technology if competitors design around our protected technology without legally infringing our patents or other intellectual property rights.

Intellectual property rights of third parties could adversely affect our ability to commercialize our product candidates, and we, our licensors or collaborators, or any future strategic partners may become subject to third party claims or litigation alleging infringement of patents or other proprietary rights or seeking to invalidate patents or other proprietary rights. We might be required to litigate or obtain licenses from third parties in order to develop or market our product candidates. Such litigation or licenses could be costly or not available on commercially reasonable terms.

We, our licensors or collaborators, or any future strategic partners may be subject to third-party claims for infringement or misappropriation of patent or other proprietary rights. 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* review proceedings before the USPTO, and corresponding foreign patent offices. There are many issued and pending patents that might claim aspects of our product candidates and modifications that we may need to apply to our product candidates. There are also many issued patents that claim antibodies, portions of antibodies, cytokines, half-life extending polymers, linkers, cytotoxins, or other warheads that may be relevant for the products we wish to develop. Thus, it is possible that one or more organizations will hold patent rights to which we will need a license. If those organizations refuse to grant us a license to such patent rights on reasonable terms, we may not be able to market products or perform research and development or other activities covered by these patents which could have a material and adverse effect on our business, financial condition, results of operations and prospects. We are obligated under certain of our license and collaboration agreements to indemnify and hold harmless our licensors or collaborators for damages arising from intellectual property infringement by use. For example, we are obligated under the Stanford Agreement to indemnify and hold harmless Stanford for damages arising from intellectual property infringement by us resulting from exercise of the license from Stanford. If we, our licensors or collaborators, or any future strategic partners are found to infringe a third-party patent or other intellectual property rights, we could be required to pay damages, potentially including treble damages, if we are found to have infringed willfully. In addition, we, our licensors or collaborators, or any future strategic partners may choose to seek, or be required to seek, a license from a third party, which may not be available on acceptable terms, if at all. Even if a license can be obtained on acceptable terms, the rights may be non-exclusive, which could give our competitors access to the same technology or intellectual property rights licensed to us. If we fail to obtain a required license, we or our existing or future collaborators may be unable to effectively market product candidates based on our technology, which could limit our ability to generate revenue or achieve profitability and

possibly prevent us from generating revenue sufficient to sustain our operations. In addition, we may find it necessary to pursue claims or initiate lawsuits to protect or enforce our patent or other intellectual property rights. The cost to us in defending or initiating any litigation or other proceeding relating to patent or other proprietary rights, even if resolved in our favor, could be substantial, and litigation could divert our management's attention. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could delay our research and development efforts and limit our ability to continue our operations.

Because the antibody-based therapeutics landscape is still evolving, it is difficult to conclusively assess our freedom to operate without infringing on third-party rights. There are numerous companies that have pending patent applications and issued patents broadly covering antibodies generally, covering antibodies directed against the same targets as, or targets similar to, those we are pursuing, or covering linkers and cytotoxic warheads similar to those that we are using in our product candidates. For example, we are aware of an issued patent, expected to expire in 2023, which has claims relating to methods of treating CD74-positive multiple myeloma with an ADC targeting CD74. If valid and not yet expired when, and if, we receive marketing approval for STRO-001, we may need to seek a license to this patent, which may not be available on commercially reasonable terms or at all. Failure to receive a license could delay commercialization of STRO-001. Our competitive position may suffer if patents issued to third parties or other third-party intellectual property rights cover our products or product candidates or elements thereof, or our manufacture or uses relevant to our development plans. In such cases, we may not be in a position to develop or commercialize products or product candidates until such patents expire or unless we successfully pursue litigation to nullify or invalidate the third-party intellectual property right concerned, or enter into a license agreement with the intellectual property right holder, if available on commercially reasonable terms. There may be issued patents of which we are not aware, held by third parties that, if found to be valid and enforceable, could be alleged to be infringed by our XpressCF® Platform and related technologies and product candidates. There also may be pending patent applications of which we are not aware that may result in issued patents, which could be alleged to be infringed by our XpressCF® Platform and related technologies and product candidates. If such an infringement claim should be brought and be successful, we may be required to pay substantial damages, including potentially treble damages and attorneys' fees for willful infringement, and we may be forced to abandon our product candidates or seek a license from any patent holders. No assurances can be given that a license will be available on commercially reasonable terms, if at all.

It is also possible that we have failed to identify relevant third-party patents or applications. For example, U.S. applications filed before November 29, 2000 and certain U.S. applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Patent applications in the United States and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our products or platform technology could have been filed by others without our knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our platform technology, our products or the use of our products. Third-party intellectual property right holders may also actively bring infringement claims against us. We cannot guarantee that we will be able to successfully settle or otherwise resolve such infringement claims. If we are unable to successfully settle future claims on terms acceptable to us, we may be required to engage in or continue costly, unpredictable and time-consuming litigation and may be prevented from or experience substantial delays in marketing our products. Parties making claims against us may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have material adverse effect on our ability to raise additional funds or otherwise have a material adverse effect on our business, results of operations, financial condition and prospects. If we fail in any such dispute, in addition to being forced to pay damages, we may be temporarily or permanently prohibited from commercializing any of our product candidates that are held to be infringing. We might, if possible, also be forced to redesign product candidates so that we no longer infringe the third-party intellectual property rights. Any of these events, even if we were ultimately to prevail, could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business and could have a material and adverse effect on our business, financial condition, results of operations and prospects.

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

Litigation or other legal proceedings relating to intellectual property claims, with or without merit, is unpredictable and generally expensive and time consuming and is likely to divert significant resources from our core business, including distracting our technical and management personnel from their normal responsibilities. 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. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Moreover, 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 adequately conduct such litigation or proceedings. 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 and more mature and developed intellectual property portfolios. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating or from successfully challenging our intellectual property rights. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

If we fail to comply with our obligations under any license, collaboration or other agreements, we may be required to pay damages and could lose intellectual property rights that are necessary for developing and protecting our product candidates or we could lose certain rights to grant sublicenses.

Our current licenses impose, and any future licenses we enter into are likely to impose, various development, commercialization, funding, milestone, royalty, diligence, sublicensing, insurance, patent prosecution and enforcement and/or other obligations on us. If we breach any of these obligations, or use the intellectual property licensed to us in an unauthorized manner, we may be required to pay damages and the licensor may have the right to terminate the license, which could result in us being unable to develop, manufacture and sell any future products that are covered by the licensed technology or enable a competitor to gain access to the licensed technology. Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights. In addition, while we cannot determine currently the amount of the royalty obligations we would be required to pay on sales of future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

Moreover, disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our product candidates, technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

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

which could have a material adverse effect on our business, financial conditions, results of operations, and prospects.

We may be subject to claims that we or our employees or consultants have wrongfully used or disclosed alleged trade secrets of our employees' or consultants' former employers or their clients. These claims may be costly to defend and if we do not successfully do so, we may be required to pay monetary damages and may lose valuable intellectual property rights or personnel.

Many of our employees were previously employed at universities or biotechnology or biopharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. A loss of key research personnel or their work product could hamper our ability to commercialize, or prevent us from commercializing, our product candidates, which could severely harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

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

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including generics or biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

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

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and/or applications. We have systems in place to remind us to pay these fees, and we employ an outside firm and/or rely on our outside counsel to pay these fees due to non-U.S. patent agencies. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market and this circumstance would have a material adverse effect on our business.

Changes in U.S. patent and ex-U.S. patent laws could diminish the value of patents in general, thereby impairing our ability to protect our products.

Changes in either the patent laws or interpretation of the patent laws in the United States or in other ex-U.S. jurisdictions could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. In the United States, numerous recent changes to the patent laws and proposed changes to the rules of the USPTO that may have a significant impact on our ability to protect our technology and enforce our intellectual property rights. For example, the America Invents Act, enacted within the last several years involves significant changes in patent legislation. The U.S. Supreme Court has ruled on several patent cases in recent years, some of which cases either narrow the scope of patent protection available in certain circumstances or weaken the rights of patent owners in certain situations. For example, the decision by the U.S. Supreme Court in Association for Molecular Pathology v. Myriad Genetics, Inc. precludes a claim to a nucleic acid having a stated nucleotide sequence that is identical to a sequence found in nature and unmodified. We currently are not aware of an immediate impact of this decision on our patents or patent applications because we are developing product candidates that contain modifications that we believe are not found in nature. However, this decision has yet to be clearly interpreted by courts and by the USPTO. We cannot assure you that the interpretations of this decision or subsequent rulings will not adversely impact our patents or patent applications. In

addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts and the USPTO, and similar legislative and regulatory bodies in other countries in which we may pursue patent protection, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

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

Our trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively, which could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Government Regulation

Clinical development involves a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results. If we are unable to develop, obtain regulatory approval for and commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

All of our product candidates are in preclinical or early clinical development and their risk of failure is high. It is impossible to predict when or if any of our product candidates will receive regulatory approval. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical studies and then conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates in humans. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the development process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits, despite having progressed through preclinical studies and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or safety profiles, notwithstanding promising results in earlier trials.

We commenced a Phase 1 clinical trial of STRO-001, an ADC directed against CD74, for certain cancers in April 2018 and commenced a STRO-002 Phase 1 trial focused on ovarian and endometrial cancers in March 2019. Commencing our future clinical trials is subject to finalizing the trial design and submitting an IND or similar submission with the FDA or similar foreign regulatory authority. Even after we submit our IND or comparable submissions in other jurisdictions, the FDA or other regulatory authorities could disagree that we have satisfied their requirements to commence our clinical trials or disagree with our study design, which may require us to complete additional preclinical studies or amend our protocols or impose stricter conditions on the commencement of clinical trials.

We or our collaborators may experience delays in completing our preclinical studies and initiating or completing clinical trials of our product candidates. We do not know whether planned preclinical studies and clinical trials will be completed on schedule or at all, or whether planned clinical trials will begin on time, need to be redesigned, have patients enrolled on time or be completed on schedule, if at all. We or our collaborators may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive marketing approval to commercialize our product candidates. Our development programs may be delayed for a variety of reasons, including delays related to:

- the FDA or other regulatory authorities requiring us or our collaborators to submit additional data or imposing other requirements before permitting us to initiate a clinical trial;
- obtaining regulatory approval to commence a clinical trial;
- the FDA or other regulatory authorities placing a clinical trial on clinical hold;
- a temporary U.S. federal government shutdown;
- reaching 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 clinical trial sites;

- clinical trials of our product candidates producing negative or inconclusive results, and we or our collaborators deciding, or regulators requiring us, to conduct additional clinical trials, including testing in more subjects, or abandoning product development programs;
- third-party contractors used by us or our collaborators failing to comply with regulatory requirements or meeting their contractual obligations in a timely manner, or at all;
- obtaining institutional review board, or IRB, approval at each clinical trial site;
- recruiting suitable patients to participate in a clinical trial;
- developing and validating any companion diagnostic that would be used in a clinical trial;
- cost of clinical trials being greater than anticipated;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates being insufficient or inadequate;
- having patients complete a clinical 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; or
- manufacturing sufficient quantities of our product candidates for use in clinical trials.

Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors including the size and nature of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, the design of the clinical trial, competing clinical trials and clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new drugs or therapeutic biologics that may be approved for the indications being investigated by us. Furthermore, we expect to rely on our collaborators, CROs and clinical trial sites to ensure the proper and timely conduct of our clinical trials and, while we expect to enter into agreements governing their committed activities, we have limited influence over their actual performance.

We could encounter delays if prescribing 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.

Further, a clinical trial may be suspended or terminated by us, our collaborators, the IRBs of the institutions in which such trials are being conducted, the Data Safety Monitoring Board for such trial or placed on clinical hold by the FDA or other regulatory authorities due to a number of factors, 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 drug or therapeutic biologic, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience delays in the completion of, or termination of, any clinical trial of our product candidates, the commercial prospects of our product candidates will be harmed, and our ability to generate product revenues from any of these product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences could materially and adversely affect our business, financial condition, results of operations and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates.

We and/or our collaborators may be unable to obtain, or may be delayed in obtaining, U.S. or foreign regulatory approval and, as a result, unable to commercialize our product candidates.

Our product candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, approval, recordkeeping, reporting, labeling, storage, packaging, advertising and promotion, pricing, marketing and distribution of drugs and therapeutic biologics. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process are required to be completed successfully in the United States and in many foreign jurisdictions before a new drug or therapeutic biologic can be marketed. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. It is possible that none of the product candidates we may develop, either alone or with our collaborators, will obtain the regulatory approvals necessary for us or our existing or future collaborators to begin selling them.

Although our employees have experience in conducting and managing clinical trials from prior employment at other companies, we, as a company, have no prior experience in conducting and managing the clinical trials

necessary to obtain regulatory approvals, including approval by the FDA. The time required to obtain FDA and other approvals is unpredictable but typically takes many years following the commencement of clinical trials, depending upon the type, complexity and novelty of the product candidate, and may be further delayed due to one or more temporary federal government shutdowns. The standards that the FDA and its foreign counterparts use when regulating us require judgment and can change, which makes it difficult to predict with certainty their application. Any analysis we perform of data from preclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We or our collaborators may also encounter unexpected delays or increased costs due to new government regulations, for example, from future legislation or administrative action, or from changes in FDA policy during the period of product development, clinical trials and FDA regulatory review. It is impossible to predict whether legislative changes will be enacted, or whether FDA or foreign regulations, guidance or interpretations will be changed, or the impact of such changes, if any. Given that the product candidates we are developing, either alone or with our collaborators, represent a new approach to the manufacturing and type of therapeutic biologics, the FDA and its foreign counterparts have not yet established any definitive policies, practices or guidelines in relation to these product candidates. Moreover, the FDA may respond to any BLA that we may submit by defining requirements that we do not anticipate. Such responses could delay clinical development of our product candidates. In addition, because there may be approved treatments for some of the diseases for which we may seek approval, in order to receive regulatory approval, we may need to demonstrate through clinical trials that the product candidates we develop to treat these diseases, if any, are not only safe and effective, but safer or more effective than existing products. Furthermore, in recent years, there has been increased public and political pressure on the FDA with respect to the approval process for new drugs and therapeutic biologics, and FDA standards, especially regarding product safety, appear to have become more stringent.

Any delay or failure in obtaining required approvals could have a material and adverse effect on our ability to generate revenues from the particular product candidate for which we are seeking approval. Furthermore, any regulatory approval to market a product may be subject to limitations on the approved uses for which we may market the product or on the labeling or other restrictions. In addition, the FDA has the authority to require a risk evaluation and mitigation strategy, or REMS, plan as part of a BLA or after approval, which may impose further requirements or restrictions on the distribution or use of an approved biologic, such as limiting prescribing to certain physicians or medical centers that have undergone specialized training, limiting treatment to patients who meet certain safe-use criteria and requiring treated patients to enroll in a registry. These limitations and restrictions may limit the size of the market for the product and affect reimbursement by third-party payors.

We are also subject to numerous foreign regulatory requirements governing, among other things, the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process varies among countries and may include all of the risks associated with FDA approval process described above, as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Moreover, the time required to obtain approval may differ from that required to obtain FDA approval. FDA approval does not ensure approval by regulatory authorities outside the United States and vice versa. Any delay or failure to obtain U.S. or foreign regulatory approval for a product candidate could have a material and adverse effect on our business, financial condition, results of operations and prospects.

Delays in obtaining regulatory approval of our manufacturing process may delay or disrupt our commercialization efforts. To date, no product using a cell-free manufacturing process in the United States has received approval from the FDA.

Before we can begin to commercially manufacture our product candidates in third-party or our own facilities, we must obtain regulatory approval from the FDA for a BLA that describes in detail the chemistry, manufacturing, and controls for the product. A manufacturing authorization must also be obtained from the appropriate EU regulatory authorities. The timeframe required to obtain such approval or authorization is uncertain. In addition, we must pass a pre-approval inspection of our manufacturing facility by the FDA before any of our product candidates can obtain marketing approval, if ever. In order to obtain approval, we will need to ensure that all of our processes, methods and equipment are compliant with cGMP, and perform extensive audits of vendors, contract laboratories and suppliers. If any of our vendors, contract laboratories or suppliers is found to be out of compliance with cGMP, we may experience delays or disruptions in manufacturing while we work with these third parties to remedy the violation or while we work to identify suitable replacement vendors. The cGMP requirements govern quality control of the manufacturing process and documentation policies and procedures. In complying with cGMP, we will be obligated to expend time, money and effort in production, record keeping and quality control to assure that the product meets applicable specifications and other requirements. If we fail to comply with these requirements, we would be subject to possible regulatory action and may not be permitted to sell any products that we may develop.

Even if we receive regulatory approval for any of our product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense. Additionally, our product candidates, if approved, could be subject to labeling and other restrictions and market withdrawal. We may also be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.

Any regulatory approvals that we or our existing or future collaborators obtain for our product candidates may also be subject to limitations on the approved indicated uses for which a product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials, and surveillance to monitor the safety and efficacy of the product candidate.

In addition, if the FDA or a comparable foreign regulatory authority approves any of our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, import, export, advertising, promotion and recordkeeping for the product will be subject to extensive and ongoing regulatory requirements. The FDA has significant post-market authority, including the authority to require labeling changes based on new safety information and to require post-market studies or clinical trials to evaluate safety risks related to the use of a product or to require withdrawal of the product from the market. The FDA also has the authority to require a REMS plan after approval, which may impose further requirements or restrictions on the distribution or use of an approved drug or therapeutic biologic. The manufacturing facilities we use to make a future product, if any, will also be subject to periodic review and inspection by the FDA and other regulatory agencies, including for continued compliance with cGMP requirements. The discovery of any new or previously unknown problems with our third-party manufacturers, manufacturing processes or facilities may result in restrictions on the product, manufacturer or facility, including withdrawal of the product from the market. If we rely on third-party manufacturers, we will not have control over compliance with applicable rules and regulations by such manufacturers. Any product promotion and advertising will also be subject to regulatory requirements and continuing regulatory review. If we or our existing or future collaborators, manufacturers or service providers fail to comply with applicable continuing regulatory requirements in the United States or foreign jurisdictions in which we seek to market our products, we or they may be subject to, among other things, fines, warning letters, holds on clinical trials, delay of approval or refusal by the FDA or similar foreign regulatory bodies to approve pending applications or supplements to approved applications, suspension or withdrawal of regulatory approval, product recalls and seizures, administrative detention of products, refusal to permit the import or export of products, operating restrictions, injunction, civil penalties and criminal prosecution.

Subsequent discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market or voluntary or mandatory product recalls;
- fines, warning or untitled letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or our strategic partners;
- suspension or revocation of product license approvals;
- product seizure or detention or refusal to permit the import or export of products; and
- injunctions or the imposition of civil or criminal penalties.

The FDA policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. For example, in December 2016, the 21st Century Cures Act, or Cures Act, was signed into law. The Cures Act, among other things, is intended to modernize the regulation of drugs and biologics and to spur innovation, but its ultimate implementation is unclear. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would adversely affect our business.

We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. For example, certain policies of the current U.S. presidential administration may impact our business and industry. Namely, the current U.S. presidential administration has taken several executive actions, including the issuance of a number of executive

orders, that could impose significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine regulatory and oversight activities such as implementing statutes through rulemaking, issuance of guidance, and review and approval of marketing applications. Notably, on January 23, 2017, the current U.S. presidential administration ordered a hiring freeze for all executive departments and agencies, including the FDA, which prohibited the FDA from filling employee vacancies or creating new positions. Under the terms of the executive order, the freeze was to remain in effect until implementation of a plan recommended by the Director for the Office of Management and Budget, or OMB, in consultation with the Director of the Office of Personnel Management, to reduce the size of the federal workforce through attrition. While the general hiring freeze was lifted on April 12, 2017, the FDA remained under a hiring freeze until May 25, 2017. However, the fiscal 2018 budget proposal for the FDA still called for overall reductions in the FDA workforce, mostly through attrition. We believe an under-staffed FDA could result in delays in the FDA's responsiveness or in its ability to review submissions or applications, issue regulations or guidance, or implement or enforce regulatory requirements in a timely fashion or at all. Moreover, on January 30, 2017, the current U.S. presidential administration issued an executive order, applicable to all executive agencies, including the FDA, which requires that for each notice of proposed rulemaking or final regulation to be issued in fiscal year 2017, the agency shall identify at least two existing regulations to be repealed, unless prohibited by law. These requirements are referred to as the "two-for-one" provisions. This executive order includes a budget neutrality provision that requires the total incremental cost of all new regulations in the 2017 fiscal year, including repealed regulations, to be no greater than zero, except in limited circumstances. For fiscal years 2018 and beyond, the executive order requires agencies to identify regulations to offset any incremental cost of a new regulation and approximate the total costs or savings associated with each new regulation or repealed regulation. In interim guidance issued by the Office of Information and Regulatory Affairs within OMB on February 2, 2017, the administration indicates that the "two-for-one" provisions may apply not only to agency regulations, but also to significant agency guidance documents. It is difficult to predict how these requirements will be implemented, and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose constraints on the FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted.

We may face difficulties from healthcare legislative reform measures.

Existing regulatory policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs. For example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Healthcare and Education Reconciliation Act, or together, the ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things, (i) subjected therapeutic biologics to potential competition by lower-cost biosimilars by creating a licensure framework for follow-on biologic products, (ii) proscribed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs and therapeutic biologics that are inhaled, infused, instilled, implanted or injected, (iii) increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extended the rebate program to individuals enrolled in Medicaid managed care organizations, (iv) established annual fees and taxes on manufacturers of certain branded prescription drugs and therapeutic biologics, (v) established a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer point-of-sale discounts (now 70%) off negotiated prices of applicable brand drugs and therapeutic biologics to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs and therapeutic biologics to be covered under Medicare Part D, (vi) expanded eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability, (vii) expanded the entities eligible for discounts under the Public Health program (viii) created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research and (ix) established a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

The current U.S. presidential administration and U.S. Congress have sought, and we expect they will continue to, seek to modify, repeal, or otherwise invalidate all, or certain provisions of, the ACA. Since January 2017, the current U.S. presidential administration has issued two executive orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. For example, on October 12, 2017, the current U.S. presidential administration issued an executive order that expands the use of association health plans and allows anyone to purchase short-term health plans that provide temporary, limited insurance. This executive order also calls for the halt of federal payments to health insurers for cost-sharing reductions previously available to lower-income Americans to afford coverage. There is still uncertainty with respect to the impact this executive order could have on coverage and reimbursement for healthcare items and services covered by plans that were authorized by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Reform Act, among other things, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". Additionally, on January 22, 2018, the current U.S. presidential administration signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. More recently, in July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. There is still uncertainty with respect to the impact the current U.S. presidential administration and Congress may have, if any, and any changes will likely take time to unfold, and could have an impact on coverage and reimbursement for healthcare items and services

covered by plans that were authorized by the ACA. However, we cannot predict the ultimate content, timing or effect of any healthcare reform legislation or the impact of potential legislation on us.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted to reduce healthcare expenditures. U.S. federal government agencies also currently face potentially significant spending reductions, which may further impact healthcare expenditures. On August 2, 2011, the Budget Control Act of 2011 among other things, created measures for spending reductions by Congress. A joint select committee on deficit reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year. These reductions went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2029 unless additional Congressional action is taken. Moreover, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. If federal spending is further reduced, anticipated budgetary shortfalls may also impact the ability of relevant agencies, such as the FDA or the National Institutes of Health to continue to function at current levels. Amounts allocated to federal grants and contracts may be reduced or eliminated. These reductions may also impact the ability of relevant agencies to timely review and approve research and development, manufacturing, and marketing activities, which may delay our ability to develop, market and sell any products we may develop.

Moreover, payment methodologies, including payment for companion diagnostics, may be subject to changes in healthcare legislation and regulatory initiatives. For example, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, or MMA, changed the way Medicare covers and pays for pharmaceutical products. The legislation expanded Medicare coverage for drug purchases by the elderly and introduced a new reimbursement methodology based on average sales prices for physician-administered drugs. In addition, this legislation provided authority for limiting the number of drugs that will be covered in any therapeutic class. While the MMA only applies to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from the MMA may result in a similar reduction in payments from private payors. In addition, CMS has begun bundling the Medicare payments for certain laboratory tests ordered while a patient received services in a hospital outpatient setting and, beginning in 2018, CMS will pay for clinical laboratory services based on a weighted average of reported prices that private payors, Medicare Advantage plans, and Medicaid Managed Care plans pay for laboratory services. Further, on March 16, 2018, CMS finalized its National Coverage Determination, or NCD, for certain diagnostic laboratory tests using next generation sequencing that are approved by the FDA as a companion *in vitro* diagnostic and used in a cancer with an FDA-approved companion diagnostic indication. Under the NCD, diagnostic tests that gain FDA approval or clearance as an *in vitro* companion diagnostic will automatically receive full coverage and be available for patients with recurrent, metastatic relapsed, refractory or stages III and IV cancer. Additionally, the NCD extended coverage to repeat testing when the patient has a new primary diagnosis of cancer.

Recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. At the federal level, the current U.S. presidential administration's budget proposal for fiscal year 2019 contained further drug price control measures that could be enacted in future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, on May 11, 2018, the current U.S. presidential administration laid out the administration's "Blueprint" to reduce the cost of prescription medications while preserving innovation and cures. While the Department of Health and Human Services, or HHS, is soliciting feedback on some of these measures, other actions may be immediately implemented by HHS under existing authority. Although a number of these, and other potential, proposals will require authorization through additional legislation to become effective, Congress and the current U.S. presidential administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed

to encourage importation from other countries and bulk purchasing. We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our product candidates or companion diagnostics or additional pricing pressures.

Additionally, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017 was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA authorization under an FDA expanded access program.

We expect that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products.

Our operations and relationships with healthcare providers, healthcare organizations, customers and third-party payors will be subject to applicable anti-bribery, anti-kickback, fraud and abuse, transparency and other healthcare laws and regulations, which could expose us to, among other things, enforcement actions, criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens and diminished profits and future earnings.

Our current and future arrangements with healthcare providers, healthcare organizations, third-party payors and customers expose us to broadly applicable anti-bribery, fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we research, market, sell and distribute our product candidates. In addition, we may be subject to patient data privacy and security regulation by the U.S. federal government and the states and the foreign governments in which we conduct our business. Restrictions under applicable federal and state anti-bribery and healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, individuals and entities 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 and state healthcare program such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the federal criminal and civil false claims and civil monetary penalties laws, including the federal False Claims Act, which can be imposed through civil whistleblower or qui tam actions against individuals or entities, prohibits, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws. Moreover, the government may assert that a claim including items and services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act;
- HIPAA, which imposes criminal and civil liability, prohibits, among other things, knowingly and willfully executing, or attempting to execute a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services; similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by HITECH, which impose obligations on certain healthcare providers, health plans, and healthcare clearinghouses, known as covered entities, as well as their business associates that perform certain services involving the storage, use or disclosure of individually identifiable health information, including mandatory contractual terms, with respect to safeguarding the privacy, security, and transmission of individually identifiable health information, and require notification to affected individuals and regulatory authorities of certain breaches of security of individually identifiable health information;

- the federal legislation commonly referred to as Physician Payments Sunshine Act, enacted as part of the ACA, and its implementing regulations, which requires certain manufacturers of covered drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program, with certain exceptions, to report annually to CMS information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members, with the information made publicly available on a searchable website; effective January 1, 2022, transfers of value to physician assistants, nurse practitioners or clinical nurse specialists, certified registered nurse anesthetists, and certified nurse-midwives must also be reported;
- the U.S. Foreign Corrupt Practices Act of 1977, as amended, which prohibits, among other things, U.S. companies and their employees and agents from authorizing, promising, offering, or providing, directly or indirectly, corrupt or improper payments or anything else of value to foreign government officials, employees of public international organizations and foreign government owned or affiliated entities, candidates for foreign political office, and foreign political parties or officials thereof;
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, that may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; and
- certain state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug and therapeutic biologics manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures and pricing information, state and local laws that require the registration of pharmaceutical sales representatives, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

If we or our collaborators, manufacturers or service providers fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to enforcement actions, which could affect our ability to develop, market and sell our products successfully and could harm our reputation and lead to reduced acceptance of our products by the market. These enforcement actions include, among others:

- exclusion from participation in government-funded healthcare programs; and
- exclusion from eligibility for the award of government contracts for our products.

Efforts to ensure that our current and future business arrangements with third parties comply with applicable healthcare laws and regulations could involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any such requirements, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, the curtailment or restructuring of our operations, loss of eligibility to obtain approvals from the FDA, exclusion from participation in government contracting, healthcare reimbursement or other government programs, including Medicare and Medicaid, integrity oversight and reporting obligations, or reputational harm, any of which could adversely affect our financial results. Although effective compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, these risks cannot be entirely eliminated. Any action against us for an alleged or suspected violation could cause us to incur significant legal expenses and could divert our management's attention from the operation of our business, even if our defense is successful. In addition, achieving and sustaining compliance with applicable laws and regulations may be costly to us in terms of money, time and resources.

Even if we are able to commercialize any product candidate, such product candidate may become subject to unfavorable pricing regulations or third-party coverage and reimbursement policies, which would harm our business.

The regulations that govern regulatory approvals, pricing and reimbursement for new drugs and therapeutic biologics vary widely from country to country. Some countries require approval of the sale price of a drug or therapeutic biologic before it can be marketed. In many countries, the pricing review period begins after marketing approval is granted. In some foreign markets, prescription biopharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain regulatory 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 regulatory approval.

Our ability to commercialize any products 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 authorities, private health insurers and other organizations. Even if we succeed in bringing one or more products to the market, these products may not be considered cost-effective, and the amount reimbursed for any products may be insufficient to allow us to sell our products on a competitive basis. Because our programs are in the early stages of development, we are unable at this time to determine their cost effectiveness or the likely level or method of coverage and reimbursement. Increasingly, the third-party payors who reimburse patients or healthcare providers, such as government and private insurance plans, are requiring that drug companies provide them with predetermined discounts from list prices, and are seeking to reduce the prices charged or the amounts reimbursed for biopharmaceutical products. If the price we are able to charge for any products we develop, or the coverage and reimbursement provided for such products, is inadequate in light of our development and other costs, our return on investment could be affected adversely.

There may be significant delays in obtaining reimbursement for newly approved drugs or therapeutic biologics, and coverage may be more limited than the purposes for which the drug or therapeutic biologic is approved by the FDA or similar foreign regulatory authorities. Moreover, eligibility for reimbursement does not imply that any drug or therapeutic biologic will be reimbursed in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution.

Interim reimbursement levels for new drugs or therapeutic biologics, if applicable, may also be insufficient to cover our costs and may not be made permanent. Reimbursement rates may be based on payments allowed for lower cost drugs or therapeutic biologics that are already reimbursed, may be incorporated into existing payments for other services and may reflect budgetary constraints or imperfections in Medicare data. Net prices for drugs or therapeutic biologics 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 or therapeutic biologics from countries where they may be sold at lower prices than in the United States. Further, no uniform policy for coverage and reimbursement exists in the United States, and coverage and reimbursement can differ significantly from payor to payor. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for new drugs or therapeutic biologics that we develop and for which we obtain regulatory approval could have a material and adverse effect on our business, financial condition, results of operations and prospects.

If in the future we are unable to establish U.S. or global sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates, we may not be successful in commercializing our product candidates if they are approved and we may not be able to generate any revenue.

We currently do not have a marketing or sales team for the marketing, sales and distribution of any of our product candidates that are able to obtain regulatory approval. To commercialize any product candidates after approval, we must build on a territory-by-territory basis marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services, and we may not be successful in doing so. If our product candidates receive regulatory approval, we may decide to establish an internal sales or marketing team with technical expertise and supporting distribution capabilities to commercialize our product candidates, which will be expensive and time consuming and will require significant attention of our executive officers to manage. For example, some state and local jurisdictions have licensing and continuing education requirements for pharmaceutical sales representatives, which requires time and financial resources. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of any of our product candidates that we obtain approval to market.

With respect to the commercialization of all or certain of our product candidates, we may choose to collaborate, either globally or on a territory-by-territory basis, with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. If we are unable to enter into such arrangements when needed on acceptable terms, or at all, we may not be able to successfully commercialize any of our product candidates that receive regulatory approval or any such commercialization may experience delays or limitations. If we are not successful in commercializing our product candidates, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

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

With the enactment of the Biologics Price Competition and Innovation Act of 2009, or BPCIA, an abbreviated pathway for the approval of biosimilar biological products (both highly similar and interchangeable biological products) was created. The abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as interchangeable based on its similarity to an existing reference product. The BPCIA provides a period of exclusivity for products granted "reference product exclusivity," under which an application for a biosimilar product referencing such products cannot be approved by the FDA until 12 years after the first licensure date of the reference product licensed under a BLA. On March 6, 2015, the FDA approved the first biosimilar product under the BPCIA. FDA has accelerated licensure of biosimilar products since the first biosimilar was approved in 2015. However, FDA has yet to deem a biosimilar product interchangeable with the reference product. While FDA has implemented certain procedures intended to implement the BPCIA, other processes remain in development and may be adopted by the FDA; any such processes could have a material adverse effect on the future commercial prospects for our biological products.

A biological product submitted for licensure under a BLA is eligible for a period of exclusivity that commences on the date of its licensure, unless its date of licensure is not considered a date of first licensure because it falls within an exclusion under the BPCIA. There is a risk that this exclusivity could be shortened due to congressional action or otherwise, potentially creating the opportunity for biosimilar competition sooner than anticipated. Additionally, this period of regulatory exclusivity does not apply to companies pursuing regulatory approval via their own traditional BLA, rather than via the abbreviated pathway. Most states have enacted substitution laws that permit substitution of only interchangeable biosimilars. The extent to which a highly similar biosimilar, once approved, will be substituted for any one of our reference products that may be approved in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

If any of our product candidates receives marketing approval and we or others later identify undesirable side effects caused by the product candidates, our ability to market and derive revenue from the product candidates could be compromised.

Undesirable side effects caused by our product candidates could cause regulatory authorities to interrupt, delay or halt clinical trials and could result in more restrictive labeling or the delay or denial of regulatory approval by the FDA or other regulatory authorities. We have only recently initiated our first clinical trials for our first two product candidates. Given the nature of ADCs, it is likely that there may be side effects associated with their use. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects. In such an event, our clinical trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. Such side effects could also affect patient recruitment or the ability of enrolled patients to complete the clinical trials or result in potential product liability claims. Any of these occurrences may materially and adversely affect our business, financial condition, results of operations and prospects.

Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of patients and limited duration of exposure, rare and severe side effects of our product candidates may only be uncovered with a significantly larger number of patients exposed to the product candidate.

In the event that any of our product candidates receive regulatory approval and we or others identify undesirable side effects caused by one of our products, any of the following adverse events could occur:

- regulatory authorities may withdraw their approval of the product or seize the product;
- we may be required to recall the product or change the way the product is administered to patients;

- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product or any component thereof;
- we may be subject to fines, injunctions or the imposition of civil or criminal penalties;
- regulatory authorities may require the addition of labeling statements, such as a black box warning or a contraindication;
- we may be required to create a Medication Guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients;
- the product may become less competitive; and
- our reputation may suffer.

Any of these occurrences could have a material and adverse effect on our business, financial condition, results of operations and prospects.

If we decide to pursue a Fast Track Designation by the FDA, it may not lead to a faster development or regulatory review or approval process.

We may seek Fast Track Designation for one or more of our product candidates. If a drug or biologic is intended for the treatment of a serious or life-threatening condition and the drug or biologic demonstrates the potential to address unmet medical needs for this condition, the product sponsor may apply for FDA Fast Track Designation. The FDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation, we cannot assure you that the FDA would decide to grant it. Even if we do receive Fast Track Designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may withdraw Fast Track Designation if it believes that the designation is no longer supported by data from our clinical development program.

While we have been granted Orphan Drug Designation by the FDA for STRO-001 for the treatment of multiple myeloma, if we decide to seek Orphan Drug Designation for some of our other product candidates, we may be unsuccessful or may be unable to maintain the benefits associated with Orphan Drug Designation, including the potential for orphan drug exclusivity.

We have been granted Orphan Drug Designation by the FDA for STRO-001 for the treatment of multiple myeloma. As part of our business strategy, we may seek Orphan Drug Designation for our other product candidates, and we may be unsuccessful. Regulatory authorities in some jurisdictions, including the United States and Europe, may designate drugs and therapeutic biologics for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a drug or therapeutic biologic as an orphan drug if it is a drug or therapeutic biologic intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug or therapeutic biologic will be recovered from sales in the United States. In the United States, Orphan Drug Designation entitles a party to financial incentives such as opportunities for grant funding toward clinical trial costs, tax advantages and user fee waivers. In addition, if a product that has Orphan Drug Designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or where the manufacturer is unable to assure sufficient product quantity.

Even if we obtain Orphan Drug Designation for our product candidates in specific indications, we may not be the first to obtain marketing approval of these product candidates for the orphan-designated indication due to the uncertainties associated with developing pharmaceutical products. In addition, exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan-designated indication or may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs or therapeutic biologics with different principal molecular structural features can be approved for the same condition. Even after an orphan product is approved, the FDA can subsequently approve the same drug or therapeutic biologic with the same principal molecular structural features for the same condition if the FDA concludes that the later drug or therapeutic biologic

is safer, more effective or makes a major contribution to patient care. Orphan Drug Designation neither shortens the development time or regulatory review time of a drug or therapeutic biologic nor gives the drug or therapeutic biologic any advantage in the regulatory review or approval process. In addition, while we may seek Orphan Drug Designation for our product candidates, we may never receive such designations.

The recent tax reform legislation, which was signed into law on December 22, 2017 reduced the amount of the qualified clinical research costs for a designated orphan product that a sponsor may claim as a credit from 50% to 25%. This may further limit the advantage and may impact our future business strategy of seeking the Orphan Drug Designation.

Risks Related to Our Common Stock

Our quarterly and annual operating results may fluctuate significantly or may fall below the expectations of investors or securities analysts, each of which may cause our stock price to fluctuate or decline.

We expect our operating results to be subject to quarterly and annual fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- variations in the level of expense related to the ongoing development of our XpressCF ® Platform, our product candidates or future development programs;
- results of preclinical and clinical trials, or the addition or termination of clinical trials or funding support by us, or existing or future collaborators or licensing partners;
- our execution of any additional collaboration, licensing or similar arrangements, and the timing of payments we may make or receive under existing or future arrangements or the termination or modification of any such existing or future arrangements;
- any intellectual property infringement lawsuit or opposition, interference or cancellation proceeding in which we may become involved;
- additions and departures of key personnel;
- strategic decisions by us or our competitors, such as acquisitions, divestitures, spin-offs, joint ventures, strategic investments or changes in business strategy;
- if any of our product candidates receives regulatory approval, the terms of such approval and market acceptance and demand for such product candidates;
- regulatory developments affecting our product candidates or those of our competitors;
- health epidemics or contagious diseases; and
- changes in general market and economic conditions.

If our quarterly and annual operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly and annual fluctuations in our operating results may, in turn, cause the price of our common stock to fluctuate substantially. We believe that quarterly and annual comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

The market price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock may be highly volatile and subject to wide fluctuations in response to various factors, some of which we cannot control. As a result of this volatility, investors may not be able to sell their common stock at or above the purchase price. The market price for our common stock may be influenced by many factors, including the other risks described in this section and the following:

- results of preclinical studies and clinical trials of our product candidates, or those of our competitors or our existing or future collaborators;
- regulatory or legal developments in the United States and other countries, especially changes in laws or regulations applicable to our product candidates;
- the success of competitive products or technologies;
- introductions and announcements of new products by us, our future commercialization partners, or our competitors, and the timing of these introductions or announcements;
- actions taken by regulatory agencies with respect to our products, clinical studies, manufacturing process or sales and marketing terms;
- actual or anticipated variations in our financial results or those of companies that are perceived to be similar to us;
- the success of our efforts to acquire or in-license additional technologies, products or product candidates;
- developments concerning current or future collaborations, including but not limited to those with our sources of manufacturing supply and our commercialization partners;
- market conditions in the pharmaceutical and biotechnology sectors;
- announcements by us or our competitors of significant acquisitions, strategic collaborations, joint ventures or capital commitments;
- developments or disputes concerning patents or other proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our product candidates and products;
- our ability or inability to raise additional capital and the terms on which we raise it;
- the recruitment or departure of key personnel;
- changes in the structure of healthcare payment systems;
- actual or anticipated changes in earnings estimates or changes in stock market analyst recommendations regarding our common stock, other comparable companies or our industry generally;
- our failure or the failure of our competitors to meet analysts' projections or guidance that we or our competitors may give to the market;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- announcement and expectation of additional financing efforts;
- speculation in the press or investment community;
- trading volume of our common stock;
- sales of our common stock by us or our stockholders;
- the concentrated ownership of our common stock;
- changes in accounting principles;
- terrorist acts, acts of war or periods of widespread civil unrest;
- natural disasters, health epidemics or contagious diseases, and other calamities;
- a temporary federal government shutdown; and
- general economic, industry and market conditions.

In addition, the stock market in general, and the markets for pharmaceutical, biopharmaceutical and biotechnology stocks in particular, have experienced extreme price and volume fluctuations that have been often unrelated or disproportionate to the operating performance of the issuer. These broad market and industry factors may seriously harm the market price of our common stock, regardless of our actual operating performance. The realization of any of the above risks or any of a broad range of other risks, including those described in this “Risk Factors” section, could have a dramatic and adverse impact on the market price of our common stock.

The future sale and issuance of equity or of debt securities that are convertible into equity will dilute our share capital.

We may choose to raise additional capital in the future, depending on market conditions, strategic considerations and operational requirements. To the extent that additional capital is raised through the sale and issuance of shares or other securities convertible into shares, our stockholders will be diluted. Future issuances of our common stock or other equity securities, or the perception that such sales may occur, could adversely affect the trading price of our common stock and impair our ability to raise capital through future offerings of shares or equity securities. No prediction can be made as to the effect, if any, that future sales of common stock or the availability of common stock for future sales will have on the trading price of our common stock.

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

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

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

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

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

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not have any control over the analysts or the content and opinions included in their reports. If any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, financial condition and results of operations, our intellectual property or our stock performance, or if our preclinical studies and clinical trials and operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of such analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause a decline in our stock price or trading volume.

We are an "emerging growth company" and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including (i) not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, (ii) reduced disclosure obligations regarding executive compensation in our periodic reports, registration statements and proxy statements and (iii) exemptions from the requirements of holding nonbinding advisory stockholder votes on executive compensation and stockholder approval of any golden parachute payments not approved previously.

We could be an emerging growth company for up to five years following the completion of the initial public offering, although circumstances could cause us to lose that status earlier, including if we are deemed to be a "large accelerated filer," which occurs when the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30, or if we have total annual gross revenue of $1.07 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31, or if we issue more than $1.0 billion in non-convertible debt during any three-year period before that time, in which case we would no longer be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our share price may be more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to take advantage of the benefits of this extended transition period. Our financial statements may therefore not be comparable to those of companies that comply with such new or revised accounting standards. Until the date that we are no longer an "emerging growth company" or affirmatively and irrevocably opt out of the exemption provided by Section 7(a)(2)(B) of the Securities Act, upon issuance of a new or revised accounting standard that applies to our financial statements and that has a different effective date for public and private companies, we will disclose the date on which adoption is required for non-emerging growth companies and the date on which we will adopt the recently issued accounting standard.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Our restated certificate of incorporation and our restated bylaws contain provisions that could delay or prevent a change in control of our company. These provisions could also make it difficult for stockholders to elect directors who are not nominated by current members of our board of directors or take other corporate actions, including effecting changes in our management. These provisions:

- establish a classified board of directors so that not all members of our board are elected at one time;
- permit only the board of directors to establish the number of directors and fill vacancies on the board;
- provide that directors may only be removed "for cause" and only with the approval of two-thirds of our stockholders;
- require super-majority voting to amend some provisions in our restated certificate of incorporation and restated bylaws;
- authorize the issuance of "blank check" preferred stock that our board could use to implement a stockholder rights plan;
- eliminate the ability of our stockholders to call special meetings of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- prohibit cumulative voting; and

- establish advance notice requirements for nominations for election to our board or for proposing matters that can be acted upon by stockholders at annual stockholder meetings.

In addition, our restated certificate of incorporation, to the fullest extent permitted by law, provides that the Court of Chancery of the State of Delaware is the exclusive forum for: any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, or the DGCL, our restated certificate of incorporation, or our restated bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. Furthermore, our amended and restated bylaws also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, or other employees, which may discourage lawsuits with respect to such claims. The Delaware Court of Chancery recently issued a decision declaring that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court are ineffective and invalid under Delaware law. That decision is currently under appeal to the Delaware Supreme Court. If a court were to find the choice of forum provisions contained in our restated certificate of incorporation or amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, operating results and financial condition.

In addition, Section 203 of the DGCL may discourage, delay or prevent a change in control of our company. Section 203 imposes certain restrictions on mergers, business combinations and other transactions between us and holders of 15% or more of our common stock.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Global Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel need to devote a substantial amount of time to these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time consuming and costly. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers. Moreover, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

We are required to comply with the SEC's rules that implement Section 404(a) of the Sarbanes-Oxley Act, and are therefore required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose. Pursuant to Section 404(a), we are required to furnish a report by our management on our internal control over financial reporting. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To comply with the applicable provisions of Section 404 for this filing, we engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we have dedicated internal resources; engaged outside consultants and adopted a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements. In addition, if we are not able to continue to meet these requirements, we may not be able to remain listed on the Nasdaq Global Market.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

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

The market price of our common stock may be volatile and, in the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

Item 1B. ***Unresolved Staff Comments***

None

Item 2. ***Properties and Facilities***

Our principal executive office is located in South San Francisco, California, where we lease a total of approximately 52,200 square feet of office and laboratory space in two buildings that we use for our administrative, research and development and other activities. The lease under each of our South San Francisco buildings expires in November 2021, unless we exercise our option to extend each lease term through November 2026. We also have a manufacturing facility and manufacturing-support facility in San Carlos, California, where we lease a total of approximately 29,600 square feet of space in two buildings. The lease on one of our San Carlos buildings expires in July 2021, for which we have two three-year options to extend our lease to July 2027. The lease on the second San Carlos building expires in June 2021, for which we have two three-year options to extend the lease to June 2027.

Item 3. ***Legal Proceedings***

From time to time, we may be involved in legal proceedings arising in the ordinary course of our business. We are not presently a party to any legal proceedings that, in the opinion of management, would have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity and reputational harm, and other factors.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Market Information for Common Stock

Our common stock has been listed on The Nasdaq Global Market under the symbol "STRO" since September 27, 2018. Prior to that there was no public trading market for our common stock.

Holders of Record

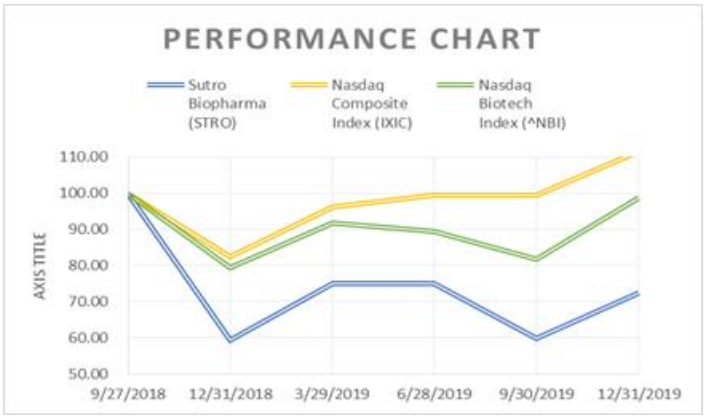
As of March 9, 2020, there were approximately 110 stockholders of record of our common stock. The actual number of stockholders is greater than this number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We currently intend to retain future earnings, if any, for use in operation of our business and to fund future growth. We have never declared or paid any cash dividends on our capital stock and do not anticipate paying any cash dividends in the foreseeable future. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

Stock Performance Graph

The following graph shows the total stockholder's return on an investment of $100 in cash at market close on September 27, 2018 (the first day of trading of our common stock), through December 31, 2019 for (i) our common stock, (ii) the Nasdaq Composite Index and (iii) the Nasdaq Biotechnology Index. Pursuant to applicable Securities and Exchange Commission rules, all values assume reinvestment of pre-tax amount of all dividends; however, no dividends have been declared on our common stock to date. The stockholder return shown on the graph below is not necessarily indicative of future performance, and we do not make or endorse any predictions as to future stockholder return. This graph shall not be deemed "soliciting material" or be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 as amended, or Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act of 1933, as amended, or Securities Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.



Trade Date	Sutro Biopharma (STRO)	Nasdaq Composite Index (IXIC)	Nasdaq Biotech Index (^NBI)
9/27/2018	100.00	100.00	100.00
12/31/2018	59.34	82.51	79.47
3/29/2019	74.93	96.11	91.71
6/28/2019	74.87	99.56	89.51
9/30/2019	59.80	99.47	81.67
12/31/2019	72.37	111.57	98.87

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 PART III Item 12 of this Annual Report on Form 10-K.

Unregistered Sales of Equity Securities

None

Use of Proceeds from Registered Securities

On October 1, 2018, we completed our IPO and sold 5,667,000 shares of common stock at an IPO price of $15.00 per share. The offer and sale of all of the shares in the IPO were registered under the Securities Act pursuant to registration statements on Form S-1 (File Nos. 333-227103 and 333-227548), which was declared effective by the SEC on September 26, 2018. No additional shares were registered.

We received net proceeds from the IPO of approximately $74.4 million, after deducting underwriting discounts and commissions of approximately $6.0 million and estimated offering expenses of approximately $4.6 million. Cowen and Company, LLC and Piper Jaffray & Co. acted as joint book-running managers of the offering and as representatives of the underwriters. None of the expenses associated with the IPO were paid to directors, officers, persons owning 10% or more of any class of equity securities, or to their associates, or to our affiliates.

There has been no material change in the planned use of proceeds from our IPO as described in the Prospectus filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act on September 27, 2018.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. ***Selected Financial Data***

The following tables summarize our selected financial data for the periods and as of the dates indicated. We have derived our selected statements of operations data for the years ended December 31, 2019, 2018, and 2017 and the balance sheet data as of December 31, 2019 and 2018 from our audited financial statements included elsewhere in this report. The selected statements of operations data for the year ended December 31, 2016 and the selected balance sheet data as of December 31, 2017 and 2016 has been derived from our audited financial statements which are not included in this report.

Our historical results are not necessarily indicative of the results that may be expected in the future. On January 1, 2019, we adopted ASC 606, Revenue from Contracts with Customers. ASC 606 supersedes the guidance in ASC 605, Revenue Recognition. As such, revenue for the year ended December 31, 2019 was recorded under ASC 606, while revenue for the years ended December 31, 2018, 2017 and 2016 were recorded under ASC 605. You should read the selected financial data below together with the information under “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included elsewhere in this report.

	Year Ended December 31,			
	2019	2018	2017	2016
	(In thousands, except share and per share amounts)			
Statements of Operations Data:				
Revenue (including amounts from related parties of $22,536, $18,966, $44,606 and $54,001 during the years ended December 31, 2019, 2018, 2017 and 2016, respectively)	$ 42,736	$ 38,419	$ 51,741	$ 59,731
Operating expenses:				
Research and development	65,612	54,262	54,639	43,550
General and administrative	32,592	21,380	16,374	14,817
Total operating expenses	98,204	75,642	71,013	58,367
(Loss) Income from operations	(55,468)	(37,223)	(19,272)	1,364
Interest income	4,074	1,616	273	251
Interest and other income (expense), net	(4,350)	290	(689)	87
Net (loss) Income	$ (55,744)	$ (35,317)	$ (19,688)	$ 1,702
Net loss per share attributable to common stockholders, basic and diluted (1)	$ (2.43)	$ (6.13)	$ (43.95)	$ -
Weighted-average shares used in computing net loss per share attributable to common stockholders	22,958,577	5,758,875	447,946	407,735

(1) Immediately prior to the completion of the IPO on October 1, 2018, all outstanding shares of redeemable convertible preferred stock were converted into common stock. Subsequent to the closing of the IPO, there were no shares of redeemable convertible preferred stock outstanding. For the years ended December 31, 2017 and 2016, basic and diluted net loss per share attributable to common stockholders is presented in conformity with the two-class method required for participating securities. We considered our redeemable convertible preferred stock to be participating securities. The holders of our redeemable convertible preferred stock were entitled to receive non-cumulative dividends, payable prior and in preference to any dividends on any shares of our common stock. In the event a cash dividend was paid on common stock, the holders of redeemable convertible preferred stock were also entitled to a proportionate share of any such dividend as if they were holders of common stock (on an as-if converted basis). The holders of the redeemable

convertible preferred stock did not have a contractual obligation to share in losses.In accordance with the two-class method, earnings allocated to these participating securities and the related number of outstanding shares of the participating securities, which include contractual participation rights in undistributed earnings, have been excluded from the computation of basic and diluted net loss per share attributable to common stockholders.

	As of December 31,			
	2019	2018	2017	2016
	(in thousands)			
Balance Sheet Data:				
Cash and cash equivalents	$ 4,960	$ 125,298	$ 22,020	$ 11,593
Marketable securities	128,513	79,194	-	35,928
Working capital (deficit) (1)	95,601	173,523	(6,327)	(493)
Total assets	156,370	223,139	40,769	69,277
Debt	9,876	14,724	14,563	-
Redeemable convertible preferred stock warrant liability	-	-	1,708	1,193
Redeemable convertible preferred stock	-	-	102,505	102,505
Accumulated deficit	(195,745)	(150,328)	(115,011)	(95,323)
Total stockholders' equity (deficit)	97,789	131,539	(109,001)	(90,901)

(1) We define working capital (deficit) as current assets less current liabilities. See our financial statements for further details regarding our current assets and current liabilities.

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

The following discussion should be read in conjunction with the attached financial statements and notes thereto. This Annual Report on Form 10-K, including the following sections, contains forward-looking statements within the meaning of the federal securities laws. These statements are subject to risks and uncertainties that could cause actual results and events to differ materially from those expressed or implied by such forward-looking statements. For a detailed discussion of these risks and uncertainties, see the "Risk Factors" section in Item 1A of this Annual Report on Form 10-K. We caution the reader not to place undue reliance on these forward-looking statements, which reflect management's analysis only as of the date of this Form 10-K. We undertake no obligation to update forward-looking statements, which reflect events or circumstances occurring after the date of this Form 10-K.

Overview

We are a clinical stage drug discovery, development and manufacturing company focused on deploying our proprietary integrated cell-free protein synthesis and site-specific conjugation platform, XpressCF®, to create a broad variety of optimally designed, next-generation protein therapeutics initially for cancer and autoimmune disorders. We aim to design therapeutics using the most relevant and potent modalities, including cytokine-based targets, immuno-oncology, or I/O, agents, antibody-drug conjugates, or ADCs, and bispecific antibodies that are directed primarily against clinically validated targets where the current standard of care is suboptimal. We believe our platform allows us to accelerate the discovery and development of potential first-in-class and best-in-class molecules by enabling the rapid and systematic evaluation of protein structure-activity relationships to create optimized homogeneous product candidates. Our mission is to transform the lives of patients by using our XpressCF® Platform to create medicines with improved therapeutic profiles for areas of unmet need.

Once identified, production of protein drug candidates can be rapidly and predictably scaled in our current Good Manufacturing Practices compliant manufacturing facility. We have the ability to manufacture our cell-free extract that supports our production of proteins on a large scale using a semi-continuous fermentation process. Our two most advanced product candidates are wholly owned: STRO-001, an ADC directed against CD74, for patients with multiple myeloma and non-Hodgkin lymphoma, or NHL, and STRO-002, an ADC directed against folate receptor-alpha, or FolRα, for patients with ovarian and endometrial cancers. STRO-001 is currently enrolling patients in a Phase 1 trial, with initial safety and efficacy data reported in 2019. Based on such reported data, STRO-001 has been generally well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-001 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. In October 2018, we were granted Orphan Drug Designation by the U.S. Food and Drug Administration, or FDA, for STRO-001 for the treatment of multiple myeloma. We began enrolling patients in a STRO-002 Phase 1 trial focused on ovarian and endometrial cancers in March 2019, with initial safety and efficacy data reported in late 2019. Based on such reported data, STRO-002 has been well-tolerated and no ocular toxicity signals have been observed, with no patients receiving prophylactic corticosteroid eye drops. Dose escalation in the STRO-002 Phase 1 trial is continuing, and the maximum tolerated dose has not yet been reached. We have also entered into multi-target, product-focused collaborations with leaders in the field of oncology, including a cytokine derivatives collaboration with Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Kenilworth, NJ, or Merck, a B Cell Maturation Antigen, or BCMA, and an immuno-oncology directed alliance with Celgene Corporation, or Celgene, a wholly owned subsidiary of Bristol-Myers Squibb Company, New York, NY, or BMS, and an oncology-focused collaboration with Merck KGaA, Darmstadt Germany (operating in the United States and Canada under the name "EMD Serono").

In November 2019, BMS acquired Celgene, and Celgene became a wholly owned subsidiary of BMS. However, we continue to refer to our agreements with Celgene throughout this Form 10-K as being with Celgene.

Since the commencement of our operations, we have devoted substantially all of our resources to performing research and development and manufacturing activities in support of our own product development efforts and those of our collaborators, raising capital to support and expand such activities and providing general and administrative support for these operations. We have funded our operations to date primarily from upfront, milestone and other payments under our collaboration agreements with Celgene (now BMS), Merck and EMD Serono, the issuance and sale of redeemable convertible preferred stock, our initial public offering, or IPO, of common stock and debt proceeds.

We have no products approved for commercial sale and have not generated any revenue from commercial product sales . We had a net loss of $55.7 million, $35.3 million and $19.7 million for the years ended December 31, 2019, 2018 and 2017, respectively. We cannot assure you that we will have net income or that we will generate positive cash flow from operating activities in the future. As of December 31, 2019, we had an accumulated deficit of $195.7 million. We do not expect to generate any revenue from commercial product sales unless and until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take a number of years. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. We expect our operating expenses to significantly increase as we continue to develop, and seek regulatory approvals for, our product candidates, engage in other research and development activities, expand our pipeline of product candidates, continue to develop our manufacturing facility and capabilities, maintain and expand our intellectual property portfolio, seek regulatory and marketing approval for any product candidates that we may develop, acquire or in-license other assets or technologies, ultimately establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain marketing approval and operate as a public company. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our clinical trials, our expenditures on other research and development activities and the timing of achievement and receipt of upfront, milestones and other collaboration agreement payments.

A discussion and analysis of our financial condition, results of operations, and cash flows for the year ended December 31, 2017 is included in Item 7 of Part II, "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC on April 1, 2019.

Financial Operations Overview

Revenue

We have no products approved for commercial sale and have not generated any revenue from commercial product sales. Our total revenue to date has been generated principally from our collaboration and license agreements with Celgene (now BMS), Merck and EMD Serono, and to a lesser extent, from manufacturing, supply and services and products we provide to Celgene, SutroVax, Inc., or SutroVax, and EMD Serono. As described in Note 2 to our Financial Statements, on January 1, 2019, we adopted ASC 606, Revenue from Contracts with Customers (ASC 606). ASC 606 supersedes the guidance in ASC 605, Revenue Recognition (ASC 605). We adopted ASC 606 on a modified retrospective basis under which we recognized the $10.3 million cumulative effect of adoption as a reduction to the accumulated deficit balance as of January 1, 2019. Revenue for the years ended December 31, 2018 and 2017 were recorded under ASC 605, while revenue for the year ended December 31, 2019 was recorded under ASC 606. If we had continued to use ASC 605 during 2019, revenue would have been $43.5 million for the year ended December 31, 2019, as compared to the $42.7 million reported.

We derive revenue from collaboration arrangements, under which we may grant licenses to our collaboration partners to further develop and commercialize our proprietary product candidates. We may also perform research and development activities under the collaboration agreements. Consideration under these contracts generally includes a nonrefundable upfront payment, development, regulatory and commercial milestones and other contingent payments, and royalties based on net sales of approved products. Additionally, the collaborations may provide options for the customer to acquire from our materials and reagents, clinical product supply or additional research and development services under separate agreements.We assess which activities in the collaboration agreements are considered distinct performance obligations that should be accounted for separately. We develop assumptions that require judgement to determine whether the license to our intellectual property is distinct from the research and development services or participation in activities under the collaboration agreements.

At the inception of each agreement, we determine the arrangement transaction price, which includes variable consideration, based on the assessment of the probability of achievement of future milestones and contingent payments and other potential consideration.

For arrangements that include multiple performance obligations, we allocate the transaction price to the identified performance obligations based on the standalone selling price, or SSP, of each distinct performance obligation. In instances where SSP is not directly observable, we develop assumptions that require judgment to determine the SSP for each performance obligation identified in the contract. These key assumptions may include

full-time equivalent, or FTE, personnel effort, estimated costs, discount rates and probabilities of clinical development and regulatory success.

Please see an expanded discussion on the revenue recognition treatment of performance obligations under Critical Accounting Policies and Estimates.

Operating Expenses

Research and Development

Research and development expenses represent costs incurred in performing research, development and manufacturing activities in support of our own product development efforts and those of our collaborators, and include salaries, employee benefits, stock-based compensation, laboratory supplies, outsourced research and development expenses, professional services and allocated facilities-related costs. We expense both internal and external research and development costs as they are incurred. Non-refundable advance payments for services that will be used or rendered for future research and development activities are recorded as prepaid expenses and recognized as expenses as the related services are performed.

We expect our research and development expenses to increase in the future as we advance our product candidates into and through preclinical studies and clinical trials, pursue regulatory approval of our product candidates, expand our pipeline of product candidates and continue to develop our manufacturing facility and capabilities. The process of conducting the necessary preclinical and clinical research to obtain regulatory approval is costly and time consuming. The actual probability of success for our product candidates may be affected by a variety of factors including: the safety and efficacy of our product candidates, early clinical data, investment in our clinical programs, the ability of collaborators to successfully develop our licensed product candidates, competition, manufacturing capability and commercial viability. We may never succeed in achieving regulatory approval for any of our product candidates. As a result of the uncertainties discussed above, we are unable to determine the duration and completion costs of our research and development projects or when and to what extent we will generate revenue from the commercialization and sale of our product candidates.

The following table summarizes our research and development expenses incurred during the periods indicated. The internal costs include personnel, facility costs and research and scientific related activities associated with our pipeline. The external program costs reflect external costs attributable to our clinical development candidates and preclinical candidates selected for further development. Such expenses include third-party costs for preclinical and clinical studies and research services, and other consulting costs.

	Year ended December 31,	
	2019	**2018**
Internal costs:		
Research and drug discovery	$ 18,041	$ 15,541
Process and product development	9,337	8,537
Manufacturing	22,475	16,872
Clinical development	1,969	1,357
Total internal costs	51,822	42,307
External Program Costs:		
Research and drug discovery	1,097	1,001
Toxicology and translational science	1,680	2,239
Process and product development	245	1,080
Manufacturing	5,444	4,530
Clinical development	5,324	3,105
Total external program costs	13,790	11,955
Total research and development expenses	$ 65,612	$ 54,262

General and Administrative

Our general and administrative expenses consist primarily of personnel costs, expenses for outside professional services, including legal, human resources, audit, accounting and tax services and allocated facilities-related costs. Personnel costs include salaries, employee benefits and stock-based compensation. We expect to incur additional expenses operating as a public company, including expenses related to compliance with the rules and regulations of the SEC and listing standards applicable to companies listed on the Nasdaq Global Market, additional insurance expenses, investor relations activities and other administrative and professional services. We also expect to increase the size of our administrative function to support the anticipated growth of our business.

Interest Income

Interest income consists primarily of interest earned on our invested funds.

Interest Expense and Other Income (Expense), Net

Interest expense includes interest incurred on our debt and amortization of debt issuance costs. Additionally, under ASC 606, the Company identified a financing component under the Merck 2018 Agreement and recorded interest expense associated with the upfront payment. Other expense in each of 2019 and 2018 includes changes in values attributable to the arrangement with the Leukemia & Lymphoma Society, Inc. Additionally, in 2018 this expense category includes gains and losses from the remeasurement of our liabilities related to our redeemable convertible preferred stock warrants. We adjusted the liability for changes in estimated fair value until the earlier of the exercise of the warrants, expiration of the warrants, or conversion of the redeemable convertible preferred stock warrants upon the completion of our IPO, into common stock warrants. With the completion of our IPO on October 1, 2018, the redeemable convertible preferred stock warrant liability was reclassified to additional paid-in-capital and we no longer record any related periodic fair value adjustments.

Comparison of the Years Ended December 31, 2019 and 2018

	Year ended December 31,		Change	
	2019	2018	$	%
	(in thousands)			
Revenue	$ 42,736	$ 38,419	$ 4,317	11%
Operating expenses:				
Research and development	65,612	54,262	11,350	21%
General administrative	32,592	21,380	11,212	52%
Total operating expenses	98,204	75,642	22,562	30%
Loss from operations	(55,468)	(37,223)	(18,245)	49%
Interest income	4,074	1,616	2,458	152%
Interest and other income (expense), net	(4,350)	290	(4,640)	*
Net loss	$ (55,744)	$ (35,317)	$ (20,427)	58%

* Percentage not meaningful

Revenue

We have recognized revenue as follows during the periods indicated:

	Year Ended December 31,		Change	
	2019	2018	$	%
	(in thousands)			
Bristol-Myers Squibb Company ("BMS") (1)(2)	$ 11,321	$ 21,187	$ (9,866)	(47)%
Merck Sharp & Dohme Corporation ("Merck") - related party	21,458	8,526	12,932	152%
Merck KGaA, Darmstadt, Germany (operating in the United States and Canada under the name "EMD Serono")	8,879	7,175	1,704	24%
SutroVax - related party	1,078	1,531	(453)	(30)%
Total revenue	$ 42,736	$ 38,419	$ 4,317	11%

(1) In January 2019, BMS announced the entry into a definitive agreement to acquire Celgene and the transaction was completed in the fourth quarter of 2019.
(2) During the year ended December 31, 2018, $8.9 million of revenue from BMS (formerly Celgene) was related party revenue. Celgene was a related party through September 30, 2018 as it held more than 10% of our common stock for the periods presented until the closing of our IPO.

Total revenue increased by $4.3 million, or 11%, during the year ended December 31, 2019 compared to the year ended December 31, 2018, due primarily to the 2018 Merck Agreement which added revenue of $12.9 million. Further, we received and recognized revenue of $1.5 million under the License Agreement, or MDA Agreement, with EMD Serono, upon designation by EMD Serono of a specific bispecific antibody drug conjugate as a clinical development candidate with their approval to advance it to IND-enabling studies and another $2.2 million in clinical materials supplies less a decrease of $1.9 million related to the MDA Agreement which ended in May 2019. The increases were partially offset by a $0.5 million decrease from SutroVax, and a $9.9 million decrease from Celgene. In 2018, revenue from Celgene included a $10.0 million milestone that was recognized during the year and did not recur in 2019.

Research and Development Expense

Research and development expense increased by $11.4 million, or 21%, during the year ended December 31, 2019 compared to the year ended December 31, 2018. The increase was due primarily to increases of $4.9 million in personnel-related expenses due to higher headcount, $2.3 million in laboratory supplies and production materials-related expenses, $2.1 million in external clinical trial services for STRO-001 and STRO-002, and $1.7 million in facilities-related expenses.

General and Administrative Expense

General and administrative expense increased by $11.2 million, or 52%, during the year ended December 31, 2019 compared to the year ended December 31, 2018. The increase was due primarily to increases of $7.5 million in personnel-related expenses, $1.5 million in IT-related expenses, $1.4 million in insurance and other fees associated with being a public company, $0.3 million in legal, audit and external services, and $0.3 million in facilities-related expenses.

Interest Income

Interest income increased by $2.5 million during the year ended December 31, 2019 compared to the year ended December 31, 2018, due primarily to higher average investment balances in 2019, including proceeds received primarily in the second half of 2018 from the issuance of our Series E redeemable convertible preferred stock, the upfront payment received under the 2018 Merck Agreement, and combined net proceeds from the completion of our IPO and the private placement of common stock to Merck.

Interest and Other Income (Expense), Net

Interest and other income (expense) changed by $4.6 million during the year ended December 31, 2019 compared to the year ended December 31, 2018, due primarily to $3.1 million of interest expense associated with a financing component under ASC 606 related to the 2018 Merck Agreement, and $1.0 million related to the remeasurement of the fair value of our redeemable convertible preferred stock warrant liability during the year ended December 31, 2018.

Liquidity and Capital Resources

Sources of Liquidity

To date, we have incurred significant net losses, and negative cash flows from operations. Our operations have been funded primarily by payments received from our collaborators, and net proceeds from equity sales and debt. As of December 31, 2019, we had $133.5 million in cash, cash equivalents and marketable securities, and outstanding debt of $9.9 million and an accumulated deficit of $195.7 million.

Term Loan

On February 28, 2020, (the “Effective Date”), we entered into a loan and security agreement (the “Loan and Security Agreement”) with Oxford Finance LLC (“Oxford”), as the collateral agent and a lender, and Silicon Valley Bank, as a lender (together with Oxford, the “Lenders”), pursuant to which the Lenders have agreed to lend us up

to an aggregate of $25.0 million in a series of term loans (the “Term A Loan”). Upon entering into the Loan and Security Agreement, we borrowed $25.0 million from the Lenders, with approximately $9.6 million of such amount applied to the repayment of the outstanding principal, interest and final payment fees owed pursuant to the prior loan and security agreement dated August 4, 2017.

Under the terms of the Loan and Security Agreement, we may, at our sole discretion, borrow from the Lenders up to an additional $5.0 million (the “Term B Loan” and together with the Term A Loan, the “Term Loans”) upon the closing of a new collaboration agreement that includes an upfront payment of at least $50.0 million to us, as determined by Oxford in its sole and absolute discretion (the “Term B Milestone Event”). We may draw the Term B Loan during the period commencing on the date of the occurrence of the Term B Milestone Event and ending on the earliest of (i) December 31, 2020, (ii) the thirtieth (30th) day following the occurrence of the Term B Milestone Event, and (iii) the occurrence of an event of default.

The proceeds from the Term Loans under the Loan and Security Agreement may be used to satisfy our future working capital needs and to fund our general business requirements. Our obligations under the Loan and Security Agreement are secured by all our assets, other than our intellectual property. We have also agreed not to encumber our intellectual property assets, except as permitted by the Loan and Security Agreement.

The Term Loans mature on March 1, 2024 (the “Maturity Date”) and will be interest-only through March 1, 2022, followed by 24 equal monthly payments of principal and interest. The Term Loans will bear interest at a floating per annum rate equal to the greater of (i) 8.07% or (ii) the sum of (a) the greater of (1) the thirty (30) day U.S. LIBOR rate reported in the Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue or (2) 1.67%, plus (b) 6.40%.

We will be required to make a final payment of 3.83% of the original principal amount of the Term Loans drawn, payable on the earlier of (i) the Maturity Date, (ii) the acceleration of any Term Loans, or (iii) the prepayment of the Term Loans (the “Final Payment”). We may prepay all, but not less than all, of the Term Loans upon 30 days’ advance written notice to Oxford, provided that we will be obligated to pay a prepayment fee equal to (i) 3.00% of the principal amount of the applicable Term Loan prepaid on or before the first anniversary of the applicable funding date, or (ii) 2.00% of the principal amount of the applicable Term Loan prepaid between the first and second anniversary of the applicable funding date, or (iii) 1.00% of the principal amount of the applicable Term Loan prepaid thereafter, and prior to the Maturity Date (each, a “Prepayment Fee”).

The Loan and Security Agreement contains customary affirmative and restrictive covenants, including covenants regarding incurrence of additional indebtedness or liens, investments, transactions with affiliates, delivery of financial statements, maintenance of inventory, payment of taxes, maintenance of insurance, protection of intellectual property rights, dispositions of property, business combinations or acquisitions, among other customary covenants. We are also restricted from paying dividends or making other distributions or payments on its capital stock, subject to limited exceptions. The Loan and Security Agreement provides that an event of default will occur if, among other triggers, there occurs any circumstances that could reasonably be expected to result in a material adverse change in our business, or operations or condition (financial or otherwise) or a material impairment of the prospect of us to repay any portion of our obligations under the Loan and Security Agreement. The Loan and Security Agreement also includes customary representations and warranties, other events of default and termination provisions.

In connection with entering into the Loan and Security Agreement, we issued to the Lenders warrants exercisable for 81,257 shares of our common stock (the “Debt Warrants”). The Debt Warrants are exercisable in whole or in part, immediately, and have a per share exercise price of $9.23, which is the closing price of our common stock reported on the Nasdaq Global Market on the day prior to the Effective Date. The Debt Warrants will terminate on the earlier of February 28, 2030 or the closing of certain merger or consolidation transactions.

Funding Requirements

Based upon our current operating plan, we believe that our existing capital resources will enable us to fund our operating expenses and capital expenditure requirements through at least the next twelve months after 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 will continue to require additional financing to advance our current product candidates into and through clinical development, to develop, acquire or in-license other potential product candidates, pay our obligations and to fund operations for the foreseeable future.

We may seek to raise any necessary additional capital through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements, marketing and distribution arrangements, or other sources of financing. Adequate additional funding may not be available to us on acceptable terms, or at all. Any failure to raise capital as and when needed could have a negative impact on our financial condition and on our ability to pursue our business plans and strategies, and may cause us to delay, reduce the scope of or suspend one or more of our pre-clinical and clinical studies, research and development programs or commercialization efforts, and may necessitate us to delay, reduce or terminate planned activities in order to reduce costs. Because of the numerous risks and uncertainties associated with the development and commercialization of our product candidates and the extent to which we may enter into additional collaborations with third parties to participate in their development and commercialization, we are unable to estimate the amounts of increased capital outlays and operating expenditures associated with our current and anticipated clinical studies.

To the extent we raise additional capital through new collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our product candidates, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we do raise additional capital through public or private equity or convertible debt offerings, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

Cash Flows

The following table summarizes our cash flows during the periods indicated:

	Year Ended December 31,	
	2019	2018
	(in thousands)	
Cash (used in) provided by operating activities	$ (65,023)	$ 12,683
Cash (used in) investing activities	(51,131)	(80,190)
Cash (used in) provided by financing activities	(4,184)	170,785
(Decrease) Increase in cash and cash equivalents	$ (120,338)	$ 103,278

Cash Flows from Operating Activities

Cash used in operating activities for the year ended December 31, 2019 was $65.0 million. Our net loss of $55.7 million was reduced by non-cash charges of $10.3 million for stock-based compensation, $4.8 million for depreciation and amortization, and a $0.3 million loss on disposal of property and equipment, which were offset partially by a $1.5 million increase in the accretion of discount on our marketable securities and a $0.1 million reduction of the liability attributable to the agreement with the Leukemia & Lymphoma Society, Inc. Cash used in operating activities also reflected a net decrease in operating assets and liabilities of $23.3 million, due to a decrease in our deferred revenue balance of $20.2 million from revenue recognized under our collaboration agreements, a decrease of $0.2 million in accrued compensation expense primarily due to bonuses paid in connection with certain goal achievements and increases of $1.4 million in prepaid expenses and other assets and $3.8 million in accounts receivable from higher research and development services revenues from our collaborators. This was offset partially by a $2.3 million increase in accounts payable due to timing of payments.

Cash provided by operating activities for the year ended December 31, 2018 was $12.7 million. Our net loss of $35.3 million was decreased by non-cash charges of $4.5 million for depreciation and amortization and $2.9 million for stock-based compensation, which were offset partially by the gain of $1.0 million for the change in fair value of our redeemable convertible preferred stock warrant liability and a $0.9 million reduction of the liability attributable to the arrangement with the Leukemia & Lymphoma Society, Inc. Cash provided in operating activities reflected a net increase in operating assets and liabilities of $42.6 million, primarily due to an increase in our deferred revenue balance of $60.0 million from the upfront payment related to the 2018 Merck Agreement, net of $17.7 million recognized in revenue under our collaboration agreements during prior periods, an increase in $0.6 million in other liabilities, of which $0.4 million was contributions received from participants of our employee stock purchase plan and $0.2 million was due to an increase in interest expense related to our loan with Oxford/SVB, an increase in accounts payable of $0.2 million due to timing of payments, and an increase of $2.6 million in accrued bonus compensation due to increased headcount and certain goal achievements. This was offset partially by an increase in accounts receivable of $0.9 million due to higher research and development services revenues from our

collaborators, and an increase in $2.2 million in prepaid expenses and other current assets due to payments made to contract research organizations mainly related to STRO-001.

Cash Flows from Investing Activities

Cash used in investing activities of $51.1 million for the year ended December 31, 2019 was primarily related to purchases of marketable securities of $196.2 million and purchases of property and equipment of $3.5 million, principally for laboratory and manufacturing equipment, offset partially by maturities and sales of marketable securities of $148.6 million.

Cash used in investing activities of $80.2 million for the year ended December 31, 2018 was related to purchases of marketable securities of $81.5 million and purchases of property and equipment of $1.6 million, principally for laboratory and manufacturing equipment, offset partially by maturities of marketable securities of $2.8 million.

Cash Flows from Financing Activities

Cash used in financing activities of $4.2 million for the year ended December 31, 2019 was primarily related to principal repayment on the August 2017 Loan of $5.0 million and payment of $0.3 million related to the entry into a sales agreement for an at-the-market offering of our common stock, partially offset by $1.3 million of proceeds received from participants in our employee stock purchase plan.

Cash provided by financing activities of $170.8 million for the year ended December 31, 2018 was primarily related to the proceeds from our sale of Series E redeemable convertible preferred stock, net of issuance costs, of $84.7 million, proceeds of $84.4 million from the issuance of common stock upon our IPO, net of issuance costs, and the concurrent private placement of common stock to Merck, proceeds of $0.4 million related to the exercise of common stock options and preferred stock warrants, proceeds of $1.0 million in connection with a research, development and commercialization agreement, and proceeds of $0.2 million from the payment of a note receivable from a stockholder.

Contractual Obligations and Other Commitments

As described in Notes 1 and 15 of our financial statements, we entered into the Loan and Security Agreement on February 28, 2020, for gross proceeds of $25 million. Pursuant to the Loan and Security Agreement, $9.6 million of the gross proceeds were used to fully repay the August 2017 Loan. As a result, of the $9.9 million that was outstanding as of December 31, 2019, $8.9 million has been classified on our balance sheet as Debt – non-current. The remaining $1.0 million that was outstanding as of December 31, 2019 has been classified as Debt – current, and payment of such amount was made prior to the execution of the February 28, 2020 Loan Agreement.

The following table summarizes our contractual obligations as of December 31, 2019:

	Payments Due by Period				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
	(in thousands)				
Contractual obligations:					
Debt, principal (1)	$ 1,000	$ 9,000	$ -	$ -	$ 10,000
Debt, interest (1)	524	665	-	-	1,189
Operating lease obligations	3,771	3,195	-	-	6,966
Total contractual obligations	$ 5,295	$ 12,860	$ -	$ -	$ 18,155

(1) This debt and related interest were repaid on February 28, 2020 with proceeds from the Loan and Security Agreement.

In addition, we enter into agreements in the normal course of business with contract research organizations for clinical trials and with vendors for preclinical studies and other services and products for operating purposes, which are generally cancelable upon written notice. These payments are not included in this table of contractual obligations.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements, as defined under SEC rules. While we have an investment classified as variable interest entity, its purpose is not to provide off-balance sheet financing.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with United States generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported revenue generated and expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in the notes to our financial statements included elsewhere in this filing, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

Revenue Recognition

We have no products approved for commercial sale and have not generated any revenue from commercial product sales. Our total revenue to date has been generated principally from our collaboration and license agreements with Celgene (now BMS), Merck and EMD Serono, and to a lesser extent, from manufacturing, supply and services and products we provide to Celgene, SutroVax, Inc., or SutroVax, and EMD Serono.

When we enter into collaboration agreements, we assess whether the arrangements fall within the scope of ASC 808, Collaborative Arrangements (ASC 808) based on whether the arrangements involve joint operating activities and whether both parties have active participation in the arrangement and are exposed to significant risks and rewards. To the extent that the arrangement falls within the scope of ASC 808, we assess whether the payments between us and our collaboration partner fall within the scope of other accounting literature. If we conclude that payments from the collaboration partner to us represent consideration from a customer, such as license fees and contract research and development activities, we account for those payments within the scope of ASC 606, Revenue from Contracts with Customers. However, if we conclude that our collaboration partner is not a customer for certain activities and associated payments, such as for certain collaborative research, development, manufacturing and commercial activities, we present such payments as a reduction of research and development expense or general and administrative expense, based on where we present the underlying expense. As described in Note 2 to our Financial Statements, on January 1, 2019, we adopted ASC 606, Revenue from Contracts with Customers. ASC 606 supersedes the guidance in ASC 605, Revenue Recognition. We adopted ASC 606 on a modified retrospective basis under which we recognized the $10.3 million cumulative effect of adoption as a reduction to the accumulated deficit balance as of January 1, 2019. Revenue for the years ended December 31, 2018 and 2017 were recorded under ASC 605, while revenue for the year ended December 31, 2019 was recorded under ASC 606. If we had continued to use ASC 605 during 2019, revenue would have been $43.5 million for the year ended December 31, 2019, as compared to the $42.7 million reported.

Collaboration revenue

We derive revenue from collaboration arrangements, under which we may grant licenses to our collaboration partners to further develop and commercialize our proprietary product candidates. We may also perform research and development activities under the collaboration agreements. Consideration under these contracts generally includes a nonrefundable upfront payment, development, regulatory and commercial milestones and other contingent payments, and royalties based on net sales of approved products. Additionally, the collaborations may provide options for the customer to acquire from our materials and reagents, clinical product supply or additional research and development services under separate agreements.

We assess which activities in the collaboration agreements are considered distinct performance obligations that should be accounted for separately. We develop assumptions that require judgement to determine whether the license to our intellectual property is distinct from the research and development services or participation in activities under the collaboration agreements.

At the inception of each agreement, we determine the arrangement transaction price, which includes variable consideration, based on the assessment of the probability of achievement of future milestones and contingent payments and other potential consideration.

For arrangements that include multiple performance obligations, we allocate the transaction price to the identified performance obligations based on the standalone selling price, or SSP, of each distinct performance obligation. In instances where SSP is not directly observable, we develop assumptions that require judgment to determine the SSP for each performance obligation identified in the contract. These key assumptions may include full-time equivalent, or FTE, personnel effort, estimated costs, discount rates and probabilities of clinical development and regulatory success.

Upfront Payments: For collaboration arrangements that include a nonrefundable upfront payment, if the license fee and research and development services cannot be accounted for as separate performance obligations, the transaction price is deferred and recognized as revenue over the expected period of performance using a cost-based input methodology. We use judgement to assess the pattern of delivery of the performance obligation. In addition, amounts paid in advance of services being rendered may result in an associated financing component to the upfront payment. Accordingly, the interest on such borrowing cost component will be recorded as interest expense and revenue, based on an appropriate borrowing rate applied to the value of services to be performed by us over the estimated service performance period.

License Grants: For collaboration arrangements that include a grant of a license to our intellectual property, we consider whether the license grant is distinct from the other performance obligations included in the arrangement. For licenses that are distinct, we recognize revenues from nonrefundable, upfront payments and other consideration allocated to the license when the license term has begun and we have provided all necessary information regarding the underlying intellectual property to the customer, which generally occurs at or near the inception of the arrangement.

Milestone and Contingent Payments: At the inception of the arrangement and at each reporting date thereafter, we assess whether it should include any milestone and contingent payments or other forms of variable consideration in the transaction price using the most likely amount method. If it is probable that a significant reversal of cumulative revenue would not occur upon resolution of the uncertainty, the associated milestone value is included in the transaction price. At the end of each subsequent reporting period, we re-evaluate the probability of achievement of each such milestone and any related constraint and, if necessary, adjust our estimate of the overall transaction price. Since milestone and contingent payments may become payable to us upon the initiation of a clinical study or filing for or receipt of regulatory approval, we review the relevant facts and circumstances to determine when we should update the transaction price, which may occur before the triggering event. When we update the transaction price for milestone and contingent payments, we allocate the changes in the total transaction price to each performance obligation in the agreement on the same basis as the initial allocation. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment, which may result in recognizing revenue for previously satisfied performance obligations in such period. Our collaborators generally pay milestones and contingent payments subsequent to achievement of the triggering event.

Research and Development Services: For amounts allocated to our research and development obligations in a collaboration arrangement, we recognize revenue over time using a cost-based input methodology, representing the transfer of goods or services as activities are performed over the term of the agreement.

Materials Supply: We provide materials and reagents, clinical materials and services to certain of our collaborators under separate agreements. The consideration for such services is generally based on FTE personnel effort used to manufacture those materials reimbursed at an agreed upon rate in addition to agreed-upon pricing for the provided materials. The amounts billed are recognized as revenue as the performance obligations are met by us.

Our revenue recognition policies under ASC 605 are described in our Annual Report on Form 10-K for the year ended December 31, 2018.

Research and Development

We record accrued expenses for estimated costs of our research and development activities conducted by third party service providers, which include outsourced research and development expenses, professional services 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 include these costs in current liabilities in the balance sheets and within research and development expense in the statements of operations.

Nonrefundable advance payments for goods or services that will be used or rendered for future research and development activities are deferred and capitalized and recognized as an expense as the goods are delivered or the related services are performed.

For outsourced research and development expenses, such as professional fees payable to third parties for preclinical studies, clinical trials and research services and other consulting costs, we estimate the expenses based on the services performed, pursuant to contracts with research institutions that conduct and manage preclinical studies, clinical trials and research services on our behalf. We estimate these expenses based on discussions with internal management personnel and external service providers as to the progress or stage of completion of services and the contracted fees to be paid for such services. If the actual timing of the performance of services or the level of effort varies from the original estimates, we will adjust the accrual accordingly. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

Stock-Based Compensation

We recognize compensation costs related to stock options granted to employees based on the estimated fair value of the awards on the date of grant. We account for forfeitures of stock-based awards as they occur. We estimate the grant date fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. The grant date fair value of the stock-based awards is generally recognized on a straight-line basis over the requisite service period, which is generally the vesting period of the respective awards.

The Black-Scholes option-pricing model requires the use of highly subjective assumptions to determine the fair value of stock-based awards, including the expected term and the price volatility of the underlying stock. These assumptions include:

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

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

Historically, for all periods prior to our IPO, the fair value of the shares of common stock underlying our share-based awards was estimated on each grant date by our board of directors. In order to determine the fair value of our common stock underlying option grants, given the absence of a public trading market for our common stock, our board of directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common stock, including timely valuations of our common stock prepared by an independent third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, important developments in our operations, our stage of development, sales of our redeemable convertible preferred stock, actual operating results and financial performance, the conditions in

the biotechnology industry and the economy in general, the stock price performance and volatility of comparable public companies, the lack of liquidity of our common stock, and the likelihood of achieving a liquidity event, such as an initial public offering or sale.

For stock options granted after the completion of the IPO, the closing sale price per share of our common stock as reported on the Nasdaq Global Market on the date of grant is used to determine the exercise price per share of our share-based awards to purchase common stock.

Redeemable Convertible Preferred Stock Warrants

In the past, we have issued freestanding warrants to purchase shares of redeemable convertible preferred stock. We accounted for these warrants as a liability in our financial statements and they were recorded at their estimated fair value, because the warrants may have conditionally obligated us to transfer assets at some point in the future due to redemption provisions that were outside our control.

The fair value of the warrants at the issuance date, at September 30, 2018 (immediately prior to our IPO) and December 31, 2017 was determined using the OPM. The warrants were re-measured at each financial reporting period with any changes in fair value being recognized in other income (expense), net in the statements of operations. We continued to adjust the liability for changes in fair value until the earlier of the expiration of the warrants, exercise of the warrants, or conversion of the redeemable convertible preferred stock warrants into common stock warrants upon the completion of a liquidation event, including the completion of an IPO, which occurred on October 1, 2018. Beginning in the fourth quarter of 2018, there was no longer any warrant-related liability.

Income Taxes

As of December 31, 2019, we had federal net operating loss, or NOL, carryforwards of $120.7 million and federal general business credits from research and development expenses totaling $14.8 million, as well as state NOL carryforwards of $75.1 million and state research and development credits of $11.5 million. If not utilized, the federal NOL carryforwards will expire at various dates beginning in 2032, and the federal credits will expire at various dates beginning in 2023. The state NOL carryforwards will expire at various dates beginning in 2030, if not utilized. The state research and development tax credits can be carried forward indefinitely.

Utilization of the net operating loss carryforwards may be subject to a substantial annual limitation due to the ownership change limitations provided by the Tax Reform Act of 1986, or the Tax Reform Act, as amended, and similar state provisions. The annual limitation may result in the expiration of NOLs and credits before utilization. We have performed a Section 382 study for the period of June 16, 2003 through December 31, 2019 and concluded that it is more likely than not that we experienced an ownership change on April 9, 2007. This change does not limit our ability to use our existing NOLs within the carryforward period provided by the Internal Revenue Code, subject to availability of taxable income. We may experience ownership changes in the future as a result of equity offerings or other shifts in our stock ownership, some of which are outside our control. If there is a subsequent event or further change in ownership, these losses may be subject to limitations, resulting in their expiration before they can be utilized.

We assess all material positions taken in any income tax return, including all significant uncertain positions, in all tax years that are still subject to assessment or challenge by relevant taxing authorities. Assessing an uncertain tax position begins with the initial determination of the position's sustainability and is measured at the largest amount of benefit that is greater than fifty percent likely of being realized upon ultimate settlement. As of each balance sheet date, unresolved uncertain tax positions must be reassessed, and we will determine whether (i) the factors underlying the sustainability assertion have changed and (ii) the amount of the recognized tax benefit is still appropriate. The recognition and measurement of tax benefits requires significant judgment. Judgments concerning the recognition and measurement of a tax benefit might change as new information becomes available.

JOBS Act Accounting Election

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies.

We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest of (1) the last day of our first fiscal year (a) following the fifth anniversary of the completion of our IPO, (b) in which we have total annual gross revenues of at least $1.07 billion, or (ii) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of the prior June 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

Recent Accounting Pronouncements

See Note 2 to our financial statements included elsewhere in this report for more information.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities. The primary objective of our investment activities is to preserve our capital to fund our operations. We also seek to maximize income from our investments without assuming significant risk. To achieve our objectives, we maintain a portfolio of cash equivalents and investments in a variety of securities of high credit quality.

We had cash, cash equivalents and marketable securities $133.5 million and $204.5 million as of December 31, 2019 and 2018, respectively, which consisted of money market funds, commercial paper, corporate debt securities, asset-based securities and U.S. government agency securities. Such interest earning instruments carry a degree of interest rate risk; however, historical fluctuations in interest income have not been significant.

We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure. We have not been exposed nor do we anticipate being exposed to material risks due to changes in interest rates. A hypothetical 10% change in market interest rates would not have a material impact on our financial statements. We do not believe that our cash, cash equivalents or marketable securities have significant risk of default or illiquidity.

As of December 31, 2019 and 2018, we had $9.9 million and $14.7 million, respectively, in debt outstanding, net of debt discount. Our debt with Oxford and SVB bears interest at a floating rate that equals the greater of 7.39% or the sum of the 30-day U.S. Dollar LIBOR plus 6.40% and has a maturity date of August 1, 2021. Such interest-bearing debt carries a limited degree of interest rate risk. If overall interest rates had increased or decreased by 100 basis points during the periods presented our interest expense would not have been materially affected.

Item 8. ***Financial Statements and Supplementary Data***

SUTRO BIOPHARMA, INC.

ANNUAL REPORT ON FORM 10-K

INDEX TO AUDITED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Sutro Biopharma, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Sutro Biopharma, Inc. (the Company) as of December 31, 2019 and 2018, the related statements of operations, comprehensive loss, redeemable convertible preferred stock and stockholders' (deficit) equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

Adoption of ASU No. 2014-09

As discussed in Note 2 to the financial statements, the Company changed its method for recognizing revenue as a result of the adoption of Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606), effective January 1, 2019.

Basis for Opinion

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

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

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

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2007.

Redwood City, California

March 13, 2020

SUTRO BIOPHARMA, INC.

BALANCE SHEETS
(in thousands, except share and per share data)

	December 31,	
	2019	**2018**
Assets		
Current assets:		
Cash and cash equivalents	$ 4,960	$ 125,298
Marketable securities	112,904	79,194
Accounts receivable (including amounts from related parties of $1,050 and $959 as of December 31, 2019 and 2018, respectively)	6,298	2,489
Prepaid expenses and other current assets	4,406	2,965
Total current assets	128,568	209,946
Property and equipment, net	9,633	10,934
Marketable securities, non-current	15,609	-
Other non-current assets	2,545	2,244
Restricted cash	15	15
Total assets	$ 156,370	$ 223,139
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 5,584	$ 3,061
Accrued compensation	6,017	6,217
Deferred revenue—current	19,465	21,574
Debt—current	1,000	4,724
Other current liabilities	901	847
Total current liabilities	32,967	36,423
Deferred revenue, non-current	16,195	44,599
Deferred rent	409	476
Debt—non-current	8,876	10,000
Other noncurrent liabilities	134	102
Total liabilities	58,581	91,600
Stockholders' equity:		
Preferred stock, $0.001 par value — 10,000,000 shares authorized as of December 31, 2019 and 2018; 0 shares issued and outstanding as of December 31, 2019 and 2018	—	—
Common stock, $0.001 par value — 300,000,000 shares authorized as of December 31, 2019 and 2018; 23,098,969 and 22,848,184 shares issued and outstanding as of December 31, 2019 and 2018, respectively	23	23
Additional paid-in-capital	293,346	281,891
Accumulated other comprehensive income (loss)	165	(47)
Accumulated deficit	(195,745)	(150,328)
Total stockholders' equity	97,789	131,539
Total Liabilities and Stockholders' Equity	$ 156,370	$ 223,139

See accompanying notes to financial statements

SUTRO BIOPHARMA, INC.

STATEMENTS OF OPERATIONS
(in thousands, except share and per share data)

	Year Ended December 31,		
	2019	**2018**	**2017**
Revenue (including amounts from related parties of $22,536, $18,966 and $44,606 during the years ended December 31, 2019, 2018 and 2017, respectively)	42,736	38,419	51,741
Operating expenses			
Research and development	65,612	54,262	54,639
General and administrative	32,592	21,380	16,374
Total operating expenses	98,204	75,642	71,013
Loss from operations	(55,468)	(37,223)	(19,272)
Interest income	4,074	1,616	273
Interest and other income (expense), net	(4,350)	290	(689)
Net loss	$ (55,744)	$ (35,317)	$ (19,688)
Net loss per share	$ (2.43)	$ (6.13)	$ (43.95)
Weighted-average shares used in computing net loss per share	22,958,577	5,758,875	447,946

See accompanying notes to financial statements

SUTRO BIOPHARMA, INC.

STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Year Ended December 31,		
	2019	**2018**	**2017**
Net loss	$ (55,744)	$ (35,317)	$ (19,688)
Other comprehensive income:			
Unrealized gain (loss) on available-for-sale securities	212	(47)	17
Comprehensive loss	$ (55,532)	$ (35,364)	$ (19,671)

See accompanying notes to financial statements

SUTRO BIOPHARMA, INC.

Statements of Redeemable Convertible Preferred Stock

and Stockholders' (Deficit) Equity
(in thousands, except share amounts)

	Redeemable Convertible Preferred Stock		Common Stock		Note Receivable from	Additional Paid-In-	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Stockholder	Capital	Loss	Deficit	(Deficit) Equity
Balances at December 31, 2016	173,750,421	102,505	451,831	-	(207)	4,646	(17)	(95,323)	(90,901)
Exercise of common stock options for cash	-	-	13,499	-	-	95	-	-	95
Stock-based compensation expense	-	-	-	-	-	1,391	-	-	1,391
Vesting of early exercised shares	-	-	-	-	-	86	-	-	86
Interest on note receivable from stockholder	-	-	-	-	(1)	-	-	-	(1)
Net unrealized gain on available-for-sale securities	-	-	-	-	-	-	17	-	17
Net loss	-	-	-	-	-	-	-	(19,688)	(19,688)
Balances at December 31, 2017	173,750,421	102,505	465,330	-	(208)	6,218	-	(115,011)	(109,001)
Issuance of Series C and E redeemable convertible preferred stock, net of issuance costs of $ 644	319,865,282	84,739	-	-	-	-	-	-	-
Conversion of redeemable convertible preferred stock warrants to common stock warrants in connection with initial public offering	-	-	-	-	-	734	-	-	734
Conversion of redeemable convertible preferred stock and warrants to common stock in connection with initial public offering	(493,615,703)	(187,244)	16,007,762	16	-	187,228	-	-	187,244
Exercise of preferred stock warrants for cash	-	-	20,700	-	-	268	-	-	268
Exercise of common stock options and common stock warrants for cash	-	-	20,726	-	-	134	-	-	134
Issuance of common stock in connection with initial public offering, net of issuance costs of $ 10,564	-	-	5,667,000	6	-	74,430	-	-	74,436
Issuance of common stock in connection with private placement	-	-	666,666	1	-	9,999	-	-	10,000
Stock-based compensation expense	-	-	-	-	-	2,872	-	-	2,872
Vesting of early exercised shares	-	-	-	-	-	8	-	-	8
Payment of note receivable by stockholder	-	-	-	-	208	-	-	-	208
Net unrealized loss on available-for- sale securities	-	-	-	-	-	-	(47)	-	(47)
Net loss	-	-	-	-	-	-	-	(35,317)	(35,317)
Balances at December 31, 2018	-	$ -	22,848,184	$ 23	$ -	$ 281,891	$ (47)	$ (150,328)	$ 131,539
Adoption of Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers (Topic 606)								10,327	10,327
Exercise of common stock options	-	-	35,204	-	-	180	-	-	180
Issuance of common stock under Employee Stock Purchase Plan	-	-	131,939	-	-	1,260	-	-	1,260
Vesting of restricted stock units	-	-	114,103	-	-	-	-	-	-
Stock transaction associated with taxes withheld on restricted stock units	-	-	(30,461)	-	-	(297)	-	-	(297)
Stock-based compensation expense	-	-	-	-	-	10,312	-	-	10,312
Net unrealized gain on available-for-sale securities	-	-	-	-	-	-	212	-	212
Net Loss	-	-	-	-	-	-	-	(55,744)	(55,744)
Balances at December 31, 2019	-	$ -	23,098,969	$ 23	$ -	$ 293,346	$ 165	$ (195,745)	$ 97,789

See accompanying notes to financial statements

SUTRO BIOPHARMA, INC.

STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2019	2018	2017
Operating activities			
Net loss	$ (55,744)	$ (35,317)	$ (19,688)
Adjustments to reconcile net (loss) income to net cash provided by (used in) operating activities:			
Depreciation and amortization	4,777	4,539	4,990
Amortization of premium (accretion of discount) on marketable securities	(1,457)	(527)	106
Stock-based compensation	10,312	2,872	1,391
Revaluation of redeemable convertible preferred stock warrant liability	-	(973)	186
Recognition of income on derivative liability	(115)	(854)	-
Loss on disposal of property and equipment	275	-	-
Other	193	337	103
Impairment of long-lived assets	-	-	2,742
Changes in operating assets and liabilities:			
Accounts receivable	(3,809)	(865)	(1,047)
Prepaid expenses and other assets	(1,441)	(2,220)	(354)
Accounts payable	2,253	209	(473)
Accrued compensation	(200)	2,578	451
Other liabilities	186	551	-
Deferred rent	(67)	48	86
Deferred revenue	(20,186)	42,305	(25,566)
Net cash (used in) provided by operating activities	(65,023)	12,683	(37,073)
Investing activities			
Purchases of marketable securities	(196,226)	(81,463)	(14,220)
Maturities of marketable securities	128,576	2,750	34,850
Sales of marketable securities	20,000	-	15,208
Purchases of equipment and leasehold improvements	(3,481)	(1,557)	(3,316)
Proceeds from exercise of options for SutroVax shares	-	80	80
Net cash (used in) provided by investing activities	(51,131)	(80,190)	32,602
Financing activities			
Payments of debt	(5,000)	-	-
Proceeds from issuance of debt	-	-	15,000
Payment of debt issuance fees	-	-	(170)
Proceed from issuance of common stock options and warrants	180	134	95
Taxes paid related to net shares settlement of restricted stock units	(297)	-	-
Proceeds from employee stock purchase plan	1,260	-	-
Proceeds (interest) from payment of note receivable by stockholder	-	208	(1)
Proceeds from issuances of redeemable convertible preferred stock, net of issuance costs	-	84,739	-
Proceeds from issuances of common stock upon initial public offering, net of issuance costs	-	74,436	-
Payment of offering costs	(327)	-	(286)
Proceeds from issuance of common stock in private placement	-	10,000	-
Proceeds from exercise of preferred stock warrants	-	268	-
Proceeds from a research, development and commercialization agreement	-	1,000	-
Net cash (used in) provided by financing activities	(4,184)	170,785	14,638
Net (decrease) increase in cash, cash equivalents and restricted cash	(120,338)	103,278	10,167
Cash, cash equivalents and restricted cash at beginning of year	125,313	22,035	11,868
Cash, cash equivalents and restricted cash at end of year	$ 4,975	$ 125,313	$ 22,035
Supplemental disclosure of cash flow information			
Cash paid for interest	$ 1,049	$ 1,275	$ 479
Supplemental Disclosures of Non-cash Investing and Financing Information			
Purchase of property and equipment included in accounts payable	$ 270	$ 205	$ 255
Offering costs included in accounts payable	$ -	$ -	$ 259
Embedded interest associated with program fees	$ 3,144	$ -	$ -
Vesting of early exercised shares	$ -	$ 8	$ 86
Conversion of redeemable convertible preferred stock and warrants into common stock upon IPO, net of issuance costs	$ -	$ 187,244	$ -
Reclassification of redeemable convertible preferred stock warrant liability to equity	$ -	$ 734	$ -

See accompanying notes to financial statements

1.Organization and Principal Activities

Description of Business

Sutro Biopharma, Inc. (the "Company") is a clinical stage drug discovery, development and manufacturing company focused on leveraging its integrated cell-free protein synthesis and site-specific conjugation platform, XpressCF®, to create a broad variety of optimally designed, next-generation protein therapeutics for cancer and autoimmune disorders. The Company was incorporated on April 21, 2003, and is headquartered in South San Francisco, California.

The Company operates in one business segment, the development of biopharmaceutical products.

Liquidity

The Company has incurred significant losses and has negative cash flows from operations. As of December 31, 2019, there was an accumulated deficit of $195.7 million. Management expects to continue to incur additional substantial losses in the foreseeable future as a result of the Company's research and development activities.

As of December 31, 2019, the Company had unrestricted cash, cash equivalents and marketable securities of $ 133.5 million, which is available to fund future operations. The Company will need to raise additional capital to support the completion of its research and development activities and its operations.

On February 28, 2020, the Company entered into a loan and security agreement (the "Loan and Security Agreement") with Oxford Finance LLC ("Oxford"), as the collateral agent and a lender, and Silicon Valley Bank, as a lender (together with Oxford, the "Lenders"), pursuant to which the Lenders have agreed to lend the Company up to an aggregate of $25.0 million in a series of term loans (the "Term A Loan"). Upon entering into the Loan and Security Agreement, the Company borrowed $25.0 million from the Lenders, with approximately $ 9.6 million of such amount applied to the repayment of the outstanding principal, interest and final payment fees owed pursuant to a prior loan and security agreement dated August 4, 2017 with the Lenders. Under the terms of the Loan and Security Agreement, the Company may, at its sole discretion, borrow from the Lenders up to an additional $5.0 million upon the closing of a new collaboration agreement that includes an upfront payment of at least $50.0 million to the Company , as determined by Oxford in its sole and absolute discretion . The proceeds from the Term Loans under the Loan and Security Agreement may be used to satisfy the Company's future working capital needs and to fund its general business requirements. Please see an expanded discussion on the Loan and Security Agreement in Note 15 Subsequent Events.

The Company believes that its unrestricted cash, cash equivalents and marketable securities as of December 31, 2019 will enable the Company to maintain its operation for a period of at least 12 months following the filing date of its financial statements.

2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Use of Estimates

The accompanying financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"). The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. The Company bases its estimates on historical experience and market-specific or other relevant assumptions that it believes are reasonable under the circumstances. The amounts of assets and liabilities reported in the Company's balance sheets and the amounts of expenses and income reported for each of the periods presented are affected by estimates and assumptions, which are used for, but are not limited to, determining research and development periods and standalone selling prices under multiple element arrangements, stock-based compensation expense, valuation of marketable securities, impairment of long-lived assets, fair value of redeemable convertible preferred stock warrant liabilities (prior to closing of the Company's IPO), fair value of common stock (prior to closing of the Company's IPO), income taxes and certain accrued liabilities. Actual results could differ from such estimates or assumptions.

Adoption of New Accounting Principles

Revenue Recognition

On January 1, 2019, the Company adopted Accounting Standards Update (ASU) No. 2014-09 (Topic 606), Revenue from Contracts with Customers ("ASC 606"). ASC 606 supersedes the guidance in ASC 605, Revenue Recognition. Under ASC 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration that the entity expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that an entity determines are within the scope of ASC 606, the entity performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the entity satisfies a performance obligation.

Upon adoption of ASC 606, the Company used the practical expedients to analyze only those contracts that were still active contracts as of January 1, 2019 and evaluated those contracts based on the cumulative contract modifications through that date. The Company does not believe that the use of the practical expedients has or will have a material impact on its transition adjustment or its prospective accounting. The Company adopted ASC 606 on a modified retrospective basis under which it recognized the cumulative effect of adoption of $10.3 million as a transition adjustment to reduce opening accumulated deficit; therefore, the periods prior to the adoption date of ASC 606 have not been restated. If the Company had continued to use ASC 605 during 2019, revenue would have been $43.5 million for the year ended December 31, 2019, as compared to the $ 42.7 million reported for the year ended December 31, 2019.

Previously, under ASC 605, the Company first determined whether a revenue arrangement includes multiple elements, such as the delivery of intellectual property rights and research and development services. For revenue agreements with multiple elements, the Company identified the deliverables and evaluated which deliverables may represent separate units of accounting, based on the achievement of certain criteria, including whether the deliverable has stand-alone value to the collaborator. Upfront payments received in connection with licenses to the Company's technology rights were deferred if facts and circumstances dictated that the license does not have stand-alone value, and were recognized as license revenue over the estimated period of performance that is generally consistent with the terms of the research and development obligations contained in the specific collaboration and license agreement.

The impact of the adoption of Topic 606 our balance sheet as of January 1, 2019 was as follows (in thousands):

	December 31, 2018	Adjustments Due to the Adoption of Topic 606 Increase/(Decrease)	January 1, 2019
		(in thousands)	
Accounts receivable	$ 2,489	$ –	$ 2,489
Total current assets	209,946	–	209,946
Deferred revenue, current	21,574	(2,124)	19,450
Deferred revenue, non-current	44,599	(8,203)	36,396
Total liabilities	91,600	(10,327)	81,273
Accumulated deficit	(150,328)	(10,327)	(140,001)

The impact of the adoption of ASC 606 on the Company's balance sheet as of December 31, 2019 and the Company's statements of operations for the year ended December 31, 2019 was as follows:

	As of and for the year ended December 31, 2019 (in thousands)		
	Balances without the Adoption of Topic 606	Adjustments Increase /(Decrease)	As reported
Balance Sheet data			
Deferred revenue, current	21,989	(2,524)	19,465
Deferred revenue, non-current	20,106	(3,911)	16,195
Total liabilities	65,016	(6,435)	58,581
Accumulated deficit	(202,180)	(6,435)	(195,745)
Statements of Operations data			
Revenues	43,484	(748)	42,736
Interest and other income (expense), net	(1,206)	3,144	(4,350)
Net loss	(51,852)	3,892	(55,744)

Nonemployee Share-Based Payment

In June 2018, the Financial Accounting Standards Board ("FASB") issued ASU 2018-07 (Topic 718), Improvements to Nonemployee Share-Based Payment Accounting ("ASU 2018-07"). ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. Some of the areas of simplification apply only to nonpublic entities. The Company adopted this guidance on January 1, 2019. The adoption of this guidance did not have a material impact on the Company's financial statements.

Recently Issued Accounting Pronouncements

In August 2018, the FASB issued ASU 2018-13 (Topic 820), Fair Value Measurement: Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement, reducing certain disclosures concerning the fair value hierarchy. The guidance is effective for the Company as of January 1, 2020, for both annual and interim periods. The Company does not expect the adoption of this guidance to have a material impact on the Company's financial statements.

In June 2016, the FASB issued ASU 2016-13 (Topic 326), Financial Instruments Credit Losses, which requires consideration of a broader range of reasonable and supportable information to developing credit loss estimates. For public entities, ASU 2016-13 is effective for fiscal years beginning after December 15, 2019, including all interim periods within those years. As a result of the Company having elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act, ASU 2016-13 is effective for the Company for the fiscal years beginning after December 15, 2020, including all interim periods within those years. Early adoption is permitted. The Company is currently assessing the impact that the adoption of ASU 2016-13 will have on its financial statements and related disclosures.

In November 2018, the FASB issued ASU No. 2018-18, Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606 (ASU 2018-18). ASU 2018-18 clarifies that certain transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606 when the counterparty is a customer for a distinct good or service. For units of account that are in the scope of Topic 606, all of the guidance in Topic 606 should be applied, including the guidance on recognition, measurement, presentation and disclosure. ASU 2018-18 also adds a reference in ASC Topic 808, Collaborative Arrangements (Topic 808) to the unit of account guidance in Topic 606 and requires that it be applied only to assess whether transactions in a collaborative arrangement are in the scope of Topic 606. ASU 2018-18 will preclude entities from presenting amounts related to transactions with a counterparty in a collaborative arrangement that is not a customer as revenue from contracts with customers. For public entities, ASU 2018-18 is effective for fiscal years beginning after December 15, 2019, including all interim periods within those years. As a result of the Company having elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act, ASU 2018-18 is effective for the Company for fiscal years beginning after December 15, 2020, including all interim periods within those years. Early adoption is permitted. The Company has not yet determined the effects of this ASU on its financial statements.

In February 2016, the FASB issued ASU 2016-02 (Topic 842), Leases ("ASC 842"). ASC 842 supersedes the lease recognition requirements in ASC 840, Leases. ASC 842 clarifies the definition of a lease and requires lessees to recognize right-of-use assets and lease liabilities for all leases, including those classified as operating leases under previous lease accounting guidance. For public entities, ASU 2016-02 was effective for fiscal years beginning after December 15, 2018, including all interim periods within that year. As a result of the Company having elected the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act, ASC842 will be effective for the Company on January 1, 2021. Originally, entities were required to adopt ASC 842 using a modified retrospective transition method. However, in July 2018, the FASB issued ASU 2018-11 (Topic 842), Leases: Targeted Improvements, which provides entities with an additional transition method. Under ASU 2018-11, entities have the option of initially applying ASC 842 at the adoption date, rather than at the beginning of the earliest period presented, and recognizing the cumulative effect of applying the new standard as an adjustment to beginning retained earnings in the year of adoption while continuing to present all prior periods under previous lease accounting guidance. The Company is currently evaluating the impact of adopting this guidance on the Company's financial statements. The Company currently expects that its operating lease commitments will be subject to the new standard and recognized as right-of-use assets and operating lease liabilities upon adoption of this standard, which will increase the total assets and total liabilities that it reports relative to such amounts presented prior to adoption.

Cash, Cash Equivalents, Marketable Securities and Restricted Cash

The Company considers all highly liquid investments with original maturities of 90 days or less from the date of purchase to be cash equivalents. Investments with original maturities of greater than 90 days from the date of purchase but less than one year from the balance sheet date are classified as current, while investments with maturities in one year or beyond one year from the balance sheet date are classified as long-term investments. Available-for-sale marketable securities are carried at fair value, with unrealized gains and losses reported as a component of accumulated other comprehensive income (loss). Realized gains and losses are included in interest income in the Company's Statements of Operations. There were no material realized gains or losses in the periods presented. The cost of securities sold is based on the specific-identification method.

The Company invests in money market funds, commercial paper, corporate debt securities, asset-based securities and U.S. government agency securities with high credit ratings. The Company has established guidelines regarding diversification of its investments and their maturities, with the objectives of maintaining safety and liquidity while maximizing yield.

Under certain credit agreements, the Company has pledged cash and cash equivalents as collateral. Restricted cash related to such agreements was $15,000 as of both December 31, 2019 and December 31, 2018.

A reconciliation of cash, cash equivalents, and restricted cash reported within the Company's Balance Sheets to the amount reported within the accompanying Statements of Cash Flows was as follows:

	December 31,		
	2019	2018	2017
	(in thousands)		
Cash and cash equivalents	$ 4,960	$ 125,298	$ 22,020
Restricted cash	15	15	15
Total cash, cash equivalents and restricted cash shown in the statements of cash flows	$ 4,975	$ 125,313	$ 22,035

Concentrations of Credit Risk

Cash and cash equivalents and marketable securities consist of financial instruments that potentially subject the Company to a concentration of credit risk, to the extent of the amounts recorded on the balance sheets. The Company minimizes the amount of credit exposure by investing cash that is not required for immediate operating needs in money market funds, government obligations and/or commercial paper with short maturities.

The Company regularly reviews the outstanding accounts receivable, including consideration of factors such as the age of the receivable balance. As of December 31, 2019 and 2018, there was no allowance for doubtful accounts deemed necessary. As of December 31, 2019 and 2018, the Company's accounts receivable balances were entirely attributable to the Company's collaboration agreements.

Property and Equipment, Net

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

Impairment of Long-Lived Assets

The Company reviews long-lived assets, including property and equipment, for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. An impairment loss would be recognized when the estimated, undiscounted future cash flows expected to result from the use of the asset and its eventual disposition are less than its carrying amount. Impairment, if any, is measured as the amount by which the carrying amount of a long-lived asset exceeds its fair value.

The Company did not recognize any impairment charges during the years ended December 31, 2019 and 2018. During the year ended December 31, 2017, the Company recognized within research and development expenses in the statements of operations, an impairment charge of $2.7 million pertaining to manufacturing equipment that had been custom built for the Company, and failed to meet the acceptance criteria; therefore, the Company believed the carrying value may not be recoverable. As of December 31, 2019 and 2018, management believes that no revision to the remaining useful lives or write down of the remaining long-lived assets is required.

Leases

The Company enters into lease agreements for its laboratory and office facilities. These leases are classified as operating leases. Rent expense is recognized on a straight-line basis over the term of the lease. Incentives granted under the Company's facilities leases, including allowances to fund leasehold improvements and rent holidays, are recorded as a deferred rent liability and are recognized as reductions to rental expense on a straight-line basis over the remaining term of the lease.

Stock-Based Compensation

The Company maintains a stock-based compensation plan as a long-term incentive for employees, consultants, and members of the Company's Board of Directors. The plan allows for the issuance of restricted stock units, non-statutory and incentive stock options to employees and non-statutory stock options ("NSOs") to nonemployees. The Company also maintains an employee stock purchase plan.

Share-based payments, including purchases under the Company's employee stock purchase plan, are measured using fair-value-based measurements and recognized as compensation expense over the service period in which the awards are expected to vest. The Company's fair-value-based measurements of awards to employees and directors as of the grant date utilize the single-option award-valuation approach, and the Company uses the straight-line method for expense attribution. The fair-value-based measurements of options granted to nonemployees are remeasured at each period end until the options vest and are amortized to expense as earned. The valuation model used for calculating the estimated fair value of stock awards is the Black-Scholes option-pricing model. The Black-Scholes model requires the Company to make assumptions and judgments about the variables used in the calculations, including the expected term (weighted-average period of time that the options granted are expected to be outstanding), the expected volatility of the Company's common stock, the related risk-free interest rate and the expected dividends.

Research and Development

The Company records accrued expenses for estimated costs of the research and development activities conducted by third party service providers, which include outsourced research and development expenses, professional services 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 current liabilities in the balance sheets and within research and development expense in the statements of operations.

Nonrefundable advance payments for goods or services that will be used or rendered for future research and development activities are deferred and capitalized and recognized as an expense as the goods are delivered or the related services are performed.

For outsourced research and development expenses, such as professional fees payable to third parties for preclinical studies, clinical trials and research services and other consulting costs, we estimate the expenses based on the services performed, pursuant to contracts with research institutions that conduct and manage preclinical studies, clinical trials and research services on the Company's behalf. The Company estimates these expenses based on discussions with internal management personnel and external service providers as to the progress or stage of completion of services and the contracted fees to be paid for such services. If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

Income Taxes

The Company provides for income taxes under the asset and liability method. Current income tax expense or benefit represents the amount of income taxes expected to be payable or refundable for the current year. Deferred income tax assets and liabilities are determined based on differences between the financial statement reporting and tax bases of assets and liabilities and net operating loss and credit carryforwards, and are measured using the enacted tax rates and laws that will be in effect when such items are expected to reverse. Deferred income tax assets are reduced, as necessary, by a valuation allowance when management determines it is more likely than not that some or all of the tax benefits will not be realized.

The Company accounts for uncertain tax positions in accordance with Accounting Standards Codification ("ASC") 740-10, *Accounting for Uncertainty in Income Taxes*. The Company assesses all material positions taken in any income tax return, including all significant uncertain positions, in all tax years that are still subject to assessment or challenge by relevant taxing authorities. Assessing an uncertain tax position begins with the initial determination of the position's sustainability and is measured at the largest amount of benefit that is greater than fifty percent likely of being realized upon ultimate settlement. As of each balance sheet date, unresolved uncertain tax positions must be reassessed, and the Company will determine whether (i) the factors underlying the sustainability assertion have changed and (ii) the amount of the recognized tax benefit is still appropriate. The recognition and measurement of tax benefits requires significant judgment. Judgments concerning the recognition and measurement of a tax benefit might change as new information becomes available.

The Company includes any penalties and interest expense related to income taxes as a component of Interest and other income (expense), net as necessary.

Fair Value Measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date, and establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value. The Company determined the fair value of financial assets and liabilities using the fair value hierarchy that describes three levels of inputs that may be used to measure fair value, as follows:

Level 1—Quoted prices in active markets for identical assets and liabilities;

Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and

Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The carrying amounts of accounts receivable, prepaid expenses, accounts payable, accrued liabilities and accrued compensation and benefits approximate fair value due to the short-term nature of these items.

The fair value of the Company's outstanding loan (See Note 7) is estimated using the net present value of the payments, discounted at an interest rate that is consistent with market interest rate, which is a Level 2 input. The estimated fair value of the Company's outstanding loan approximates the carrying amount, as the loan bears a floating rate that approximates the market interest rate.

Net Loss Per Share

Basic and diluted net loss per share is presented in conformity with the two-class method required for participating securities. Upon the Company's IPO on October 1, 2018, all redeemable convertible preferred stock was converted into common stock. For the periods presented, there were no deemed dividends.

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period, without consideration for potential dilutive common shares. Basic net loss per share is the same as diluted net loss per share as the inclusion of all potentially dilutive securities would have been anti-dilutive given the net loss of the Company.

Shares of common stock subject to repurchase are excluded from the computation of weighted-average shares as the continued vesting of such shares is contingent upon the holders' continued service to the Company.

3. Fair Value Measurements and Short-Term Investments

The following table sets forth the fair value of the Company's financial assets and liabilities measured on a recurring basis by level within the fair value hierarchy:

	December 31, 2019			
	Total	Level 1	Level 2	Level 3
	(in thousands)			
Assets:				
Money market funds	$ 3,151	$ 3,151	$ -	$ -
Commercial paper	4,952	-	4,952	-
Corporate debt securities	69,499	-	69,499	-
Asset-backed securities	27,055	-	27,055	-
U.S. government agency securities	27,007	-	27,007	-
Total	$ 131,664	$ 3,151	$ 128,513	$ -

	December 31, 2018			
	Total	Level 1	Level 2	Level 3
	(in thousands)			
Assets:				
Money market funds	$ 116,202	$ 116,202	$ -	$ -
Commercial paper	26,625	-	26,625	-
Corporate debt securities	11,774	-	11,774	-
Asset-backed securities	16,899	-	16,899	-
U.S. government agency securities	23,896	-	23,896	-
Total	$ 195,396	$ 116,202	$ 79,194	$ -

Where applicable, the Company uses quoted market prices in active markets for identical assets to determine fair value. This pricing methodology applies to Level 1 investments, which are composed of money market funds.

If quoted prices in active markets for identical assets are not available, then the Company uses quoted prices for similar assets or inputs other than quoted prices that are observable, either directly or indirectly. These investments are included in Level 2 and consist of commercial paper, corporate debt securities, and U.S. government agency securities. These assets are valued using market prices when available, adjusting for accretion of the purchase price to face value at maturity.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability.

In certain cases where there is limited activity or less transparency around inputs to valuation, securities are classified as Level 3 within the valuation hierarchy. Level 3 liabilities that were measured at estimated fair value on a recurring basis consisted of the redeemable convertible preferred stock warrant liability (prior to closing of the Company's IPO).

Upon closing of the IPO on October 1, 2018, all of the outstanding redeemable convertible preferred stock warrants either expired or were converted into common stock warrants, which resulted in the reclassification of the redeemable convertible preferred stock warrant liability to other income and additional paid-in-capital.

4. Cash Equivalents and Marketable Securities

Cash equivalents and marketable securities consisted of the following:

	December 31, 2019			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)			
Money market funds	$ 3,151	$ -	$ -	$ 3,151
Commercial paper	4,952	-	-	4,952
Corporate debt securities	69,423	79	(3)	69,499
Asset-based securities	27,005	50	-	27,055
U.S. government agencies	26,968	39	-	27,007
Total	131,499	168	(3)	131,664
Less amounts classified as cash equivalents	(3,151)	-	-	(3,151)
Total marketable securities	$ 128,348	$ 168	$ (3)	$ 128,513

	December 31, 2018			
	Amortized Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)			
Money market funds	$ 116,202	$ -	$ -	$ 116,202
Commercial paper	26,625	-	-	26,625
Corporate debt securities	11,795	-	(21)	11,774
Asset-based securities	16,920	-	(21)	16,899
U.S. government agencies	23,901	-	(5)	23,896
Total	195,443	-	(47)	195,396
Less amounts classified as cash equivalents	(116,202)	-	-	(116,202)
Total marketable securities	$ 79,241	$ -	$ (47)	$ 79,194

As of December 31, 2019, $15.6 million of marketable securities had maturities of more than one year and are classified as long-term assets. As of December 31, 2018, no marketable securities had maturities of more than one year.

There were $4.5 million and $52.6 million of investments in an unrealized loss position as of December 31, 2019 and December 31, 2018, respectively. During the years ended December 31, 2019 and 2018 the Company did not record any other-than-temporary impairment charges on its available-for-sale securities. Based upon the Company's impairment review, the Company determined that the unrealized losses were not attributed to credit risk but were primarily associated with changes in interest rates. Based on the scheduled maturities of the investments, the Company was more likely than not to hold these investments for a period of time sufficient for a

recovery of the Company's cost basis. As such, the Company concluded that the unrealized losses in the investment securities were not other-than-temporary.

5. Collaboration and License Agreements and Supply Agreements

The Company has entered into collaboration and license agreements with various pharmaceutical and biotechnology companies. As described in Note 2, on January 1, 2019, the Company adopted ASC 606, Revenue from Contracts with Customers, which supersedes the guidance in ASC 605, Revenue Recognition. The Company recognized revenue under ASC 606 for the year ended December 31, 2019 and under ASC 605 for years ended December 31, 2018 and 2017. In accordance with the collaboration agreements, the Company recognized revenue as follows:

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Bristol-Myers Squibb Company ("BMS") (1)(2)	$ 11,321	$ 21,187	$ 44,606
Merck Sharp & Dohme Corporation ("Merck") - related party	21,458	8,526	-
Merck KGaA, Darmstadt, Germany (operating in the United States and Canada under the name "EMD Serono")	8,879	7,175	7,135
SutroVax - related party	1,078	1,531	-
Total revenue	$ 42,736	$ 38,419	$ 51,741

(1) In January 2019, BMS announced the entry into a definitive agreement to acquire Celgene and the transaction was completed in November 2019.

(2) During the year ended December 31, 2018, $8.9 million of revenue from BMS (formerly Celgene) was related party revenue. Celgene was a related party through September 30, 2018 as it held more than 10% of the Company's common stock for the periods presented until the closing of our IPO.

The following table presents the changes in the Company's deferred revenue balance from collaboration agreements during the year ended December 31, 2019:

	Year ended December 31, 2019
	(in thousands)
Deferred revenue—December 31, 2018	$ 66,173
Transition adjustment related to adoption of ASC 606	(10,327)
Deferred revenue—January 1, 2019	55,846
Additions to deferred revenue	2,826
Recognition of revenue in current period	(23,012)
Deferred revenue—December 31, 2019	$ 35,660

The Company's balance of deferred revenue contains the transaction price from collaboration agreements allocated to performance obligations which are partially unsatisfied. The Company expects to recognize approximately $19.5 million of the deferred revenue as of December 31, 2019 over the next twelve months.

There have been no material changes to the Company's collaboration agreements during the year ended December 31, 2019, except as described below.

Celgene Agreement

In September 2014, the Company signed a Collaboration and License Agreement with Celgene to discover and develop bispecific antibodies and/or antibody-drug conjugates ("ADCs"), focused primarily on the field of immuno-oncology, using the Company's proprietary integrated cell-free protein synthesis platform, XpressCF®.

Upon signing the Celgene Agreement, the Company received an upfront, nonrefundable payment totaling $ 83.1 million.

In March 2015, the Company received a $ 15.0 million contingent payment (“March 2015 payment”) from Celgene that provided Celgene a right to access certain of the Company’s technology for use in conjunction with certain Celgene intellectual property. In June 2016, the Company received a $25.0 million milestone (“June 2016 payment”) upon completion of certain preclinical activities. Additionally, in June 2016, the Company earned a $10.0 million substantive milestone for certain manufacturing accomplishments.

In August 2017, the Company received an option fee payment of $ 12.5 million. In September 2017, the Company earned a $ 10.0 million milestone for certain manufacturing accomplishments, which payment was received from Celgene in October 2017. In December 2018, the Company earned a $10.0 million milestone for certain manufacturing accomplishments, which payment was received from Celgene in the same month.

In August 2017, the Company entered into an amended and restated collaboration and license agreement with Celgene to refocus the collaboration on four programs that were advancing through preclinical development, including an ADC program targeting B cell maturation antigen (“BCMA ADC”).

In May 2019, the U.S. Food and Drug Administration cleared the investigational new drug (“IND”) application for the BCMA ADC, which was discovered and manufactured by the Company and is the first collaboration program IND. Celgene has worldwide development and commercialization rights with respect to the BCMA ADC. The Company will continue to be responsible for clinical supply manufacturing and certain development services for the BCMA ADC and is eligible to receive from Celgene aggregate development and regulatory contingent payments of up to $275.0 million, if approved in multiple indications, and tiered royalties ranging from mid to high single digit percentages on worldwide sales of any resulting commercial products.

With respect to the remaining three collaboration programs (BCMA-CD3, PD1-LAG3 and PD1-TIM3), during the second quarter of 2019 Celgene notified the Company that it decided not to exercise the option to acquire U.S. clinical development and commercialization rights to a second collaboration program. Therefore, Celgene was not required to pay the Company the $12.5 million option maintenance fee that would have been due upon IND clearance for the first collaboration program, as described above. Consequently, the U.S. clinical development and commercialization rights to the other three collaboration programs remain owned by the Company, without any further option to Celgene. For any products resulting from these three collaboration programs, Celgene will own ex-U.S. development and commercialization rights and will be obligated to pay the Company development and regulatory contingent payments and tiered royalties ranging from mid to high single digit percentages.

The Company has received and will be eligible to receive financial support for research and development services assigned to the Company by Celgene, based on an agreed-upon level of FTE personnel effort and related reimbursement rate, which will be recognized as revenue as the related reimbursable activities approved by Celgene and the Company are performed by the Company.

In November 2019, BMS acquired Celgene, and Celgene became a wholly owned subsidiary. BMS may terminate the Celgene Agreement at any time with 120 days’ prior written notice. Either the Company or BMS has the right to terminate the Celgene Agreement based on the other party’s uncured material breach, challenge of the validity and enforceability of intellectual property, or bankruptcy.

In accounting for this arrangement under ASC 606, applying the practical expedients, the Celgene Agreement was treated as a single arrangement that had been modified in 2017, in the form it was last modified prior to the adoption of ASC 606.

Given the modification of the Celgene Agreement in 2017, the Company determined that the remaining deferred revenue balance of $ 8.2 million as of the date of the modification, related to certain prior Celgene payments to the Company, together with the $12.5 million option fee payment received in August 2017, would comprise the transaction price of $20.7 million to be allocated on a relative basis among the Company’s performance obligations based on the Company’s best estimate of each SSP or fair value. The Company identified the three performance obligations relating to the Celgene Agreement as: (1) access by Celgene to worldwide development and commercialization rights on the first collaboration program to achieve IND clearance; (2) the Company’s estimated future services on the collaboration Joint Steering Committee (“JSC”); and (3) Celgene’s use of certain technology and the option to acquire worldwide development and commercialization rights to a second collaboration program.

Based on its estimated SSP, relative to the total estimated SSP values of all identified performance obligations, the portion of the transaction price allocated to the first performance obligation was $8.2 million, which performance obligation was satisfied as of the modification date of the Celgene Agreement, as the BCMA ADC program was the most advanced of the four collaboration programs and estimated by the Company to be the one for which Celgene would first achieve IND clearance and gain worldwide development and commercialization

rights. The second and third performance obligations identified above were unsatisfied as of the modification date of the Celgene Agreement. The Company determined the portion of the transaction price to be allocated to the JSC performance obligation was $0.2 million. Revenue related to such performance obligation will be recognized by the Company over the estimated period during which it will perform its JSC services. The Company determined that the portion of the transaction price to be allocated to the third performance obligation, which provided Celgene with an option to acquire worldwide development and commercialization rights to a second collaboration program, was $12.3 million. Although Celgene decided not to exercise this option, the Company still has the continuing performance obligation to provide Celgene access to the Company's technology. As such, the Company's revenue related to such performance obligation will continue to be recognized over the period from August 2017 through September 2020, the estimated term of the use of the technology.

Upon the adoption of ASC 606 on January 1, 2019, the Company recorded a $ 4.5 million adjustment to decrease its deferred revenue for performance obligations that were satisfied in prior periods, with the corresponding adjustment being a reduction to the Company's accumulated deficit.

During the year ended December 31, 2019 under ASC 606, the Company recognized revenue of $ 3.9 million associated with the Company's ongoing performance related to the partially unsatisfied performance obligations During the years ended December 31, 2018 and 2017 under ASC 605, the Company recognized revenue of $16.6 million and $43.9 million, respectively, associated with performance under the deliverables and the achievement of certain milestones. As of December 31, 2019 and 2018, there was $3.0 million and $11.4 million, respectively, of deferred revenue related to payments received by the Company under the Celgene Agreement. As of December 31, 2019 and 2018, the Company had $1.7 and $0.6 million, respectively, of receivables from BMS related to the Celgene Agreement, which are included in accounts receivable on the balance sheet.

2018 Celgene Master Services Agreement

In March 2018, the Company entered into a Master Development and Clinical Manufacturing Services Agreement (the "2018 Celgene Master Services Agreement") with Celgene (now BMS), wherein Celgene requested the Company to provide development, manufacturing and supply chain management services, including clinical product supply. The consideration for the services is based on an agreed-upon level of FTE personnel effort and related reimbursement rate in addition to agreed-upon pricing for the clinical product supply.

During the years ended December 31, 2019 and 2018, the Company earned $ 6.8 million and $4.5 million, respectively, for services performed under the 2018 Celgene Master Services Agreement. As of December 31, 2019 and 2018, the Company had $2.0 million and zero, respectively, of receivables from BMS related to the Celgene Master Services Agreement, which are included in accounts receivable on the balance sheet.

2018 Merck Agreement – Related Party

In July 2018, the Company entered into an Exclusive Patent License and Research Collaboration Agreement (the "2018 Merck Agreement") with Merck, a related party of the Company, to jointly develop up to three research programs focusing on cytokine derivatives for cancer and autoimmune disorders.

Under the 2018 Merck Agreement, the Company received from Merck a non-refundable, non-creditable, upfront payment of $ 60.0 million in August 2018 for access to the Company's technology and the identification and preclinical research and development of two target programs, with an option for Merck to engage the Company to continue these activities for a third program upon the payment of an additional amount. Under ASC 606, the Company identified the five performance obligations under the 2018 Merck Agreement as: (1) access to certain intellectual property rights; (2) performance of services related to the first target program; (3) performance of services related to the second target program; (4) the Company's estimated future services on the collaboration JSC; and (5) a material right pertaining to the performance of services related to a contingent third target program upon the payment of an additional amount. The transaction price of $60.0 million was allocated among the performance obligations using the Company's best estimate of SSP for each of the associated performance obligations. Based on its estimated SSP, relative to the estimated total SSP values of all identified performance obligations, the portion of the transaction price allocated to the first performance obligation was $7.3 million. It was determined that such performance obligation was satisfied as of the effective date of the 2018 Merck Agreement, and accordingly revenue associated with this performance obligation would, pursuant to ASC 606, have been recorded on the effective date of the Merck Agreement. Revenue allocated to the first and second target programs, which totaled $47.1 million is being recognized on a proportion of performance basis, using the FTE cost as the basis of measurement, with such performance expected to occur over an estimated service period of three years for each target program. As it pertains to the JSC performance obligation, the revenue allocated to such performance obligation was $0.7 million, which is being recognized as revenue on a proportion of

performance basis using FTE cost as the basis, and such effort is expected to be incurred on a relatively consistent basis throughout the term of the 2018 Merck Agreement. The Company allocated $4.9 million of the transaction price to the material right associated with the contingent third program. Recognition of the $4.9 million as revenue will begin upon commencement of the third program or upon the determination that the contingent third target program is no longer a performance obligation.

Upon adoption of ASC 606 on January 1, 2019, the Company recorded a $ 6.3 million adjustment to decrease its deferred revenue for performance obligations that were satisfied in prior periods, with the corresponding adjustment being a reduction to the Company's accumulated deficit.

Additionally, under ASC 606, the Company determined there was a financing component associated with the $ 60.0 million upfront payment, and has calculated total interest expense of $7.1 million as of December 31, 2019 on the unearned revenue portion beyond one year from the effective date of the agreement, which amount is expected to be recognized as revenue over the estimated service period for the first and second target programs.

During the year ended December 31, 2019 under ASC 606 and the year ended December 31, 2018 under ASC 605, the Company recognized revenue of $14.7 million and $7.0 million, respectively, associated with the Company's ongoing performance related to the partially unsatisfied performance obligations, $3.1 million and zero, respectively, related to the interest component described above, and $ 3.6 million and $1.5 million, respectively, for FTE funding provided by Merck.

As of December 31, 2019 and 2018, there was $ 31.9 million and $53.0 million, respectively, of deferred revenue related to the transaction price under the 2018 Merck Agreement. As of December 31, 2019 and 2018, the Company had $1.0 million and $0.9 million, respectively, of receivables from Merck related to the 2018 Merck Agreement, which are included in accounts receivable on the balance sheet.

The Company is also eligible to receive aggregate milestone payments of up to $ 1.6 billion, assuming the development and sale of all therapeutic candidates and all possible indications identified under the collaboration. If one or more products from each of the target programs are developed for non-oncology or a single indication, the Company will be eligible for reduced aggregate milestone payments. In addition, the Company is eligible to receive tiered royalties ranging from mid-single digit to low teen percentages on the worldwide sales of any commercial products that may result from the collaboration.

Merck may terminate the 2018 Merck Agreement at any time with 60 days' prior written notice. Either the Company or Merck has the right to terminate the 2018 Merck Agreement based on the other party's uncured material breach or bankruptcy.

During 2018, Merck purchased 74,794,315 shares of the Company's Series E redeemable convertible preferred stock at a price per share of $ 0.2674, resulting in gross proceeds of $20.0 million. In a private placement concurrent with the Company's IPO, which was completed on October 1, 2018, Merck purchased 666,666 shares of common stock at a price per share of $ 15.00, resulting in proceeds of approximately $ 10.0 million. As a result of the investments in the Company's equity, Merck is a related party.

EMD Serono Agreement

The Company signed a Collaboration Agreement and a License Agreement with EMD Serono in May 2014 and September 2014, respectively, which were entered into in contemplation of each other and therefore treated as a single agreement for accounting purposes. The Collaboration Agreement was subsumed into the License Agreement (the "MDA Agreement"), which agreement is to develop ADCs for multiple cancer targets.

Upon signing the Collaboration Agreement, the Company received an upfront, nonrefundable, non-creditable payment totaling $ 10.0 million. Upon signing the MDA Agreement, the Company received an additional upfront, nonrefundable payment totaling $10.0 million and will receive financial support for research and development services to be provided by the Company, based on an agreed-upon level of FTE personnel effort and related reimbursement rate.

The Company is eligible to receive up to $52.5 million for each product developed under the MDA Agreement, primarily from pre-commercial contingent payments. Relatedly, in September 2019, the Company earned a $1.5 million contingent payment under the MDA Agreement upon designation by EMD Serono of a specific bispecific antibody drug conjugate as a clinical development candidate with their approval to advance it to IND-enabling studies, which payment was received by the Company in November 2019. In addition, the Company is eligible to receive tiered royalties ranging from low-to-mid single digit percentages, along with certain additional one-time royalties, on worldwide sales of any commercial products that may result from the MDA Agreement. The MDA Agreement term expires on a product-by-product and country-by-country basis. Upon expiration, EMD Serono will

have a fully paid-up, royalty-free, perpetual, and irrevocable non-exclusive license, with the right to grant sublicenses, under certain Company intellectual property rights. EMD Serono may terminate the MDA Agreement at any time with 90 days' prior written notice or upon the inability of the Company to provide EMD Serono access to a specified number of cancer drug targets. Either the Company or EMD Serono has the right to terminate the MDA Agreement based on the other party's uncured material breach or bankruptcy.

Upon adoption of ASC 606 on January 1, 2019, the Company identified a single performance obligation under the MDA Agreement, which consists of the technology license, research and development activities and JSC participation over the estimated period of the agreement, as each are interrelated and not distinct within the overall context of the agreement. The transaction price was recognized on a proportion of performance basis, using the FTE cost as the basis of measurement, with such performance occurring over the estimated service period of the agreement, from June 2014 through May 2019.

Upon adoption of ASC 606 on January 1, 2019, the Company recorded a $0.6 million adjustment to increase its deferred revenue for performance obligations that were unsatisfied in prior periods, with the corresponding adjustment being an increase to the Company's accumulated deficit.

During the year ended December 31, 2019 under ASC 606, the Company earned $ 3.7 million from a milestone payment and a new supply agreement, $ 2.3 million associated with the Company's ongoing performance related to the partially unsatisfied performance obligations, and $2.9 million from research and development services. During the years ended December 31, 2018 and 2017 under ASC 605, the Company earned $4.1 million and $4.1 million, respectively, associated with performance under the deliverables, and $3.1 million and $3.0 million, respectively, are for research and development services.

As of December 31, 2019 and 2018, there was $ 0.8 million and $1.7 million, respectively, of deferred revenue related to payments received by the Company under the supply agreement and the MDA Agreement, respectively. As of December 31, 2019 and 2018, the Company had $1.5 million and $0.9 million, respectively, of receivables from EMD Serono, which are included in accounts receivable on the balance sheet.

SutroVax, Inc. Supply Agreement – Related Party

In May 2018, the Company entered into a Supply Agreement (the "Supply Agreement") with SutroVax, Inc., ("SutroVax"), wherein SutroVax engaged the Company to supply extracts and custom reagents, as requested by SutroVax. The pricing is based on an agreed upon cost plus arrangement. During the years ended December 31, 2019 and 2018, the Company recognized revenue of $1.1 million and $1.5 million, respectively, under the Supply Agreement. As of December 31, 2019 and 2018, the Company had $14,000 and $49,000 in receivables, respectively, from SutroVax related to the Supply Agreement, which is included in accounts receivable on the balance sheet.

Upon adoption of ASC 606 on January 1, 2019, as the Company has a right to consideration from SutroVax in an amount that corresponds directly with the value of the Company's supplied extracts and custom reagents, the Company's sales of extracts and custom reagents in discrete unit form are recognized as revenue at the time when such supplies are shipped to SutroVax, in line with the "right to invoice" practical expedient in ASC 606.

The Company has not received any returns to date and believes that returns of its products will continue to be minimal. As such, the Company does not record any reserve for the returns but will continue to evaluate the need for a reserve each reporting period.

The Leukemia & Lymphoma Society, Inc.

In August 2018, the Company entered into a Research, Development and Commercialization Agreement (the "LLS Agreement") with The Leukemia & Lymphoma Society ("LLS"), under which LLS has agreed to contribute up to $6.0 million in clinical development funding for STRO-001, the Company's CD74-targeting ADC to treat relapsed and/or refractory multiple myeloma and non-Hodgkin lymphoma. The funding will be provided in installments based upon the achievement of funding milestones, with any excess funding above actual expenditures refundable to LLS. The initial payment of $0.5 million was received by the Company upon execution of the LLS Agreement. To date, the Company has received total payments from LLS of $1.0 million. In consideration for the funding to the Company under the LLS Agreement, the Company may be required in the future to make payments to LLS, contingent upon reaching certain pre-specified late-stage clinical development, regulatory and commercialization milestones and should the Company enter into certain transactions relating to STRO-001 with a third party, which payments in the aggregate could total up to a maximum of $19.5 million, assuming receipt by the Company from LLS of the entire $6.0 million in clinical development funding for STRO-001. As of December 31, 2019, no events have occurred that would require such payments to LLS. The LLS Agreement terminates upon the earlier of (a)

fulfillment of all payment obligations by both parties or (b) 12 years after the effective date. LLS may terminate the LLS Agreement at any time with 60 days' prior written notice. Either the Company or LLS has the right to terminate the LLS Agreement based on the other party's uncured material breach.

The Company concluded that the contingent payments were an embedded derivative and recorded a related liability of approximately $ 0.1 million and $0.1 million, respectively as part of other noncurrent liabilities as of December 31, 2019 and 2018, with the corresponding amount recorded in the statements of operations as interest expense and other income (expense), net. The value of the embedded derivative was estimated based on the probability-adjusted and discounted value of future payments.

6. Property and Equipment, Net

Property and equipment, net, consists of the following:

	December 31,	
	2019	2018
	(in thousands)	
Computer equipment and software	$ 1,661	$ 1,484
Furniture and office equipment	661	492
Laboratory equipment	25,263	22,464
Leasehold improvements	15,896	15,790
Total	43,481	40,230
Less accumulated depreciation and amortization	(33,848)	(29,296)
Total property and equipment, net	$ 9,633	$ 10,934

7. Loan and Security Agreement

In August 2017, the Company entered into a loan and security agreement with Oxford and SVB under which it borrowed $ 15.0 million (the "August 2017 Loan"). The loan is due in 30 monthly installments from March 2019 through its repayment in August 2021, with interest-only monthly payments until March 2019. The Company commenced repayment of the loan in March 2019. The August 2017 Loan is secured by all assets of the Company, excluding intellectual property and certain other assets. The August 2017 Loan contains customary affirmative and restrictive covenants, including with respect to fundamental transactions, the incurrence of additional indebtedness, grant liens, pay any dividend or make any distributions to the Company's holders, make investments, merge or consolidate with any other person, or engage in transactions with its affiliates, but does not include any financial covenants. The loan agreement provides that an event of default will occur if, among other triggers, there occurs any circumstances that could reasonably be expected to result in a material adverse effect on the Company's business, operations or condition, or on its ability to perform its obligations under the loan. The loan agreement also includes customary representations and warranties, other events of default and termination provisions.

The interest charges on the loan are based on a floating rate that equals the greater of 7.39% or the sum of the 30-day U.S. Dollar London Interbank Offered Rate ("LIBOR") plus 6.40%. For the year ended December 31, 2019, the average interest rate was 8.72%. In addition, the Company will make a final payment equal to 3.83% of the original principal amount of the loan, or $ 0.6 million, which will be accrued over the term of the loan using the effective-interest method. As of December 31, 2019, total interest expense accrued was $0.4 million.

In connection with the August 2017 Loan, the Company issued to Oxford and SVB a warrant to purchase the Company's Series D-2 redeemable convertible preferred stock (the "2017 Warrant"). The 2017 Warrants were later converted into warrants to purchase Series E redeemable convertible preferred stock in May and July 2018, and upon the Company's IPO on October 1, 2018, all Series E redeemable convertible preferred stock warrants were converted to warrants to purchase 46,359 shares of common stock. The estimated fair value upon issuance of the 2017 Warrant of $ 0.3 million was recorded as a debt discount on the associated borrowings on the Company's balance sheet. The debt discount is being amortized to interest expense over the repayment period of the loan using the effective-interest method.

During the years ended December 31, 2019, 2018 and 2017, the Company recorded interest expense related to this loan of $ 1.1 million, $1.6 million and $0.6 million, respectively. During the years ended December 31, 2019, 2018 and 2017, the Company recorded accretion of debt discount of $ 0.2 million, $0.2 million and $0.1 million, respectively.

As described in Notes 1 and 15 of these financial statements, the Company entered into a Loan and Security Agreement on February 28, 2020, for gross proceeds of $25 million. Pursuant to the Loan and Security Agreement, $9.6 million of the gross proceeds were used to fully repay the August 2017 Loan. As a result, of the $9.9 million that was outstanding as of December 31, 2019, $ 8.9 million has been classified on our balance sheet as Debt – non-current. The remaining $1.0 million that was outstanding as of December 31, 2019 has been classified as Debt – current, and payment of such amount was made prior to the execution of the February 28, 2020 Loan Agreement.

The Loan and Security Agreement matures on March 1, 2024 and will be interest-only through March 1, 2022, followed by 24 equal monthly payments of principal and interest.

8. Commitments and Contingencies

Operating Lease

The Company leases its South San Francisco facilities under an operating lease. In May 2016, the Company exercised an option to extend the lease term of its South San Francisco facility, with fixed rental payments through November 2021. In May 2016, the Company entered into an agreement for a lease on the second facility in South San Francisco, with fixed rental payments through November 2021, following the end of the sublease term for the same facility. Under both lease agreements, the Company has an option to extend the lease term through November 2026.

In May 2011, the Company entered into a lease agreement for a facility in San Carlos, California, which in August 2012 was amended to include an adjoining space in the same building, with fixed rental payments through July 31, 2016. In December 2014, the lease term was extended through July 2021. Under the lease agreement, the Company has two three-year options to extend the lease term, potentially through July 2027.

In March 2015, the Company entered into an agreement to lease a second facility in San Carlos, California, with fixed rental payments through June 2021. Under the lease agreement, the Company has two three-year options to extend the lease term, potentially through June 2027.

As of December 31, 2019, the Company's future minimum payments under the noncancelable operating leases for the facilities are as follows:

Year Ending December 31,	Amount (in thousands)
2020	3,771
2021	3,195
Total future minimum lease payments	$ 6,966

Rent expense was $3.6 million, $3.6 million and $2.2 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Indemnification

In the ordinary course of business, the Company may provide indemnifications of varying scope and terms to vendors, lessors, business partners, board members, officers, and other parties with respect to certain matters, including, but not limited to, losses arising out of breach of such agreements, services to be provided by the Company, negligence or willful misconduct of the Company, violations of law by the Company, or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with directors and certain officers and employees that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. No demands have been made upon the Company to provide indemnification under such agreements, and thus, there are no claims that the Company is aware of that could have a material effect on the Company's balance sheets, statements of operations, or statements of cash flows. The Company currently has directors' and officers' insurance.

9. Related-Party Transactions

As Celgene (now BMS) held more than 10% of the Company's common stock for the periods presented until the closing of the Company's IPO, during the year through September 30, 2018, $8.9 million of revenue from Celgene was related party revenue. Upon the Company's IPO, Celgene's ownership of the Company's outstanding equity interest decreased to less than 10%. As a result, starting October 1, 2018, the Company ceased to reflect balances and transactions associated with Celgene as a related party in its financial statements. Transactions with Celgene, as of December 31, 2019, 2018 and 2017, respectively, are described in Note 5.

Related party transactions with Merck, which owned 11.8% and 11.9% of the Company's outstanding equity interest as of December 31, 2019 and 2018, respectively, are described in Note 5.

Investment in SutroVax, Inc. ("SutroVax")

In December 2013, the Company and Johnson & Johnson Innovation, through the Johnson & Johnson Development Corporation, provided initial co-funding for a new company, SutroVax, with which the Company has a license agreement and supply agreement. SutroVax leverages the Company's proprietary integrated cell-free protein synthesis platform, XpressCF®, to develop novel vaccines for a broad range of disease targets. The Company had $14,000 and $49,000 in receivables due from SutroVax as of December 31, 2019 and 2018, respectively, which were included in accounts receivable on the balance sheet.

As of both December 31, 2019 and 2018, the Company held a 5.6% common stock ownership interest in SutroVax on a fully-diluted basis, with a carrying value of $0. The Company's investment in SutroVax was accounted for under the cost method as of both December 31, 2019 and 2018.

SutroVax qualifies as a variable interest entity. However, the Company maintains only shared power to direct the activities that most significantly impact the performance of SutroVax. Therefore, the Company is not considered the primary beneficiary and consolidation is not required.

See Note 5. SutroVax, Inc. Supply Agreement, for discussion of the supply arrangement entered into with SutroVax in May 2018 and related revenue recognized for the year ended December 31, 2019 and 2018.

10. Stockholders' Equity (Deficit)

Common Stock

Holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders of the Company.

As of December 31, 2019 and 2018, the Company had reserved common stock, on an if-converted basis, for issuance as follows:

	December 31,	
	2019	**2018**
Common stock options issued and outstanding	3,872,664	3,111,718
Common stock awards issued and outstanding	335,799	311,240
Remaining shares reserved for issuance under 2004 and 2018 Equity Incentive Plan	2,750,416	2,525,610
Shares reserved for issuance under 2018 Employee Stock Purchase Plan	326,542	230,000
Warrants to purchase common stock	71,813	71,813
Total	7,357,234	6,250,381

Preferred Stock

Effective October 30, 2018, the Company had 10,000,000 shares of preferred stock authorized with a par value of $ 0.001. No shares of preferred stock were outstanding as of December 31, 2019 and 2018.

Warrants

During the period from 2008 to 2012, the Company issued various warrants for the purchase of redeemable convertible preferred stock in connection with debt financings and the issuance of redeemable convertible preferred stock.

In August 2017, the Company issued warrants to Oxford and SVB to purchase an aggregate of 682,230 shares of Series D-2 redeemable convertible preferred stock at an exercise price of $0.6596 per share in connection with the issuance of the August 2017 Loan. If there was a subsequent convertible preferred stock or other senior equity securities financing with a per share price less than the Series D-2 redeemable convertible preferred per share price, then the warrant would automatically convert to a warrant to purchase such class of shares, based on the per share price of such equity. Given that the price per share of the Series E redeemable convertible preferred stock described above was less than the price per share of the Series D-2 redeemable convertible preferred stock, the 2017 Warrant converted into a warrant to purchase a total of 1,682,871 shares of Series E redeemable convertible preferred stock at an exercise price of $0.2674 per share. The warrant is exercisable from the original date of issuance and has a 10-year term.

The Company adjusted the warrant liability for changes in fair value until the completion of its IPO on October 1, 2018, at which time certain convertible preferred stock warrants were converted into warrants for the purchase of common stock and the related convertible preferred stock warrant liability was reclassified to additional paid-in capital and others expired. On October 1, 2018, 1,232,220 shares of the Series C redeemable convertible preferred warrants were canceled, and the remaining 687,928 shares were converted to 25,454 shares of warrants to purchase common stock on a 1-for-0.0370 basis. All Series E redeemable convertible preferred warrants were converted to 46,359 shares of warrants to purchase common stock on a 1-for-0.0275 basis.

11. Equity Incentive Plans, Employee Stock Purchase Plan and Stock-Based Compensation

2004 Equity Incentive Plan and 2018 Equity Incentive Plan

In September 2018, the Company adopted the 2018 Equity Incentive Plan (“2018 Plan”), which became effective on September 25, 2018. As a result, the Company will not grant any additional awards under the 2004 Equity Incentive Plan (“2004 Plan”). The terms of the 2004 Plan and applicable award agreements will continue to govern any outstanding awards thereunder. In addition to the shares of common stock reserved for future issuance under the 2004 Plan that were added to the 2018 Plan upon its effective date, the Company initially reserved 2,300,000 shares of common stock for issuance under the 2018 Plan. In addition, the number of shares of common stock reserved for issuance under the 2018 Plan will automatically increase on the first day of January for a period of up to ten years, commencing on January 1, 2019, in an amount equal to 5% of the total number of shares of the Company’s capital stock outstanding on the immediately preceding December 31 (rounded to the nearest whole share), or a lesser number of shares determined by the Company’s board of directors. As a result, common stock reserved for issuance under the 2018 Plan was increased by 1,142,409 shares on January 1, 2019. As of December 31, 2019, the Company had 2,750,416 shares available for grant under the 2018 Plan.

The following table summarizes option activities under the Company's 2004 Plan and 2018 Plan:

	Outstanding Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contract Term (Years)	Aggregate Intrinsic Value (in thousands)
Balances at December 31, 2017	835,320	$ 10.31	6.84	$ 3,813
Granted	2,312,821	$ 14.85		
Exercised	(20,009)	$ 6.53		
Canceled/Forfeited	(16,414)	$ 14.49		
Balances at December 31, 2018	3,111,718	$ 13.74	8.76	$ 1,088
Granted	1,167,070	$ 10.86		
Exercised	(35,204)	$ 5.10		
Canceled/Forfeited	(370,920)	$ 14.33		
Balances at December 31, 2019	3,872,664	$ 12.89	7.88	$ 2,119
Exercisable at December 31, 2019	1,713,295	$ 12.49	6.60	$ 1,531

The aggregate intrinsic value in the table above represents the total intrinsic value (the difference between the Company's closing stock price on the last trading day of fiscal year 2019 and the exercise prices, multiplied by the number of in-the-money options) that would have been received by the stock option holders had all stock option holders exercised their stock options on December 31, 2019. For the years ended December 31, 2019, 2018 and 2017, the aggregate intrinsic value of stock options exercised was $0.2 million, $0.2 million and $0.1 million, respectively, determined at the date of the option exercise.

Employee Stock Options Valuation

For determining stock-based compensation expense under the Plan, the fair-value-based measurement of our share-based payments were estimated as of the date of grant using the Black-Scholes option pricing model with assumptions as follows:

	Year Ended December 31,		
	2019	2018	2017
Expected term (in years)	4.54-7.01	5.3-6.1	5.5-6.1
Expected volatility	72.72%-74.89%	54.57%-62.38%	56.52%-58.55%
Risk-free interest rate	1.42%-2.55%	2.67%-3.11%	1.89%-2.18%
Expected dividend	-	-	-

Expected Term—The expected term represents the period that the stock-based awards are expected to be outstanding. The Company used the "simplified" method to determine the expected term of options granted, which calculates the expected terms as the average of the weighted-average vesting term and the contractual term of the option.

Expected Volatility—Since the Company has limited information available on the volatility of its common stock due to its short trading history, the expected volatility was estimated based on the average historical volatilities of common stock of comparable publicly traded entities over a period equal to the expected term of the stock option grants. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

Risk-Free Interest Rate—The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the expected term of the options.

Expected Dividend—The Company has never paid dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

Using the Black-Scholes option-valuation model, the weighted-average estimated grant-date fair value of employee stock options granted during the years ended December 31, 2019, 2018 and 2017 was $6.71, $9.48 and $7.26 per share, respectively. The total fair value of options vested during the years ended December 31, 2019, 2018 and 2017 was $1.1 million, $2.3 million and $1.6 million, respectively.

Restricted Stock Units

During the years ended December 31, 2019 and 2018, the Company granted 154,900 and 312,400 shares, respectively, of restricted common stock, or RSUs, to certain employees. These restricted shares will become fully vested over four years in March 2023.

A summary of the status and activity of non-vested RSUs during the years of December 31, 2019 and 2018 is as follows:

	Number of shares	Weighted Average Grant-Date Fair Value
Non-vested December 31,2017	-	-
Granted	312,400	$ 15.20
Canceled	(1,160)	$ 15.20
Non-vested December 31,2018	311,240	$ 15.20
Granted	154,900	$ 11.45
Released	(114,103)	$ 15.00
Canceled	(16,238)	$ 12.46
Non-vested December 31,2019	335,799	$ 13.49

2018 Employee Stock Purchase Plan

In September 2018, the Company adopted the 2018 Employee Stock Purchase Plan ("ESPP"), which became effective on September 26, 2018, the day that the Form S-1 related to the IPO was declared effective, in order to enable eligible employees to purchase shares of the Company's common stock. The Company initially reserved 230,000 shares of common stock for sale under the ESPP. The aggregate number of shares reserved for sale under the ESPP will increase automatically on January 1st of each of the first ten calendar years after the effective date by the number of shares equal to the lesser of 1% of the total outstanding shares of the Company's common stock as of the immediately preceding December 31 (rounded to the nearest whole share) or a number of shares as may be determined by the Company's board of directors. As a result, common stock reserved for issuance under the ESPP was increased by 228,481 shares on January 1, 2019. The aggregate number of shares issued over the term of the Company's ESPP, subject to stock-splits, recapitalizations or similar events, may not exceed 2,300,000 shares of the Company's common stock.

The fair value of the ESPP shares is estimated using the Black-Scholes option pricing model. For the year ended December 31, 2019, the fair value of ESPP shares was estimated using the following assumptions:

	Year Ended December 31,	
	2019	2018
Expected term (in years)	0.5	0.5
Expected volatility	63.04%-83.17%	55.28 %
Risk-free interest rate	1.92%-2.51%	2.37 %
Expected dividend	-	-

As of December 31, 2019, 131,939 shares had been purchased and 326,542 shares were available for future issuance under the ESPP.

Stock-Based Compensation Expense

The Company believes that the fair value of the stock options, RSUs and ESPP shares is more reliably measurable than the fair value of services received.

For the year ended December 31, 2019, the Company recorded $7.7 million of stock-based compensation expense related to the stock options granted under the Company's Equity Incentive Plans, $2.1 million of stock-based compensation expense related to the RSUs, and $0.5 million of stock-based compensation expense related to the ESPP. As of December 31, 2019, unrecognized stock-based compensation expense related to the unvested stock options and RSUs granted was $16.9 million and $3.7 million, respectively. The remaining unrecognized compensation cost is expected to be recognized over a weighted-average period of 2.7 years and 2.0 years, respectively. As of December 31, 2019, unrecognized stock-based compensation expense related to the ESPP was $0.1 million.

For the year ended December 31, 2018, the Company recorded $2.4 million stock-based compensation expense related to the stock options granted under the Company's Equity Incentive Plans, $0.4 million of stock-based compensation expense related to the RSUs and $0.1 million stock-based compensation expense related to the ESPP. As of December 31, 2018, unrecognized stock-based compensation expense related to the unvested stock options and RSUs granted was $18.2 million and $3.9 million, respectively. The remaining unrecognized compensation cost was expected to be recognized over a weighted-average period of 3.5 years and 2.0 years, respectively. As of December 31, 2018, unrecognized stock-based compensation expense related to the ESPP was $0.1 million.

Total stock-based compensation expense recognized was as follows:

	Year Ended December 31,		
	2019	2018	2017
	(in thousands)		
Research and development	$ 1,915	$ 619	$ 119
General and administrative	8,397	2,253	1,272
Total	$ 10,312	$ 2,872	$ 1,391

Non-Employee Stock-Based Compensation Expense

The fair value of options granted to non-employees was estimated using the Black-Scholes method. The stock-based compensation expense related to non-employees for the years ended December 31, 2019, 2018 and 2017 was immaterial.

2017 Call Option Plan

In February 2017, the Company adopted a 2017 Call Option Plan to grant selected employees, officers, directors and consultants (collectively, the "Participants") options to purchase shares of the common stock of SutroVax, an unconsolidated investee of the Company. As of December 31, 2019, the Company has reserved 450,000 shares of SutroVax common stock for issuance under the program, under which call options covering 420,000 and 30,000 shares were granted in February 2017 and August 2019, respectively. The call options granted in February 2017 vest 25% on each of January 1, 2017, 2018, 2019, and 2020, and expire one year from the vesting date. The call options granted in August 2019 vest 25% on each of January 1, 2019, 2020, 2021, and 2022, and expire one year from the vesting date.

Using the Black-Scholes option-valuation model, the call options are measured at fair value on grant date and at each reporting period prior to their vesting, with cost recognized over the requisite service period as compensation cost. Any changes in the fair value subsequent to the vesting date are recognized in other income (expense) in the statements of operations. Call options covering 420,000 and 30,000 shares have been granted with an exercise price of $0.76 per share and $1.21 per share, respectively. As related to the call options granted

in February 2017, 315,000 of such options had vested and were exercised and 105,000 were outstanding and unvested as of December 31, 2019. As related to the call options granted in August 2019, 7,500 of such options had vested and were exercised and 22,500 were outstanding and unvested as of December 31, 2019. As of December 31, 2018, 210,000 of the call options granted in February 2017 had vested and were exercised and 210,000 were outstanding and unvested.

The amounts recognized as compensation expense related to the 2017 Call Option Plan for the years ended December 31, 2019, 2018 and 2017 were $78,000, $65,000 and $79,000, respectively.

The amounts recognized as other income related to the 2017 Call Option Plan for the years ended December 31, 2019, 2018 and 2017 were $ 153,000, $133,000 and $109,000, respectively.

12. Income Taxes

No provision for income taxes was recorded for the years ended December 31, 2019, 2018 and 2017. The Company has established a full valuation allowance against its deferred tax assets due to the uncertainty surrounding the realization of such assets. All losses to date have been incurred domestically.

The effective tax rate of the Company's provision (benefit) for income taxes differs from the federal statutory rate as follows:

	Year Ended December 31,		
	2019	2018	2017
Federal statutory rate	21.0%	21.0%	34.0%
State tax	-	-	-
Change in valuation allowance	(22.7)	(32.7)	20.8
Tax credits	4.9	7.5	3.8
Stock compensation	(1.3)	(0.5)	-
ASC 606 adoption	(3.9)	-	-
Remeasurement of federal tax rate change	-	-	(63.4)
Other	2.0	4.7	4.8
Total	0.0%	0.0%	0.0%

The components of the Company's deferred tax assets consist of the following:

	December 31	
	2019	2018
	(in thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 31,010	$ 29,296
Research and development credits	20,098	15,680
Deferred revenue	7,680	3,027
Accruals and other	3,718	2,342
Fixed asset basis	795	363
Total deferred tax assets	63,301	50,708
Valuation allowance	(63,301)	(50,708)
Net deferred tax assets	$ -	$ -

Realization of the future tax benefits is dependent on the Company's ability to generate sufficient taxable income within the carryforward period. Due to the Company's history of operating losses and future sources of taxable income, the Company believes that the recognition of the deferred tax assets is currently not more likely than not to be realized and, accordingly, have provided a full valuation allowance against net deferred tax assets. For the year ended December 31, 2019, the net increase in the valuation allowance was $12.6 million, and for the year ended December 31, 2018, the net increase in the valuation allowance was $11.6 million.

As of December 31, 2019, the Company had federal net operating loss carryforwards of $ 120.7 million and federal general business credits from research and development expenses totaling $14.8 million, as well as state net operating loss carryforwards of $ 75.1 million and state research and development credits of $11.5 million.

The federal net operating loss carryforwards will expire at various dates beginning in 2032, and the federal credits will expire at various dates beginning in 2023, if not utilized. The state net operating loss carryforwards will expire at various dates beginning in 2030, if not utilized. The state research and development tax credits can be carried forward indefinitely.

Under the Tax Reform Act, the amount of benefit from net operating loss carryforwards may be impaired or limited in certain circumstances. Events which cause limitations in the amount of net operating losses that the Company may utilize in any one year include, but are not limited to, a cumulative ownership change of more than 50%, as defined, over a three-year testing period. Such limitations may result in limitations upon the Company's ability to utilize the losses in future periods. The Company has performed a Section 382 study for the period of June 16, 2003 through December 31, 2019, and concluded that it is more likely than not that the Company experienced an ownership change on April 9, 2007. This change does not limit the Company's ability to use its existing net operating losses within the carryforward period provided by the Internal Revenue Code, subject to availability of taxable income. However, if there is subsequent event or further change in ownership, these losses may be subject to limitations, resulting in their expiration before they can be utilized.

The Company files U.S. federal and state tax returns with varying statutes of limitations. Due to net operating loss and credit carryforwards, all of the tax years since inception through the 2019 tax year remain subject to examination by the U.S. federal and some state authorities. The actual amount of any taxes due could vary significantly depending on the ultimate timing and nature of any settlement. The amount of unrecognized tax benefits, if recognized, that would affect the effective tax rate is $3.8 million, $2.8 million and $2.3 million as of December 31, 2019, 2018 and 2017, respectively. One or more of these unrecognized tax benefits could be subject to a valuation allowance if and when recognized in a future period, which could impact the timing of any related effective tax rate benefit. The Company believes that the amount by which the unrecognized tax benefits may increase or decrease within the next 12 months is not estimable.

The Company has elected to recognize, if incurred, interest and penalties related to liabilities for uncertain tax positions as a part of income tax expense. No such interest and penalties have been incurred to date.

The Company determines its uncertain tax positions based on a determination of whether and how much of a tax benefit taken by the Company in its tax filings is more likely than not to be sustained upon examination by the relevant income tax authorities.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows:

	December 31		
	2019	2018	2017
	(in thousands)		
Gross unrecognized tax benefit at January 1	$ 2,795	$ 2,305	$ 1,635
Additions for tax positions taken in the current year	1,005	741	670
Reductions for tax positions of prior years	(17)	(251)	-
Gross unrecognized tax benefit at December 31	$ 3,783	$ 2,795	$ 2,305

Impact of The Tax Cuts and Jobs Act

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Tax Act") was signed into law. The Tax Act reduced the corporate tax rate from a top marginal rate of 35% to a flat rate of 21% in 2018. The Tax Act also contains a number of provisions, many of which differ significantly from those contained in previous U.S. tax law. The Company accounts for changes in tax law in accordance with ASC 740 which requires companies to recognize the effect of such changes in the period of enactment. However, on December 22, 2017, the Securities Exchange Committee staff issued Staff Accounting Bulletin No. 118 ("SAB 118") which allowed companies to record provisional amounts during a measurement period that was similar to the measurement period used when accounting for business combinations. Accordingly, the Company adjusted its deferred taxes and related valuation

allowances on a provisional basis to reflect the reduction in U.S. federal corporate tax rate from 35% to 21%, based on current understanding of the new law. The primary impact of the Tax Act resulted from the re-measurement of deferred tax assets and liabilities due to the change in the corporate tax rate, reducing the Company's deferred tax assets by $12.3 million with a corresponding reduction in its valuation allowance, which had no effect on the Company's effective tax rate. As of December 31, 2019, the Company has completed its analysis of the income tax effects of the Tax Act and there was no material impact to the Company's financial statements when the analysis was complete.

13. Net Loss Per Share

The following table sets forth the computation of the Company's basic and diluted net loss per share.

	Year Ended December 31,		
	2019	2018	2017
	(in thousands, except share and per share amounts)		
Numerator:			
Net loss	$ (55,744)	$ (35,317)	$ (19,688)
Denominator:			
Shares used in computing net loss per share	22,958,577	5,758,875	447,946
Net loss per share, basic and diluted	$ (2.43)	$ (6.13)	$ (43.95)

For the computation of net loss per share for the years ended December 31, 2019, 2018 and 2017, zero, zero and 9,889 shares subject to repurchase, respectively, were excluded from the computation of net loss per share.

The following common stock equivalents were excluded from the computation of diluted net loss per share for the years ended December 31, 2019, 2018 and 2017 because including them would have been antidilutive:

	Year Ended December 31,		
	2019	2018	2017
Redeemable convertible preferred stock	-	-	5,063,404
Common stock options and award issued and outstanding	4,208,463	3,422,958	835,320
Warrants to purchase redeemable convertible preferred stock	-	-	93,527
Warrants to purchase common stock	71,813	71,813	1,099
Early exercised shares of common stock	-	-	2,374
Shares to be issued under ESPP	41,421	29,416	-
Total	4,321,697	3,524,187	5,995,724

14. Supplementary Data – Quarterly Financial Data (unaudited)

The following table represents certain unaudited financial information for each of the quarters ended December 31, 2019 and 2018 :

	Three Months Ended			
(in thousands, except per share data)	**December 31, 2019**	**September 30, 2019**	**June 30, 2019**	**March 31, 2019**
Revenue	$ 11,305	$ 12,277	$ 10,525	$ 8,629
Net loss	$ (14,789)	$ (12,912)	$ (13,793)	$ (14,250)
Net loss per share, basic and diluted	$ (0.65)	$ (0.56)	$ (0.60)	$ (0.62)

(in thousands, except per share data)	Three Months Ended December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018
Revenue	$ 19,086	$ 7,836	$ 5,704	$ 5,793
Net loss	$ (1,493)	$ (10,237)	$ (11,541)	$ (12,046)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.07)	$ (21.26)	$ (24.17)	$ (25.76)

15. Subsequent Events

Loan

On February 28, 2020, (the "Effective Date"), the Company entered into a loan and security agreement (the "Loan and Security Agreement") with Oxford Finance LLC ("Oxford"), as the collateral agent and a lender, and Silicon Valley Bank, as a lender (together with Oxford, the "Lenders"), pursuant to which the Lenders have agreed to lend the Company up to an aggregate of $25.0 million in a series of term loans (the "Term A Loan"). Upon entering into the Loan and Security Agreement, the Company borrowed $25.0 million from the Lenders, with approximately $ 9.6 million of such amount applied to the repayment of the outstanding principal, interest and final payment fees owed pursuant to the prior loan and security agreement dated August 4, 2017.

Under the terms of the Loan and Security Agreement, the Company may, at its sole discretion, borrow from the Lenders up to an additional $ 5.0 million (the "Term B Loan" and together with the Term A Loan, the "Term Loans") upon the Company of the closing of a new collaboration agreement that includes an upfront payment of at least $50.0 million to the Company, as determined by Oxford in its sole and absolute discretion (the "Term B Milestone Event"). The Company may draw the Term B Loan during the period commencing on the date of the occurrence of the Term B Milestone Event and ending on the earliest of (i) December 31, 2020, (ii) the thirtieth (30th) day following the occurrence of the Term B Milestone Event, and (iii) the occurrence of an event of default.

The proceeds from the Term Loans under the Loan and Security Agreement may be used to satisfy the Company's future working capital needs and to fund its general business requirements. The Company's obligations under the Loan and Security Agreement are secured by all assets of the Company, other than its intellectual property. The Company has also agreed not to encumber its intellectual property assets, except as permitted by the Loan and Security Agreement.

The Term Loans mature on March 1, 2024 (the "Maturity Date") and will be interest-only through March 1, 2022, followed by 24 equal monthly payments of principal and interest. The Term Loans will bear interest at a floating per annum rate equal to the greater of (i) 8.07% or (ii) the sum of (a) the greater of (1) the thirty (30) day U.S. LIBOR rate reported in the Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue or (2) 1.67%, plus (b) 6.40%.

The Company will be required to make a final payment of 3.83% of the original principal amount of the Term Loans drawn, payable on the earlier of (i) the Maturity Date, (ii) the acceleration of any Term Loans, or (iii) the prepayment of the Term Loans (the "Final Payment"). The Company may prepay all, but not less than all, of the Term Loans upon 30 days' advance written notice to Oxford, provided that the Company will be obligated to pay a prepayment fee equal to (i) 3.00% of the principal amount of the applicable Term Loan prepaid on or before the first anniversary of the applicable funding date, or (ii) 2.00% of the principal amount of the applicable Term Loan prepaid between the first and second anniversary of the applicable funding date, or (iii) 1.00% of the principal amount of the applicable Term Loan prepaid thereafter, and prior to the Maturity Date (each, a "Prepayment Fee").

The Loan and Security Agreement contains customary affirmative and restrictive covenants, including covenants regarding incurrence of additional indebtedness or liens, investments, transactions with affiliates, delivery of financial statements, maintenance of inventory, payment of taxes, maintenance of insurance, protection of intellectual property rights, dispositions of property, business combinations or acquisitions, among other customary covenants. The Company is also restricted from paying dividends or making other distributions or payments on its capital stock, subject to limited exceptions. The Loan and Security Agreement provides that an event of default will occur if, among other triggers, there occurs any circumstances that could reasonably be expected to result in a material adverse change in the business, or operations or condition (financial or otherwise) of the Company or a material impairment of the prospect of the Company to repay any portion of its obligations under

the Agreement. The Agreement also includes customary representations and warranties, other events of default and termination provisions.

In connection with entering into the Loan and Security Agreement, the Company issued to the Lenders warrants exercisable for 81,257 shares of the Company's common stock (the "Warrants"). The Warrants are exercisable in whole or in part, immediately, and have a per share exercise price of $9.23, which is the closing price of the Company's common stock reported on the Nasdaq Global Market on the day prior to the Effective Date. The Warrants will terminate on the earlier of February 28, 2030 or the closing of certain merger or consolidation transactions .

2018 Merck Agreement – Related Party

In March 2020, Merck extended the research term of the collaboration's first cytokine-derivative program by one year, which includes a payment to the Company of $5.0 million.

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

None.

Item 9A. ***Controls and Procedures***

Conclusions Regarding the Effectiveness of Disclosure Controls and Procedures

As of December 31, 2019, management, with the participation of our Chief Executive Officer (our principal executive officer) and Chief Financial Officer (our principal accounting officer), performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act. Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including the Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding required disclosures.

Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2019, the design and operation of our disclosure controls and procedures were effective at a reasonable assurance level.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible disclosure controls and procedures. The design of any disclosure controls and procedures also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of our internal control over financial reporting as of December 31, 2019. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in its 2013 Internal Control – Integrated Framework. Based on our assessment, our management has concluded that, as of December 31, 2019, our internal control over financial reporting is effective based on those criteria.

This Annual Report on Form 10-K does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. For as long as we remain an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, we intend to take advantage of the exemption permitting us not to comply with the requirement that our independent registered public accounting firm provide an attestation on the effectiveness of our internal control over financial reporting.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

Item 9B. ***Other Information***

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item will be set forth in our proxy statement with respect to our 2020 Annual Meeting of Stockholders, or Proxy Statement to be filed with the Securities and Exchange Commission within 120 days after our fiscal year end and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this Item will be set forth in the Proxy Statement to be filed with the Securities and Exchange Commission within 120 days after our fiscal year end and is incorporated herein by reference.

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

The information required by this Item will be set forth in the Proxy Statement to be filed with the Securities and Exchange Commission within 120 days after our fiscal year end and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required by this Item will be set forth in the Proxy Statement to be filed with the Securities and Exchange Commission within 120 days after our fiscal year end and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by this item will be set forth in the Proxy Statement to be filled with the Securities and Exchange Commission within 120 days after our fiscal year end and is incorporated herein by reference.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

(1) *Financial Statements:*

The financial statements required by Item 15(a) are filed as part of this Annual Report on Form 10-K under Item 8 “Financial Statements and Supplementary Data.”

(2) *Financial Statement Schedules*

The financial statement schedules required by Item 15(a) are omitted because they are not applicable, not required or the required information is included in the financial statements or notes thereto as filed in Item 8 of this Annual Report on Form 10-K.

(3) *Exhibits.*

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Number	Date	
3.1	Amended and Restated Certificate of Incorporation of Sutro Biopharma, Inc.	S-1/A	333-227103	9/17/2018	
3.2	Amended and Restated Bylaws of Sutro Biopharma, Inc.	S-1/A	333-227103	9/17/2018	
4.1	Third Amended and Restated Investors’ Rights Agreement, dated May 24, 2018, by and among the Registrant and certain of its stockholders.	S-1	333-227103	8/29/2018	
4.2	Omnibus Amendment Agreement, dated July 26, 2018, by and among the Registrant and certain of its stockholders.	S-1	333-227103	8/29/2018	
4.3	Form of Warrant to Purchase Shares of Common Stock.	S-1	333-227103	8/29/2018	
4.4	Forms of Warrant to Purchase Series C Redeemable Convertible Preferred Stock.	S-1	333-227103	8/29/2018	
4.5	Description of Registrant’s Securities				X
10.1	Form of Indemnity Agreement by and between the Registrant and its directors and officers	S-1/A	333-227103	9/17/2018	
10.2‡	2018 Equity Incentive Plan and form of award agreements thereunder	S-1/A	333-227103	9/17/2018	
10.3‡	Amended Form of Restricted Stock Unit Agreement under the 2018 Equity Incentive Plan.	10-Q	001-38662	11/8/2019	
10.4‡	Amended Form of Performance Stock Unit Agreement under the 2018 Equity Incentive Plan.	10-Q	001-38662	11/8/2019	
10.5	Sales Agreement, dated October 4, 2019, by and between the Registrant and Cowen and Company, LLC	S-3	333-234101	10/4/2019	
10.6‡	2018 Employee Stock Purchase Plan and form of award agreements thereunder	S-1/A	333-227103	9/17/2018	

10.7‡	2004 Stock Plan, as amended, and forms of award agreements.	S-1	333-227103	8/29/2018	
10.8‡	2017 Call Option Plan and forms of award agreements.	S-1	333-227103	8/29/2018	
10.9†	Exclusive Patent License and Research Collaboration Agreement, dated July 23, 2018, by and between the Registrant and Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., Kenilworth, NJ.	S-1/A	333-227103	9/17/2018	
10.10	Loan and Security Agreement, dated August 4, 2017, among Oxford Finance LLC, Silicon Valley Bank, and the Registrant.	S-1	333-227103	8/29/2018	
10.11	First Amendment to Loan and Security Agreement dated December 5, 2018 among Oxford Finance LLC, Silicon Valley Bank and the Registrant.	10-K	001-38662	4/1/2019	
10.12‡	Offer Letter, dated December 29, 2008, by and between the Registrant and William J. Newell, as amended.	S-1	333-227103	8/29/2018	
10.13‡	Offer Letter, dated December 11, 2015, by and between the Registrant and Arturo Molina, as amended.	S-1	333-227103	8/29/2018	
10.14‡	Offer Letter, dated November 12, 2010, by and between the Registrant and Trevor Hallam, as amended.	S-1	333-227103	8/29/2018	
10.15	Edgewater Business Park Lease, dated May 18, 2016, by and between the Registrant and HCP, Inc.	S-1	333-227103	8/29/2018	
10.16	Standard Industrial/Commercial Multi-Tenant Lease-Net, dated May 18, 2011, by and between the Registrant and Lydia Tseng and/or Alemany Plaza LLC, as amended.	S-1	333-227103	8/29/2018	
10.17†	Amended and Restated Collaboration and License Agreement, dated August 2, 2017, by and among Celgene Corporation, Celgene Alpine Investment Company II, LLC, and the Registrant, as amended.	S-1/A	333-227103	9/17/2018	
10.18†	License Agreement, dated September 16, 2014, by and between Merck KGaA, Darmstadt, Germany (operating in the United States and Canada under the name “EMD Serono”) and the Registrant, as amended.	S-1	333-227103	8/29/2018	
10.19†	Amended and Restated Exclusive Agreement, dated October 3, 2007, between The Board of Trustees of The Leland Stanford Junior University and Fundamental Applied Biology, Inc., as amended.	S-1/A	333-227103	9/17/2018	
10.20	Loan and Security Agreement, dated February 28, 2020, among Oxford Finance LLC, Silicon Valley Bank, and the Registrant.				X
10.21	Form of Warrant to Oxford Finance LLC pursuant to the Loan and Security Agreement.				X

10.22	Form of Warrant to Silicon Valley Bank pursuant to the Loan and Security Agreement.				X
21.1	Subsidiaries of the Registrant.	S-1	333-227103	8/29/2018	
23.1	Consent of independent registered public accounting firm.				X
24.1	Power of Attorney. Reference is made to the signature page hereto.				X
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
32.1**	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
32.2**	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
101.INS	Inline XBRL Instance Document				X
101.SCH	Inline XBRL Taxonomy Extension Schema Document				X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				X
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				X

** This certification is deemed not filed for purposes of section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

‡ Indicates management contract or compensatory plan.

† Confidential treatment has been granted for portions of this exhibit pursuant to Rule 406 of the Securities Act, or Rule 24b-2 of the Exchange Act. The Registrant has omitted and filed separately with the SEC the confidential portions of this exhibit.

Item 16. Form 10-K Summary.

Registrants may voluntarily include a summary of information required by Form 10-K under Item 16. We have elected not to include such summary.

SIGNATURES

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

SUTRO BIOPHARMA, INC.

Date: March 13, 2020	By:	/s/ William J. Newell
	Name:	William J. Newell
	Title:	Chief Executive Officer
Date: March 13, 2020	By:	/s/ Edward C. Albini
	Name:	Edward C. Albini
	Title:	Chief Financial Officer

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints William J. Newell and Edward C. Albini and each of them, with full power of substitution and resubstitution, 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 attorney-in-fact and agents full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorney-in-fact and agents 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.

/s/ William J. Newell	President, Chief Executive Officer and Director	March 13, 2020
William J. Newell	*(Principal Executive Officer)*	
/s/ Edward C. Albini	Chief Financial Officer and Corporate Secretary	March 13, 2020
Edward C. Albini	*(Principal Financial and Accounting Officer)*	
/s/ Michael Dybbs, Ph.D.	Director	March 13, 2020
Michael Dybbs, Ph.D.		
/s/ John G. Freund, M.D.	Director	March 13, 2020
John G. Freund, M.D.		
/s/ Joseph M. Lobacki	Director	March 13, 2020
Joseph M. Lobacki		
/s/ Connie Matsui	Director	March 13, 2020
Connie Matsui		
/s/ James Panek	Director	March 13, 2020
James Panek		
/s/ Daniel H. Petree	Director	March 13, 2020
Daniel H. Petree		
/s/ Shalini Sharp	Director	March 13, 2020
Shalini Sharp		

Exhibit 4.5

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 300,000,000 shares of common stock, $0.001 par value per share, and 10,000,000 shares of undesignated preferred stock, $0.001 par value per share. The following description summarizes the most important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description, you should refer to our restated certificate of incorporation and restated bylaws, which are included as exhibits to our most recent Annual Report on Form 10-K, and to the applicable provisions of Delaware law.

Common Stock

Dividend rights

Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine.

Voting rights

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders. We have not provided for cumulative voting for the election of directors in our restated certificate of incorporation, which means that holders of a majority of the shares of our common stock are able to elect all of our directors. Our restated certificate of incorporation establishes a classified board of directors, divided into three classes with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms.

No preemptive or similar rights

Our common stock is not entitled to preemptive rights, and is not subject to conversion, redemption or sinking fund provisions.

Right to receive liquidation distributions

Upon our liquidation, dissolution or winding-up, the assets legally available for distribution to our stockholders would be distributable ratably among the holders of our common stock and any participating preferred stock outstanding at that time, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Preferred Stock

Our board of directors is authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences and rights of the shares of each series and any of their qualifications, limitations or restrictions, in each case without further vote or action by our stockholders. Our board of directors can also increase or decrease the number of shares of any series of preferred stock, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and might adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock. We have no current plan to issue any shares of preferred stock.

Registration Rights

Pursuant to the terms of our amended and restated investors' rights agreement, certain of our stockholders are entitled to rights with respect to the registration of their shares under the Securities Act, as described below. We refer to these shares collectively as registrable securities.

Demand registration rights

The holders of at least a majority of the then-outstanding registrable securities may make a written request to us for the registration under the Securities Act of registrable securities representing at least a majority of the then outstanding registrable securities held by such holders. Promptly following such request, we are obligated to provide written notice of such request to all stockholders to file a registration statement under the Securities Act covering all registrable securities that the initiating holders requested to be registered and any additional registrable securities requested to be included in such registration by any other holders. We are only required to file two registration statements that are declared effective upon exercise of these demand registration rights. We may postpone taking action with respect to such filing not more than once during any 12-month period for a total period of not more than 90 days, if within 30 days after receiving a request for registration, we furnish to the holders requesting such registration a certificate signed by our Chief Executive Officer stating that, in the good faith judgment of our board of directors, it would be seriously detrimental to us and our stockholders for such registration statement to be effected at such time.

Form S-3 registration rights

Any holder of then-outstanding registrable securities can request that we register all or part of their shares on Form S-3 if we are eligible to file a registration statement on Form S-3 and if the aggregate price to the public of the shares offered is at least $3.0 million. The stockholders may only require us to effect two registration statements on Form S-3 in a 12-month period. We may postpone taking action with respect to such filing twice during any 12-month period for a total cumulative period of not more than 120 days if our board of directors determines in its good faith judgment that the filing would be seriously detrimental to us and our stockholders.

Piggyback registration rights

If we register any of our securities for public sale, holders of then-outstanding registrable securities or their permitted transferees will have the right to include their registrable securities in the registration statement. However, this right does not apply to a registration described under "—Demand registration rights" above, a registration relating to employee benefit plans or a registration relating to a corporate reorganization. The underwriters of any underwritten offering will have the right to limit the number of shares registered by these holders if they determine that marketing factors require limitation, in which case the number of shares to be registered will be apportioned pro rata among these holders, according to the total number of registrable securities originally requested by such holders to be included in the registration statement. However, the number of shares to be registered by these holders cannot be reduced below 40% of the registrable securities such holders requested to be included in such offering.

Expenses of registration rights

We generally will pay all expenses related to the registrations, other than underwriting discounts and commissions.

Expiration of registration rights

The registration rights described above will expire, with respect to any particular holder of these rights, on the earlier of a deemed liquidation event, as defined in our restated certificate of incorporation, and such time after this offering as the registrable securities held by such holder may be sold within any ninety day period without restriction pursuant to Rule 144 promulgated under the Securities Act.

Anti-Takeover Provisions

The provisions of Delaware General Corporation Law, or DGCL, our restated certificate of incorporation and our restated bylaws, could have the effect of delaying, deferring or discouraging another person from acquiring control of our company. These provisions, which are summarized below, may have the effect of discouraging takeover bids. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Delaware Law

We are subject to the provisions of Section 203 of the DGCL regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the date on which the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, (i) shares owned by persons who are directors and also officers and (ii) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to the date of the transaction, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66.67% of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction or series of transactions together resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. We also anticipate that Section 203 may also discourage attempts that might result in a premium over the market price for the shares of common stock held by stockholders.

Restated Certificate of Incorporation and Restated Bylaw Provisions

Our restated certificate of incorporation and our restated bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our company, including the following:

- ***Board of Directors vacancies.*** Our restated certificate of incorporation and restated bylaws authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors is permitted to be set only by a resolution adopted by a majority vote of our entire board of directors. These provisions prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This makes it more difficult to change the composition of our board of directors but promotes continuity of management.
- ***Classified board.*** Our restated certificate of incorporation and restated bylaws provide that our board of directors is classified into three classes of directors, each with staggered three-year terms. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.

- ***Stockholder action; special meetings of stockholders.*** Our restated certificate of incorporation provides that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. As a result, a holder controlling a majority of our capital stock would not be able to amend our restated bylaws or remove directors without holding a meeting of our stockholders called in accordance with our restated bylaws. Further, our restated bylaws provide that special meetings of our stockholders may be called only by a majority of our board of directors, the chairperson of our board of directors, our Chief Executive Officer or our President, thus prohibiting a stockholder from calling a special meeting. These provisions might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.
- ***Advance notice requirements for stockholder proposals and director nominations.*** Our restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our restated bylaws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions might also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.
- ***No cumulative voting.*** The DGCL provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our restated certificate of incorporation and restated bylaws do not provide for cumulative voting.
- ***Directors removed only for cause.*** Our restated certificate of incorporation provides that stockholders may remove directors only for cause and only by the affirmative vote of the holders of at least two-thirds of our outstanding common stock.
- ***Amendment of charter provisions.*** Any amendment of the above provisions in our restated certificate of incorporation requires approval by holders of at least two-thirds of our outstanding common stock.
- ***Issuance of undesignated preferred stock.*** Our board of directors has the authority, without further action by the stockholders, to issue up to 10,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock enables our board of directors to render more difficult or to discourage an attempt to obtain control of us by merger, tender offer, proxy contest or other means.
- ***Choice of forum.*** Our restated certificate of incorporation provides that, to the fullest extent permitted by law, the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the DGCL, our restated certificate of incorporation or our restated bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. The provision does not apply to suits brought to enforce a duty or liability created by the Exchange Act. In addition, our amended and restated bylaws also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company, LLC. The transfer agent's address is 6201 15th Avenue, Brooklyn, New York 11219, and its telephone number is (800) 937-5449.

Exchange Listing

Our common stock is listed on The Nasdaq Global Market under the symbol “STRO.”

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (as the same may from time to time be amended, modified, supplemented or restated, this "**Agreement**") dated as of February 28, 2020 (the "**Effective Date**") among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 ("**Oxford**"), as collateral agent (in such capacity, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 hereof or otherwise a party hereto from time to time including Oxford in its capacity as a Lender and SILICON VALLEY BANK, a California corporation with an office located at 3003 Tasman Drive, Santa Clara, CA 95054 ("**Bank**" or "**SVB**") (each a "**Lender**" and collectively, the "**Lenders**"), and SUTRO BIOPHARMA, INC., a Delaware corporation with offices located at 310 Utah Avenue, Suite 150, South San Francisco, CA 94080 ("**Borrower**"), provides the terms on which the Lenders shall lend to Borrower and Borrower shall repay the Lenders. The parties agree as follows:

1. ACCOUNTING AND OTHER TERMS

1.1 Accounting terms not defined in this Agreement shall be construed in accordance with GAAP. Calculations and determinations must be made in accordance with GAAP, as applicable. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein. All references to "**Dollars**" or "**$**" are United States Dollars, unless otherwise noted.

2. LOANS AND TERMS OF PAYMENT

2.1 **Promise to Pay.** Borrower hereby unconditionally promises to pay Collateral Agent (for the benefit of the Lenders), the outstanding principal amount of all Term Loans advanced to Borrower by each Lender and accrued and unpaid interest thereon and any other amounts due hereunder as and when due in accordance with this Agreement.

2.2 Term Loan.

(a) Availability. (i) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make term loans to Borrower on the Effective Date in an aggregate amount of Twenty Five Million Dollars ($25,000,000) according to each Lender's Term A Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**Term A Loan**", and collectively as the "**Term A Loans**"). After repayment, no Term A Loan may be re-borrowed.

(ii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, during the Second Draw Period, to make term loans to Borrower in an aggregate amount up to Five Million Dollars ($5,000,000) according to each Lender's Term B Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**Term B Loan**", and collectively as the "**Term B Loans**"; each Term A Loan or Term B Loan is hereinafter referred to singly as a "**Term Loan**" and the Term A Loans and the Term B Loans are hereinafter referred to collectively as the "**Term Loans**"). After repayment, no Term B Loan may be re-borrowed.

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the first (1st) Payment Date following the Funding Date of each Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of each Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date thereof. Commencing on the Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall make consecutive equal monthly payments of principal, together with applicable interest, in arrears, to Collateral Agent (for the benefit of the Lenders), as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a repayment schedule equal to twenty-four (24) months. All unpaid principal and accrued and unpaid interest with respect to each Term Loan is due and payable in full on the Maturity Date. Each Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

(c) Mandatory Prepayments. If the Term Loans are accelerated following the occurrence of an Event of Default, Borrower shall immediately pay to Collateral Agent (for the benefit of the Lenders), payable to Collateral Agent in accordance with each Lender's respective Pro Rata Share, an amount equal to the sum of: (i) all outstanding principal of the Term Loans plus accrued and unpaid interest thereon through the prepayment date, (ii) the Final Payment, (iii) the Prepayment Fee, plus (iv) all other Obligations that are due and payable, including Lenders' Expenses and interest at the Default Rate with respect to any past due amounts. Notwithstanding (but without duplication with) the foregoing, on the Maturity Date, if the Final Payment had not previously been paid in full in connection with the prepayment of the Term Loans in full, Borrower shall pay to Collateral Agent, for payment to each Lender in accordance with its respective Pro Rata Share, the Final Payment in respect of the Term Loan(s).

(d) Permitted Prepayment of Term Loans. Borrower shall have the option to prepay all, but not less than all, of the Term Loans advanced by the Lenders under this Agreement, provided Borrower (i) provides written notice to Collateral Agent of its election to prepay the Term Loans at least thirty (30) days prior to such prepayment, and (ii) pays to the Lenders on the date of such prepayment, payable to each Lender in accordance with its respective Pro Rata Share, an amount equal to the sum of (A) all outstanding principal of the Term Loans plus accrued and unpaid interest thereon through the prepayment date, (B) the Final Payment, (C) the Prepayment Fee, plus (D) all other Obligations that are due and payable, including Lenders' Expenses and interest at the Default Rate with respect to any past due amounts.

2.3 Payment of Interest on the Credit Extensions.

(a) Interest Rate. Subject to Section 2.3(b), the principal amount outstanding under the Term Loans shall accrue interest at a floating per annum rate equal to the Basic Rate, determined by Collateral Agent on the Funding Date of the applicable Term Loan, which interest shall be payable monthly in arrears in accordance with Section 2.2(b) and 2.3(e). Interest shall accrue on each Term Loan commencing on, and including, the Funding Date of such Term Loan, and shall accrue on the principal amount outstanding under such Term Loan through and including the day on which such Term Loan is paid in full.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall accrue interest at a floating per annum rate equal to the rate that is otherwise applicable thereto plus five percentage points (5.00%) (the "**Default Rate**"). Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Collateral Agent.

(c) 360-Day Year. Interest shall be computed on the basis of a three hundred sixty (360) day year, and the actual number of days elapsed.

(d) Debit of Accounts. Collateral Agent and each Lender may debit (or ACH) any deposit accounts, maintained by Borrower or any of its Subsidiaries, including the Designated Deposit Account, for principal and interest payments or any other amounts Borrower owes the Lenders under the Loan Documents when due. Any such debits (or ACH activity) shall not constitute a set-off.

(e) Payments. Except as otherwise expressly provided herein, all payments by Borrower under the Loan Documents shall be made to Collateral Agent for the benefit of the respective Lender to which such payments are owed, at Collateral Agent's office in immediately available funds on the date specified herein. Unless otherwise provided, interest is payable monthly on the Payment Date of each month. Payments of principal and/or interest received after 3:00 PM Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment is due the next Business Day and additional fees or interest, as applicable, shall continue to accrue until paid. All payments to be made by Borrower hereunder or under any other Loan Document, including payments of principal and interest, and all fees, expenses, indemnities and reimbursements, shall be made without set-off, recoupment or counterclaim, in lawful money of the United States and in immediately available funds.

2.4 **Secured Promissory Notes.** The Term Loans shall be evidenced by a Secured Promissory Note or Notes in the form attached as Exhibit D hereto (each a "**Secured Promissory Note**"), and shall be repayable as set forth in this Agreement. Borrower irrevocably authorizes each Lender to make or cause to be made, on or about the

Funding Date of any Term Loan or at the time of receipt of any payment of principal on such Lender's Secured PromissoryNote, an appropriate notation on such Lender's Secured Promissory Note Record reflecting the making of such Term Loan or (as the case may be) the receipt of such payment. The outstanding amount of each Term Loan set forth on such Lender's Secured Promissory Note Record shall be prima facie evidence of the principal amount thereof owing and unpaid to such Lender, but the failure to record, or any error in so recording, any such amount on such Lender's Secured Promissory Note Record shall not limit or otherwise affect the obligations of Borrower under any Secured Promissory Note or any other Loan Document to make payments of principal of or interest on any Secured Promissory Note when due. Upon receipt of an affidavit of an officer of a Lender as to the loss, theft, destruction, or mutilation of its Secured Promissory Note, Borrower shall issue, in lieu thereof, a replacement Secured Promissory Note in the same principal amount thereof and of like tenor.

2.5 **Fees.** Borrower shall pay to Collateral Agent:

(a) Final Payment. The Final Payment, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares;

(b) Prepayment Fee. The Prepayment Fee, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares; and

(c) Good Faith Deposit. An amount of Fifty Thousand Dollars ($50,000) has been received byCollateral Agent as a good faith deposit from Borrower on or about February 13, 2020, and will be applied towards Lenders' Expenses for the documentation and negotiation of this Agreement that are payable by the Borrower pursuant to Section 2.5(d) hereof. For the purposes of clarity, Borrower shall be responsible for all Lender's Expenses payable pursuant to Section 2.5(d) hereof.

(d) Lenders' Expenses. All out-of-pocket Lenders' Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due.

2.6 **Withholding.** Payments received by the Lenders from Borrower hereunder will be made free and clearof and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any governmental authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Borrower to make any withholding or deduction from any such payment or other sum payable hereunder to the Lenders, Borrower hereby covenants and agrees that the amount due from Borrower with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, each Lender receives a net sum equal to the sum which it would have received had no withholding or deduction been required and Borrower shall pay the full amount withheld or deducted to the relevant Governmental Authority; provided, that Borrower shall not be required to make such increased payment to a Lender who is not a United States Person (as defined in Section 7701(a)(30) of the Internal Revenue Code of 1986, as amended) or who has not provided a duly executed original IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax. Borrower will, upon request, furnish the Lenders with proof reasonably satisfactory to the Lenders indicating that Borrower has made such withholding payment; provided, however, that Borrower need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Borrower. The agreements and obligations of Borrower contained in this Section 2.6 shall survive the termination of this Agreement.

3. **CONDITIONS OF LOANS**

3.1 **Conditions Precedent to Initial Credit Extension.** Each Lender's obligation to make a Term Loan is subject to the condition precedent that Collateral Agent and each Lender shall consent to or shall have received, in form and substance satisfactory to Collateral Agent and each Lender, such documents, and completion of such other matters, as Collateral Agent and each Lender may reasonably deem necessary or appropriate, including, without limitation:

(a) original Loan Documents, each duly executed by Borrower and each Subsidiary,as applicable;

(b) duly executed original Control Agreements with respect to any Collateral Accounts maintained by Borrower or any of itsSubsidiaries;

(c) duly executed original Secured Promissory Notes in favor of each Lender according to its Term Loan CommitmentPercentage;

(d) [Reserved];

(e) the Operating Documents and good standing certificates of Borrower and its Subsidiaries certified by the Secretary of State (or equivalent agency) of Borrower's and such Subsidiaries' jurisdiction of organization or formation and each jurisdiction in which Borrower and each Subsidiary is qualified to conduct business, each as of a date no earlier than thirty (30) days prior to the Effective Date**;**

(f) a completed Perfection Certificate for Borrower and each of itsSubsidiaries;

(g) the Annual Projections, for the current calendar year;

(h) duly executed original officer's certificate for Borrower and each Subsidiary that is a party to the Loan Documents, in a form acceptable to Collateral Agent and the Lenders;

(i) certified copies, dated as of date no earlier than thirty (30) days prior to the Effective Date, of financing statement searches, as Collateral Agent shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(j) subject to the terms of the Post Closing Letter, to the extent requested by the Lenders, a landlord'sconsent executed in favor of Collateral Agent in respect of all of Borrower's and each Subsidiaries' leased locations;

(k) subject to the terms of the Post Closing Letter, a bailee waiver executed in favor of Collateral Agent in respect of each third party bailee where Borrower or any Subsidiary maintains Collateral having a book value in excess of Two Hundred Fifty Thousand Dollars ($250,000.00);

(l) a duly executed legal opinion of counsel to Borrower dated as of the EffectiveDate;

(m) evidence satisfactory to Collateral Agent and the Lenders that the insurance policies required by Section 6.5 hereof are in full force and effect, together with appropriate evidence showing loss payable and/or additional insured clauses or endorsements in favor of Collateral Agent, for the ratable benefit of the Lenders;

(n) a copy of any applicable Registration Rights Agreement or Investors' Rights Agreement and any amendments thereto;

(o) a payoff letter from Oxford Finance LLC and Silicon Valley Bank in respect of the Existing Indebtedness;

(p) evidence that (i) the Liens securing the Existing Indebtedness will be terminated, and (ii) the documents and/or filings evidencing the perfection of such Liens, including without limitation any financing statements and/or control agreements, have or will, concurrently with the initial Credit Extension, be terminated;

(q) a subordination agreement, duly executed by each holder of Subordinated Debt;and

(r) payment of the fees and Lenders' Expenses then due as specified in Section 2.5hereof.

3.2 **Conditions Precedent to all Credit Extensions.** The obligation of each Lender to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) receipt by (i) the Lenders of an executed Disbursement Letter in the form of Exhibit B-1 attached hereto; and (ii) SVB of an executed Loan Payment/Advance Request Form in the form of Exhibit B-2 attached hereto;

(b) the representations and warranties in Section 5 hereof shall be true, accurate and complete in all material respects on the date of the Disbursement Letter (and the Loan Payment/Advance Request Form) and on the Funding Date of each Credit Extension; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is Borrower's representation and warranty on that date that the representations and warranties in Section 5 hereof are true, accurate and complete in all material respects; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date;

(c) in such Lender's sole but reasonable discretion, there has not been any Material Adverse Change;

(d) to the extent not delivered at the Effective Date, (i) duly executed original Secured Promissory Notes in the form attached hereto as Exhibit D in favor of each Lender according to its Commitment Percentage, with respect to each Credit Extension made by such Lender after the Effective Date and (ii) Warrants, in number, form and content acceptable to each Lender, and in favor of each Lender to purchase a certain number of shares of the Common Stock (as defined in the Warrant) as set forth therein; and

(e) payment of the fees and Lenders' Expenses then due as specified in Section 2.5 hereof.

3.3 **Covenant to Deliver.** Borrower agrees to deliver to Collateral Agent and the Lenders each item required to be delivered to Collateral Agent under this Agreement as a condition precedent to any Credit Extension. Borrower expressly agrees that a Credit Extension made prior to the receipt by Collateral Agent or any Lender of any such item shall not constitute a waiver by Collateral Agent or any Lender of Borrower's obligation to deliver such item, and any such Credit Extension in the absence of a required item shall be made in each Lender's sole discretion.

3.4 **Procedures for Borrowing.** Subject to the prior satisfaction of all other applicable conditions to the making of a Term Loan set forth in this Agreement, to obtain a Term Loan, Borrower shall notify the Lenders (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 3:00 PM Eastern time five (5) Business Days prior to the date the Term Loan is to be made. Together with any such electronic, facsimile or telephonic notification, Borrower shall deliver to the Lenders by electronic mail or facsimile a completed Disbursement Letter (and the Loan Payment/Advance Request Form, with respect to SVB) executed by a Responsible Officer or his or her designee. The Lenders may rely on any telephone notice given by a person whom a Lender reasonably believes is a Responsible Officer or designee. On the Funding Date, each Lender shall credit and/or transfer (as applicable) to the Designated Deposit Account, an amount equal to its Term Loan Commitment.

4. CREATION OF SECURITY INTEREST

4.1 **Grant of Security Interest.** Borrower hereby grants Collateral Agent, for the ratable benefit of the Lenders, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Collateral Agent, for the ratable benefit of the Lenders, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof. Borrower represents, warrants, and covenants that the security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral, subject only to Permitted Liens that are permitted by the terms of this Agreement to

have priority to Collateral Agent's Lien. If Borrower shall acquire a commercial tort claim (as defined in the Code), Borrower, shall promptly notify Collateral Agent in a writing signed by Borrower, as the case may be, of the general details thereof (and further details as may be required by Collateral Agent) and grant to Collateral Agent, for the ratable benefit of the Lenders, in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Collateral Agent.

Borrower acknowledges that it previously has entered, and/or may in the future enter, into Bank Services Agreements with Bank. Unless otherwise provided in any Bank Services Agreement, Borrower agrees that any amounts Borrower owes Bank thereunder shall be deemed to be Obligations hereunder and that it is the intent of Borrower and Bank to have all such Obligations secured by the first priority perfected security interest in the Collateral granted herein (subject only to Permitted Liens that may have superior priority to Bank's Lien in this Agreement).

If this Agreement is terminated, Collateral Agent's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as the Lenders' obligation to make Credit Extensions has terminated, Collateral Agent shall, at the sole cost and expense of Borrower, release its Liens in the Collateral (including by filing any appropriate termination statements and executing such other documents reasonably requested by Borrower, and at the sole cost and expense of Borrower, to effect and/or evidence the termination of its Liens in the Collateral) and all rights therein shall revert to Borrower. In the event (x) all Obligations (other than inchoate indemnity obligations), except for Bank Services, are satisfied in full, and (y) this Agreement is terminated, Collateral Agent shall terminate the security interest granted herein upon Borrower providing cash collateral acceptable to Bank in its good faith business judgment for Bank Services, if any. In the event such Bank Services consist of outstanding Letters of Credit, it shall be sufficient cash collateral acceptable to Bank for securing such Bank Services in applying the provisions of clause (y) with respect to Bank Services that consist of Letters of Credit, if Borrower provides, to Bank cash collateral in an amount equal to (x) if such Letters of Credit are denominated in Dollars, then one hundred five percent (105%); and (y) if such Letters of Credit are denominated in a Foreign Currency, then one hundred ten percent (110%), of the Dollar Equivalent of the face amount of all such Letters of Credit plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment), to secure all of the Obligations relating to such Letters of Credit.

4.2 **Authorization to File Financing Statements.** Borrower hereby authorizes Collateral Agent to file financingstatements or take any other action required to perfect Collateral Agent's security interests in the Collateral, without notice to Borrower, with all appropriate jurisdictions to perfect or protect Collateral Agent's interest or rights under the Loan Documents, including a notice that any disposition of the Collateral, except to the extent permitted by the terms of this Agreement, by Borrower, or any other Person, shall be deemed to violate the rights of Collateral Agent under the Code.

4.3 **Pledge of Collateral.** Borrower hereby pledges, assigns and grants to Collateral Agent, for the ratablebenefit of the Lenders, a security interest in all the Shares, together with all proceeds and substitutions thereof, all cash, stock and other moneys and property paid thereon, all rights to subscribe for securities declared or granted in connection therewith, and all other cash and noncash proceeds of the foregoing, as security for the performance of the Obligations. On the Effective Date, or, to the extent not certificated as of the Effective Date, within ten (10) days of the certification of any Shares, the certificate or certificates for the Shares will be delivered to Collateral Agent, accompanied by an instrument of assignment duly executed in blank by Borrower. To the extent required by the terms and conditions governing the Shares, Borrower shall cause the books of each entity whose Shares are part of the Collateral and any transfer agent to reflect the pledge of the Shares. Upon the occurrence and during the continuance of an Event of Default hereunder, Collateral Agent may effect the transfer of any securities included in the Collateral (including but not limited to the Shares) into the name of Collateral Agent and cause new (as applicable) certificates representing such securities to be issued in the name of Collateral Agent or its transferee. Borrower will execute and deliver such documents, and take or cause to be taken such actions, as Collateral Agent may reasonably request to perfect or continue the perfection of Collateral Agent's security interest in the Shares. Unless an Event of Default shall have occurred and be continuing, Borrower shall be entitled to exercise any voting rights with respect to the Shares and to give consents, waivers and ratifications in respect thereof, provided that no vote shall be cast or consent, waiver or ratification given or action taken which would be inconsistent with any of the terms of this Agreement or which would constitute or create any violation of any of such terms. All such rights to vote and give consents, waivers and ratifications shall terminate upon the occurrence and continuance of an Event of Default.

5. REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants to Collateral Agent and the Lenders as follows:

5.1 **Due Organization, Authorization: Power and Authority.** Borrower and each of its Subsidiaries is duly existing and in good standing as a Registered Organization in its jurisdictions of organization or formation and Borrower and each of its Subsidiaries is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its businesses or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to have a Material Adverse Change. In connection with this Agreement, Borrower and each of its Subsidiaries has delivered to Collateral Agent a completed perfection certificate signed by an officer of Borrower or such Subsidiary (each a "**Perfection Certificate**" and collectively, the "**Perfection Certificates**"). Borrower represents and warrants that as of the Effective Date (a) Borrower and each of its Subsidiaries' exact legal name is that which is indicated on its respective Perfection Certificate and on the signature page of each Loan Document to which it is a party; (b) Borrower and each of its Subsidiaries is an organization of the type and is organized in the jurisdiction set forth on its respective Perfection Certificate; (c) each Perfection Certificate accurately sets forth each of Borrower's and its Subsidiaries' organizational identification number or accurately states that Borrower or such Subsidiary has none; (d) each Perfection Certificate accurately sets forth Borrower's and each of its Subsidiaries' place of business, or, if more than one, its chief executive office as well as Borrower's and each of its Subsidiaries' mailing address (if different than its chief executive office); (e) Borrower and each of its Subsidiaries (and each of its respective predecessors) have not, in the past five (5) years, changed its jurisdiction of organization, organizationalstructure or type, or any organizational number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificates pertaining to Borrower and each of its Subsidiaries, is accurate and complete as of the Effective Date and as of any date that such Perfection Certificates may be updated after the Effective Date to the extent permitted by one or more specific provisions in this Agreement; such updated Perfection Certificates subject to the review and approval of Collateral Agent. If Borrower or any of its Subsidiaries is not now a Registered Organization but later becomes one, Borrower shall notify Collateral Agent of such occurrence and provide Collateral Agent with such Person's organizational identification number within five (5) Business Days of receiving such organizational identification number.

The execution, delivery and performance by Borrower and each of its Subsidiaries of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's or such Subsidiaries' organizational documents, including its respective Operating Documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law applicable thereto, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or such Subsidiary, or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect) or are being obtained pursuant to Section 6.1(b), or (v) constitute an event of default under any material agreement by which Borrower or any of such Subsidiaries, or their respective properties, is bound. Neither Borrower nor any of its Subsidiaries is in default under any agreement to which it is a party or by which it or any of its assets is bound in which such default could reasonably be expected to have a Material Adverse Change.

5.2 **Collateral.**

(a) Borrower and each of its Subsidiaries have good title to, have rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien under the Loan Documents, free and clear of any and all Liens except Permitted Liens, and neither Borrower nor any of its Subsidiaries have any Deposit Accounts, Securities Accounts, Commodity Accounts or other investment accounts other than the Collateral Accounts or the other investment accounts, if any, described in the Perfection Certificates delivered to Collateral Agent in connection herewith with respect of which Borrower or such Subsidiary has given Collateral Agent notice and taken such actions as are necessary to give Collateral Agent a perfected security interest therein. The Accounts are bona fide, existing obligations of the Account Debtors.

(b) On the Effective Date, and except as disclosed on the Perfection Certificate (i) the Collateral is not in the possession of any third party bailee (such as a warehouse), and (ii) no such third party bailee possesses components of the Collateral in excess of Two Hundred Fifty Thousand Dollars ($250,000.00). None of

the components of the Collateral shall be maintained at locations other than as disclosed in the Perfection Certificates on the Effective Date or as permitted pursuant to Section 6.11.

(c) All Inventory is in all material respects of good and marketable quality, free from material defects.

(d) Borrower and each of its Subsidiaries is the sole owner of the Intellectual Property each respectively purports to own, free and clear of all Liens other than Permitted Liens. Except as noted on the Perfection Certificates or otherwise notified to Collateral Agent in writing after the Effective Date, neither Borrower nor any of its Subsidiaries is a party to, nor is bound by, any material license or other material agreement with respect to which Borrower or such Subsidiary is the licensee that (i) prohibits or otherwise restricts Borrower or its Subsidiaries from granting a security interest in Borrower's or such Subsidiaries' interest in such material license or material agreement or any other property, or (ii) for which a default under or termination of could interfere with Collateral Agent's or any Lender's right to sell any Collateral. Borrower shall provide written notice to Collateral Agent and each Lender within ten (10) Business Days of Borrower or any of its Subsidiaries entering into or becoming bound by any material license or other material agreement with respect to which Borrower or any Subsidiary is the licensee (other than over-the-counter software that is commercially available to the public).

5.3 Litigation. Except as disclosed (i) on the Perfection Certificates, or (ii) in accordance with Section 6.9 hereof, there are no actions, suits, investigations, or proceedings pending or, to the knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than Two Hundred Fifty Thousand Dollars ($250,000.00).

5.4 No Material Deterioration in Financial Condition; Financial Statements. All consolidated financial statements for Borrower and its Subsidiaries, delivered to Collateral Agent fairly present, in conformity with GAAP, as applicable, in all material respects the consolidated financial condition of Borrower and its Subsidiaries, and the consolidated results of operations of Borrower and its Subsidiaries. There has not been any material deterioration in the consolidated financial condition of Borrower and its Subsidiaries since the date of the most recent financial statements submitted to any Lender.

5.5 Solvency. Borrower is, and Borrower and each of its Subsidiaries, taken as a whole, are, Solvent.

5.6 Regulatory Compliance. Neither Borrower nor any of its Subsidiaries is an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower nor any of its Subsidiaries has violated any laws, ordinances or rules, the violation of which could reasonably be expected to have a Material Adverse Change. Neither Borrower's nor any of its Subsidiaries' properties or assets has been used by Borrower or such Subsidiary or, to Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarationsor filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or any of Borrower's or its Subsidiaries' Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the knowledge of Borrower and any of their Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise

engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law.

5.7 **Investments.** Neither Borrower nor any of its Subsidiaries owns any stock, shares, partnership interests or other equity securities except for Permitted Investments.

5.8 **Tax Returns and Payments; Pension Contributions.** Borrower and each of its Subsidiaries has timely filed all required tax returns and reports, and Borrower and each of its Subsidiaries, has timely paid all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower and such Subsidiaries, in all jurisdictions in which Borrower or any such Subsidiary is subject to taxes, including the United States, unless such taxes are being contested in accordance with the following sentence or unless such unpaid state and/or local taxes do not exceed $25,000 in the aggregate. Borrower and each of its Subsidiaries, may defer payment of any contested taxes, provided that Borrower or such Subsidiary, (a) in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted, (b) notifies Collateral Agent in writing of the commencement of, and any material development in, the proceedings, and (c) posts bonds or takes any other steps required to prevent the Governmental Authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "**Permitted Lien**." Neither Borrower nor any of its Subsidiaries is aware of any claims or adjustments proposed for any of Borrower's or such Subsidiaries', prior tax years which could result in additional taxes becoming due and payable by Borrower or its Subsidiaries. Borrower and each of its Subsidiaries have paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and neither Borrower nor any of its Subsidiaries have, withdrawn from participation in, and have not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower or its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

5.9 **Use of Proceeds.** Borrower shall use the proceeds of the Credit Extensions solely as working capital and to fund its general business requirements in accordance with the provisions of this Agreement, and not for personal, family, household or agricultural purposes.

5.10 **Shares.** Borrower has full power and authority to create a first lien on the Shares and no disability or contractual obligation exists that would prohibit Borrower from pledging the Shares pursuant to this Agreement. To Borrower's knowledge, there are no subscriptions, warrants, rights of first refusal or other restrictions on transfer relative to, or options exercisable with respect to the Shares. The Shares have been and will be duly authorized and validly issued, and are fully paid and non-assessable. To Borrower's knowledge, the Shares are not the subject of any present or threatened suit, action, arbitration, administrative or other proceeding, and Borrower knows of no reasonable grounds for the institution of any such proceedings.

5.11 **Full Disclosure.** No written representation, warranty or other statement of Borrower or any of its Subsidiaries in any certificate or written statement given to Collateral Agent or any Lender in connection with the transactions contemplated hereby, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Collateral Agent or any Lender with respect to the transactions contemplated hereby, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 **Definition of** "**Knowledge.**" For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

6. AFFIRMATIVE COVENANTS

Borrower shall, and shall cause each of its Subsidiaries to, do all of the following:

6.1 Government Compliance.

(a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of organization and maintain qualification in each jurisdiction in which the failure to so qualify could reasonably be expected to have a Material Adverse Change. Comply with all laws, ordinances and regulations to which Borrower or any of its Subsidiaries is subject, the noncompliance with which could reasonably be expected to have a Material Adverse Change.

(b) Obtain and keep in full force and effect, all of the material Governmental Approvals necessary for the performance by Borrower and its Subsidiaries of their respective businesses and obligations under the Loan Documents and the grant of a security interest to Collateral Agent for the ratable benefit of the Lenders, in all of the Collateral. Borrower shall promptly provide copies to Collateral Agent of any material Governmental Approvals obtained by Borrower or any of its Subsidiaries.

6.2 Financial Statements, Reports, Certificates.

(a) Deliver to each Lender:

(i) as soon as available, but no later than forty (40) days after the last day of each quarter,a company prepared consolidated and consolidating balance sheet, income statement and cash flow statement covering the consolidated operations of Borrower and its Subsidiaries for such quarter certified by a Responsible Officeras being fairly stated in all material respects (subject to normal year-end GAAP and audit adjustments and the absence of footnotes) and in a form reasonably acceptable to CollateralAgent;

(ii) as soon as available, but no later than ninety (90) days after the last day of Borrower's fiscal year or within five (5) days of filing with the SEC, audited consolidated financial statements prepared under GAAP, consistently applied, together with an unqualified opinion (other than a going-concern qualification typical for companies similar to Borrower) on the financial statements from an independent certified public accounting firm;

(iii) as soon as available after approval thereof by Borrower's Board of Directors, but no later than thirty (30) days after the last day of each of Borrower's fiscal years, Borrower's annual financial projections for the entire current fiscal year as approved by Borrower's Board of Directors, which such annual financial projections shall be set forth in a month-by-month format (such annual financial projections delivered under this Section 6.2(a)(iii) to Collateral Agent and the Lenders are referred to herein as the "**Annual Projections**"; provided that, any revisions of the Annual Projections approved by Borrower's Board of Directors shall be delivered to Collateral Agent and the Lenders no later than seven (7) days after such approval);

(iv) within five (5) days of delivery, copies of all statements, reports and notices made available to Borrower's security holders or holders of Subordinated Debt;

(v) in the event (and during the period) that Borrower becomes subject to the reporting requirements under the Securities Exchange Act of 1934, as amended, within five (5) days of filing, all reports on Form 10-K, 10-Q and 8-K filed with the Securities and Exchange Commission,

(vi) Borrower shall prompt notice of any material amendments of or other material changes to the capitalization table of Borrower and any amendments of or other changes to the Operating Documents of Borrower or any of its Subsidiaries, together with any copies reflecting such amendments or changes with respect thereto;

(vii) prompt notice of any event (other than with respect to any third party) that could reasonably be expected to materially and adversely affect the value of the Intellectual Property;

(viii) as soon as available, but no later than thirty (30) days after the last day of each month, copies of the month-end account statements for each Collateral Account maintained by Borrower or its Subsidiaries, which statements may be provided to Collateral Agent and each Lender by Borrower or directly from the applicable institution(s);

(ix) prompt written notice of any changes to the beneficial ownership information set out in Addendum 1 to the Perfection Certificate. Borrower understands and acknowledges that Collateral Agent and each Lender relies on such true, accurate and up-to-date beneficial ownership information to meet Collateral Agent's and such Lender's regulatory obligations to obtain, verify and record information about the beneficial owners of its legal entity customers; and

(x) other information as reasonably requested by Collateral Agent or any Lender.

Notwithstanding the foregoing, documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the internet at Borrower's website address.

(b) Within thirty (30) days after the last day of each month, deliver to each Lender, a duly completed Compliance Certificate signed by a Responsible Officer.

(c) Keep proper books of record and account in accordance with GAAP in all material respects (except for interim and unaudited financial statements), in which full, true and correct entries shall be made of all dealings and transactions in relation to its business and activities. Borrower shall, and shall cause each of its Subsidiaries to, allow, at the sole cost of Borrower, Collateral Agent or any Lender, during regular business hours upon reasonable prior notice (provided that no notice shall be required when an Event of Default has occurred and is continuing), to visit and inspect any of its properties, to examine and make abstracts or copies from any of its books and records, and to conduct a collateral audit and analysis of its operations and the Collateral. Such audits shall be conducted no more often than twice every year unless (and more frequently if) an Event of Default has occurred and is continuing.

6.3 **Inventory; Returns.** Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower, or any of its Subsidiaries, and their respective Account Debtors shall follow Borrower's, or such Subsidiary's, customary practices as they exist at the Effective Date. Borrower must promptly notify Collateral Agent and the Lenders of all returns, recoveries, disputes and claims that involve more than Two Hundred Fifty Thousand Dollars ($250,000.00) individually or in the aggregate in any calendar year.

6.4 **Taxes; Pensions.** Timely file and require each of its Subsidiaries to timely file, all required tax returns and reports and timely pay, and require each of its Subsidiaries to timely file, all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower or its Subsidiaries, except for deferred payment of any taxes contested pursuant to the terms of Section 5.8 hereof, and shall deliver to Lenders, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with the terms of such plans.

6.5 **Insurance.** Keep Borrower's and its Subsidiaries' business and the Collateral insured for risks and in amounts standard for companies in Borrower's and its Subsidiaries' industry and location and as Collateral Agent may reasonably request. Insurance policies shall be in a form, with companies, and in amounts that are reasonably satisfactory to Collateral Agent and Lenders. All property policies shall have a lender's loss payable endorsement showing Collateral Agent as lender loss payee and waive subrogation against Collateral Agent, and all liability policies shall show, or have endorsements showing, Collateral Agent, as additional insured. The Collateral Agent shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral, and each provider of any such insurance agree, by endorsement upon the policy or policies issued

by it or by independent instruments furnished to the Collateral Agent, that it will give the Collateral Agent thirty (30) days prior written notice before any such policy or policies shall be materially altered or canceled; provide that in the event that any provider of any such insurance refuses to give the Collateral Agent thirty (30) days prior written notice before any such policy or policies shall be materially altered or canceled, then Borrower shall (i) give the Collateral Agenttwenty (20) days prior written notice before Borrower initiates any material alteration or cancels any such policy or policies, and (ii) immediately give the Collateral Agent written notice upon obtaining knowledge that any such policy or policies shall be materially altered or canceled by a provider of any such insurance. At Collateral Agent's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Collateral Agent's option, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy up to Two Hundred Fifty Thousand Dollars ($250,000.00) with respect to any loss, but not exceeding Five Hundred Thousand Dollars ($500,000.00), in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Collateral Agent has been granted a first priority security interest, and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Collateral Agent, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. If Borrower or any of its Subsidiaries fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons, Collateral Agent and/or any Lender may make, at Borrower's expense, all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Collateral Agent or such Lender deems prudent.

6.6 Operating Accounts.

(a) Maintain all of Borrower's and its Subsidiaries' Collateral Accounts with Bank or its Affiliates in accounts which are subject to a Control Agreement in favor of Collateral Agent.

(b) Borrower shall provide Collateral Agent five (5) days' prior written notice before Borrower or any of its Subsidiaries establishes any Collateral Account at or with any Person other than Bank or its Affiliates. In addition, for each Collateral Account that Borrower or any of its Subsidiaries at any time maintains, Borrower or such Subsidiary shall cause the applicable bank or financial institution at or with which such Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Collateral Agent's Lien in such Collateral Account in accordance with the terms hereunder prior to the establishment of such Collateral Account, which Control Agreement may not be terminated without prior written consent of Collateral Agent. The provisions of the previous sentence shall not apply to deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's, or any of its Subsidiaries', employees and identified to Collateral Agent by Borrower as such in the Perfection Certificates as may be updated after the Effective Date subject to the review and approval of Collateral Agent.

(c) Neither Borrower nor any of its Subsidiaries shall maintain any Collateral Accounts except Collateral Accounts maintained in accordance with Sections 6.6(a) and (b).

6.7 Protection of Intellectual Property Rights. Borrower and each of its Subsidiaries shall: (a) use commerciallyreasonable efforts consistent with current business practices to protect, defend and maintain the validity and enforceability of its Intellectual Property that is material to Borrower's business; (b) promptly after Borrower becomes aware thereof advise Collateral Agent in writing of material infringement by a third party of its Intellectual Property that is material to Borrower's business; and (c) not allow any Intellectual Property material to Borrower's business to be abandoned, forfeited or dedicated to the public without Collateral Agent's prior written consent, provided, however, Borrower may abandon, modify or delay filing, prosecution or issuance of any immaterial Intellectual Property without Collateral Agent's prior written consent if Borrower determines in its reasonable discretion that further prosecution of such application is not commercially reasonable, and provides Collateral Agent with prompt written notice of the same.

6.8 Litigation Cooperation. Commencing on the Effective Date and continuing through the termination of this Agreement, make available to Collateral Agent and the Lenders, without expense to Collateral

Agent or the Lenders at reasonable times and with reasonable advance notice, Borrower and each of Borrower's officers, employees and agents and Borrower's Books, to the extent that Collateral Agent or any Lender may reasonably deem them necessary to prosecute or defend any third-party suit or proceeding instituted by or against Collateral Agent or any Lender with respect to any Collateral or relating to Borrower. In such event, Collateral Agent and the Lenders shall work cooperatively with Borrower to minimize disruption, to the extent reasonably possible, of Borrower's ongoing operations.

6.9 **Notices of Litigation and Default.** Borrower will give prompt written notice to Collateral Agent and the Lenders of any litigation or governmental proceedings pending or threatened (in writing) against Borrower or any of its Subsidiaries, which could reasonably be expected to result in damages or costs to Borrower or any of its Subsidiaries of Two Hundred Fifty Thousand Dollars ($250,000.00) or more or which could reasonably be expected to have a Material Adverse Change. Without limiting or contradicting any other more specific provision of this Agreement, promptly (and in any event within three (3) Business Days) upon Borrower becoming aware of the existence of any Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default, Borrower shall give written notice to Collateral Agent and the Lenders of such occurrence, which such notice shall include a reasonably detailed description of such Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default.

6.10 **Intentionally Omitted.**

6.11 **Landlord Waivers; Bailee Waivers.** In the event that Borrower or any of its Subsidiaries, after the Effective Date, intends to add any new offices or business locations, including warehouses, or otherwise store any portion of the Collateral with, or deliver any portion of the Collateral to, a bailee, in each case pursuant to Section 7.2, then Borrower or such Subsidiary will first receive the written consent of Collateral Agent (unless the new location is not the chief executive office of Borrower or such Subsidiary or the Collateral at such new location is not valued in excess of Two Hundred Fifty Thousand ($250,000.00) in the aggregate, and then Borrower or such Subsidiary shall only be required to provide Collateral Agent with written notice of such new location with thirty (30) days of the addition of such new location as an office or business location) and, in the event that the new location is the chief executive office of Borrower or such Subsidiary or the Collateral at any such new location is valued in excess of Two Hundred Fifty Thousand ($250,000.00) in the aggregate, such bailee or landlord, as applicable, must execute and deliver a bailee waiver or landlord waiver, as applicable, in form and substance reasonably satisfactory to Collateral Agent prior to the addition of any new offices or business locations, or any such storage with or delivery to any such bailee, as the case may be.

6.12 **Creation/Acquisition of Subsidiaries.** In the event Borrower, or any of its Subsidiaries creates or acquires any Subsidiary, Borrower shall provide prior written notice to Collateral Agent and each Lender of the creation or acquisition of such new Subsidiary and take all such action as may be reasonably required by Collateral Agent or any Lender to cause each such Subsidiary to become a co-Borrower hereunder or to guarantee the Obligations of Borrower under the Loan Documents and, in each case, grant a continuing pledge and security interest in and to the assets of such Subsidiary (substantially as described on Exhibit A hereto); and Borrower (or its Subsidiary, as applicable) shall grant and pledge to Collateral Agent, for the ratable benefit of the Lenders, a perfected security interest in the Shares of each such newly created Subsidiary; provided, however, that solely in the circumstance in which Borrower or any Subsidiary creates or acquires a Foreign Subsidiary in an acquisition permitted by Section 7.7 hereof or otherwise approved by the Required Lenders, (i) such Foreign Subsidiary shall not be required to become a co-Borrower hereunder, guarantee the Obligations of Borrower under the Loan Documents and grant a continuing pledge and security interest in and to the assets of such Foreign Subsidiary, and (ii) Borrower shall not be required to grant and pledge to Collateral Agent, for the ratable benefit of Lenders, a perfected security interest in more than sixty-five percent (65%) of the Shares of such Foreign Subsidiary, if Borrower demonstrates to the reasonable satisfaction of Collateral Agent that such Foreign Subsidiary providing such guarantee or pledge and security interest or Borrower providing a perfected security interest in more than sixty-five percent (65%) of the Shares would create a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code.

6.13 **Further Assurances.**

(a) Execute any further instruments and take further action as Collateral Agent or any Lender reasonably requests to perfect or continue Collateral Agent's Lien in the Collateral or to effect the purposes of this Agreement.

(b) Deliver to Collateral Agent and Lenders, within five (5) days after the same are sent or received,copies of all material correspondence, reports, documents and other filings with any Governmental Authority that could reasonably be expected to have a material adverse effect on any of the Governmental Approvals material to Borrower's business or otherwise could reasonably be expected to have a Material Adverse Change.

7. NEGATIVE COVENANTS

Borrower shall not, and shall not permit any of its Subsidiaries to, do any of the following without the prior written consent of the Required Lenders:

7.1 **Dispositions.** Convey, sell, lease, transfer, assign, or otherwise dispose of (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn out or obsolete Equipment; (c) of property by the Borrower to a Subsidiary that is a Guarantor; (d) in connection with Permitted Assignments, Permitted Liens, Permitted Investments and Permitted Licenses; and (e) Transfers in the ordinary course of business of Borrower, or its Subsidiaries, in addition to those specifically enumerated above, to the extent the same are specifically reflected in the Annual Projections and not otherwise prohibited by the terms of this Agreement or any other Loan Document.

7.2 **Changes in Business, Management, Ownership, or Business Locations.** (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses engaged in by Borrower as of the Effective Date or reasonably related thereto; (b) liquidate or dissolve; or (c) (i) any Key Person shall cease to be actively engaged in the management of Borrower unless written notice thereof is provided to Collateral Agent within five (5) Business Days of such change, or (ii) enter into any transaction or series of related transactions in which the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own more than forty nine percent (49%) of the voting stock of Borrower immediately after giving effect to such transaction or related series of such transactions (other than by the sale of Borrower's equity securities in a public offering, a private placement of public equity or to venture capital investors so long as Borrower identifies to Collateral Agent the venture capital investors prior to the closing of the transaction). Borrower shall not, without at least thirty (30) days' prior written notice to Collateral Agent: (A) add any new offices or business locations, including warehouses (unless such new offices or business locations (i) contain less than Two Hundred Fifty Thousand Dollars ($250,000.00) in assets or property of Borrower or any of its Subsidiaries and (ii) are not Borrower's or its Subsidiaries' chief executive office); (B) change its jurisdiction of organization, (C) change its organizational structure or type, (D) change its legal name, or (E) change any organizational number (if any) assigned by its jurisdiction of organization.

7.3 **Mergers or Acquisitions.** Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock, shares or property of another Person. A Subsidiary may merge or consolidate into another Subsidiary (provided such surviving Subsidiary is a "co-Borrower" hereunder or has provided a secured Guaranty of Borrower's Obligations hereunder) or with (or into) Borrower provided Borrower is the surviving legal entity, and as long as no Event of Default is occurring prior thereto or arises as a result therefrom. Without limiting the foregoing, Borrower shall not, without Collateral Agent's prior written consent, enter into any binding contractual arrangement with any Person to attempt to facilitate a merger or acquisition of Borrower, unless (i) no Event of Default exists when such agreement is entered into by Borrower, (ii) such agreement does not give such Person the right to claim any fees, payments or damages from Borrower in excess of Two Hundred Fifty Thousand Dollars ($250,000.00), and (iii) Borrower notifies Collateral Agent in advance of entering into such an agreement.

7.4 **Indebtedness.** Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 **Encumbrance.** Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens, or permit any Collateral not to be subject to the first priority security interest granted herein (except

for Permitted Liens that are permitted by the terms of this Agreement to have priority over Collateral Agent's Lien), or enter into any agreement, document, instrument or other arrangement (except with or in favor of Collateral Agent, for the ratable benefit of the Lenders) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower, or any of its Subsidiaries, from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or such Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and the definition of "**Permitted Liens**" herein.

7.6 **Maintenance of Collateral Accounts.** Maintain any Collateral Account except pursuant to the terms of Section 6.6hereof.

7.7 **Distributions; Investments.** (a) Pay any dividends (other than dividends payable solely in capital stock) or make any distribution or payment in respect of or redeem, retire or purchase any capital stock (other than repurchases (x) made pursuant to the terms of employee stock purchase plans, employee restricted stock agreements, stockholder rights plans, director or consultant stock option plans, or similar plans, provided such repurchases do not exceed One Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate per fiscal year, (y) that are deemed to occur upon exercise of stock options or warrants if such equity interests represents a portion of the exercise price or such options or warrants, or (z) that are deemed to occur upon the withholding of a portion of the equity interests granted or awarded to a current or former officer, director, employee or consultant to pay for the taxes payable by such Person upon such grant or award (or upon vesting thereof), or (b) directly or indirectly make any Investment other than Permitted Investments, or permit any of its Subsidiaries to do so.

7.8 **Transactions with Affiliates.** Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower or any of its Subsidiaries, except for (a) transactions that are in the ordinary course of Borrower's or such Subsidiary's business, upon fair and reasonable terms that are no less favorable to Borrower or such Subsidiary than would be obtained in an arm's length transaction with a non-affiliated Person, and (b) Subordinated Debt or equity investments by Borrower's investors in Borrower or its Subsidiaries.

7.9 **Subordinated Debt.** (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to the Lenders.

7.10 **Compliance.** Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the violation could reasonably be expected to have a Material Adverse Change, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower or any of its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

7.11 **Compliance with Anti-Terrorism Laws.** Collateral Agent hereby notifies Borrower and each of its Subsidiaries that pursuant to the requirements of Anti-Terrorism Laws, and Collateral Agent's policies and practices, Collateral Agent is required to obtain, verify and record certain information and documentation that identifies Borrower and each of its Subsidiaries and their principals, which information includes the name and address of Borrower and each of its Subsidiaries and their principals and such other information that will allow Collateral Agent to identify such party in accordance with Anti-Terrorism Laws. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Borrower and each of its Subsidiaries shall immediately notify Collateral Agent if Borrower or such Subsidiary has knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or (a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any

of its Subsidiaries, permit any Affiliate to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executiveorder or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

8. EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 **Payment Default.** Borrower fails to (a) make any payment of principal or interest on any Credit Extension on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day grace period shall not apply to payments due on the Maturity Date or the date of acceleration pursuant to Section 9.1 (a) hereof). During the cure period, the failure to cure the payment default is not an Event of Default (but no Credit Extension will be made during the cure period);

8.2 **Covenant Default.**

(a) Borrower or any of its Subsidiaries fails or neglects to perform any obligation in Sections 6.2 (Financial Statements, Reports, Certificates), 6.4 (Taxes), 6.5 (Insurance), 6.6 (Operating Accounts), 6.7 (Protection of Intellectual Property Rights), 6.9 (Notice of Litigation and Default), 6.12 (Creation/Acquisition of Subsidiaries) or 6.13 (Further Assurances) or Borrower violates any covenant in Section 7; or

(b) Borrower, or any of its Subsidiaries, fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreementthat can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Credit Extensions shall be made during such cure period). Grace periods provided under this Section shall not apply, among other things, to financial covenants or any other covenants set forth in subsection (a) above;

8.3 **Material Adverse Change.** A Material Adverse Change occurs;

8.4 **Attachment; Levy; Restraint on Business.**

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or any of its Subsidiaries or of any entity under control of Borrower or its Subsidiaries on deposit with any Lender or any Lender's Affiliate or any bank or other institution at which Borrower or any of its Subsidiaries maintains a Collateral Account, or (ii) a notice of lien, levy, or assessment is filed against Borrower or any of its Subsidiaries or their respective assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided, however, no Credit Extensions shall be made during any ten (10) day cure period; and

(b) (i) any material portion of Borrower's or any of its Subsidiaries' assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower or any of its Subsidiaries from conducting any part of its business;

8.5 **Insolvency.** (a) Borrower or any of its Subsidiaries is or becomes Insolvent; (b) Borrower or any ofits Subsidiaries begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower or

any of its Subsidiaries and not dismissed or stayed within forty-five (45) days (but no Credit Extensions shall be made while Borrower or any Subsidiary is Insolvent and/or until any Insolvency Proceeding isdismissed);

8.6 **Other Agreements.** There is a default in any agreement to which Borrower or any of its Subsidiaries is a party with a third party or parties resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount in excess of Two Hundred Fifty Thousand Dollars ($250,000.00) or that could reasonably be expected to have a Material Adverse Change;

8.7 **Judgments.** One or more judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at least Two Hundred Fifty Thousand Dollars ($250,000.00) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against Borrower or any of its Subsidiaries and shall remain unsatisfied, unvacated, or unstayed for a period of ten (10) days after the entry thereof (provided that no Credit Extensions will be made prior to the satisfaction, vacation, or stay of such judgment, order or decree);

8.8 **Misrepresentations.** Borrower or any of its Subsidiaries or any Person acting for Borrower or any of its Subsidiaries makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Collateral Agent and/or Lenders or to induce Collateral Agent and/or the Lenders to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 **Subordinated Debt.** A default or breach occurs under any agreement between Borrower or any of its Subsidiaries and any creditor of Borrower or any of its Subsidiaries that signed a subordination, intercreditor, or other similar agreement with Collateral Agent or the Lenders, or any creditor that has signed such an agreement with Collateral Agent or the Lenders breaches any terms of such agreement;

8.10 **Guaranty.** (a) Any Guaranty terminates or ceases for any reason to be in full force and effect; (b) any Guarantor does not perform any obligation or covenant under any Guaranty; (c) any circumstance described in Sections 8.3, 8.4, 8.5, 8.7, or 8.8 occurs with respect to any Guarantor, or (d) the liquidation, winding up, or termination of existence of any Guarantor;

8.11 **Governmental Approvals.** Any Governmental Approval shall have been revoked, rescinded, suspended, modified in an adverse manner, or not renewed in the ordinary course for a full term *and* such revocation, rescission, suspension, modification or non-renewal has resulted in or could reasonably be expected to result in a Material Adverse Change;

8.12 **Lien Priority**. Any Lien created hereunder or by any other Loan Document shall at any time fail toconstitute a valid and perfected Lien on any of the Collateral purported to be secured thereby, subject to no prior or equal Lien, other than Permitted Liens which are permitted to have priority in accordance with the terms of this Agreement; or

8.13 **Delisting**. The shares of common stock of Borrower are delisted from the NASDAQ Capital Market or New York Stock Exchange (or any other nationally recognized stock exchange in the United States having listing standards at least as restrictive as the NASDAQ Capital Market or New York Stock Exchange) because of failure to comply with continued listing standards thereof or due to a voluntary delisting which results in such shares not being listed on the NASDAQ Capital Market, New York Stock Exchange or any other nationally recognized stock exchange in the United States having listing standards at least as restrictive as the NASDAQ Capital Market or New York Stock Exchange.

9. RIGHTS AND REMEDIES

9.1 Rights and Remedies.

(a) Upon the occurrence and during the continuance of an Event of Default, Collateral Agent may,and at the written direction of Required Lenders shall, without notice or demand, do any or all of the following:

(i) deliver notice of the Event of Default to Borrower, (ii) by notice to Borrower declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations shall be immediately due and payable without any action by Collateral Agent or the Lenders) or (iii) by notice to Borrower suspend or terminate the obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders (but if an Event of Default described in Section 8.5 occurs all obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders shall be immediately terminated without any action by Collateral Agent or the Lenders).

(b) Without limiting the rights of Collateral Agent and the Lenders set forth in Section 9.1(a) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) foreclose upon and/or sell or otherwise liquidate, the Collateral;

(ii) apply to the Obligations any (a) balances and deposits of Borrower that Collateral Agent or any Lender holds or controls, or (b) any amount held or controlled by Collateral Agent or any Lender owing to or for the credit or the account of Borrower;and/or

(iii) commence and prosecute an Insolvency Proceeding or consent to Borrower commencing any InsolvencyProceeding.

(c) Without limiting the rights of Collateral Agent and the Lenders set forth in Sections 9.1(a) and (b) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Collateral Agent considers advisable, notify any Person owing Borrower money of Collateral Agent's security interest in such funds, and verify the amount of such account;

(ii) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Collateral Agent requests and make it available in a location as Collateral Agent reasonably designates. Collateral Agent may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Collateral Agent a license to enter and occupy any of its premises, without charge, to exercise any of Collateral Agent's rights or remedies;

(iii) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, and/or advertise for sale, the Collateral. Collateral Agent is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, Borrower's and each of its Subsidiaries' labels, patents, copyrights, mask works, rights of use of any name, trade secrets, trade names, trademarks, service marks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Collateral Agent's exercise of its rights under this Section 9.1, Borrower's and each of its Subsidiaries' rights under all licenses and all franchise agreements inure to Collateral Agent, for the benefit of the Lenders;

(iv) place a "hold" on any account maintained with Collateral Agent or the Lenders and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(v) demand and receive possession of Borrower's Books;

(vi) appoint a receiver to seize, manage and realize any of the Collateral, and such receiver shall have any right and authority as any competent court will grant or authorize in accordance with any applicable law, including any power or authority to manage the business of Borrower or any of its Subsidiaries;

(vii) subject to clauses 9.1(a) and (b), exercise all rights and remedies available to Collateral Agent and each Lender under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof);

(viii) for any Letters of Credit, demand that Borrower (i) deposit cash with Bank in an amount equal to (x) if such Letters of Credit are denominated in Dollars, then one hundred five percent (105%); and
(y) if such Letters of Credit are denominated in a Foreign Currency, then one hundred ten percent (110%), of the DollarEquivalent of the aggregate face amount of all Letters of Credit remaining undrawn (plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment)), to secure all of the Obligations relating to such Letters of Credit, as collateral security for the repayment of any future drawings under such Letters of Credit, and Borrower shall forthwith deposit and pay such amounts, and (ii) pay in advance all letter of credit fees scheduled to be paid or payable over the remaining term of any Letters of Credit; and

(ix) terminate any FX Contracts.

Notwithstanding any provision of this Section 9.1 to the contrary, upon the occurrence of any Event of Default, CollateralAgent shall have the right to exercise any and all remedies referenced in this Section 9.1 without the written consent of Required Lenders following the occurrence of an Exigent Circumstance. As used in the immediately preceding sentence, "**Exigent Circumstance**" means any event or circumstance that, in the reasonable judgment of Collateral Agent, imminently threatens the ability of Collateral Agent to realize upon all or any material portion of the Collateral, such as, without limitation, fraudulent removal, concealment, or abscondment thereof, destruction or material waste thereof, or failure of Borrower or any of its Subsidiaries after reasonable demand to maintain or reinstate adequate casualty insurance coverage, or which, in the judgment of Collateral Agent, could reasonably be expected to result in a material diminution in value of the Collateral. Notwithstanding any provision of this Agreement or any of the Loan Documents to the contrary, for so long as Celgene Corporation's existing collaboration and license agreement (referring specifically to the amended and restated agreement in effect since August 2, 2017) with Borrower remains in effect, Collateral Agent shall not exercise any of its rights or remedies with respect to any Collateral located at 870 and 894 Industrial Road, San Carlos, CA 94070, for a period of five (5) Business Days following the occurrence of any Event of Default (other than an Event of Default described in Section8.5).

9.2 **Power of Attorney.** Borrower hereby irrevocably appoints Collateral Agent as its lawful attorney-in-fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's or any of its Subsidiaries' name on any checks or other forms of payment or security; (b) sign Borrower's or any of its Subsidiaries' name on any invoice or bill of lading for any Account or drafts against Account Debtors;
(c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Collateral Agent determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies;
(e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Collateral Agent or a third party as the Code or any applicable law permits. Borrower hereby appoints Collateral Agent as its lawful attorney-in-fact to sign Borrower's or any of its Subsidiaries' name on any documents necessary to perfect or continue the perfection of Collateral Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations (other than inchoate indemnity obligations) have been satisfied in full and Collateral Agent and the Lenders are under no further obligation to make Credit Extensions hereunder. Collateral Agent's foregoing appointment as Borrower's or any of its Subsidiaries' attorney in fact, and all of Collateral Agent's rights and powers, coupled with an interest, are irrevocable until all Obligations (other than inchoate indemnity obligations) have been fully repaid and performed and Collateral Agent's and the Lenders' obligation to provide Credit Extensions terminates.

9.3 **Protective Payments.** If Borrower or any of its Subsidiaries fail to obtain the insurance called for by Section 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower or any of its Subsidiaries is obligated to pay under this Agreement or any other Loan Document, Collateral Agent may obtain such insurance or make such payment, and all amounts so paid by Collateral Agent are Lenders' Expenses and immediately

due and payable, bearing interest at the Default Rate, and secured by the Collateral. Collateral Agent will make reasonable efforts to provide Borrower with notice of Collateral Agent obtaining such insurance or making such payment at the time it is obtained or paid or within a reasonable time thereafter. No such payments by Collateral Agent are deemed an agreement to make similar payments in the future or Collateral Agent's waiver of any Event of Default.

9.4 **Application of Payments and Proceeds.** Notwithstanding anything to the contrary contained in this Agreement, upon the occurrence and during the continuance of an Event of Default, (a) Borrower irrevocably waives the right to direct the application of any and all payments at any time or times thereafter received by Collateral Agent from or on behalf of Borrower or any of its Subsidiaries of all or any part of the Obligations, and, as between Borrower on the one hand and Collateral Agent and Lenders on the other, Collateral Agent shall have the continuing and exclusive right to apply and to reapply any and all payments received against the Obligations in such manner as Collateral Agent may deem advisable notwithstanding any previous application by Collateral Agent, and (b) the proceeds of any sale of, or other realization upon all or any part of the Collateral shall be applied: first, to the Lenders' Expenses; second, to accrued and unpaid interest on the Obligations (including any interest which, but for the provisions of the United States Bankruptcy Code, would have accrued on such amounts); third, to the principal amount of the Obligations outstanding; and fourth, to any other indebtedness or obligations of Borrower owing to Collateral Agent or any Lender under the Loan Documents. Any balance remaining shall be delivered to Borrower or to whoever may be lawfully entitled to receive such balance or as a court of competent jurisdiction may direct. In carrying out the foregoing, (x) amounts received shall be applied in the numerical order provided until exhausted prior to the application to the next succeeding category, and (y) each of the Persons entitled to receive a payment in any particular category shall receive an amount equal to its pro rata share of amounts available to be applied pursuant thereto for such category. Any reference in this Agreement to an allocation between or sharing by the Lenders of any right, interest or obligation "ratably," "proportionally" or in similar terms shall refer to Pro Rata Share unless expressly provided otherwise. Collateral Agent, or if applicable, each Lender, shall promptly remit to the other Lenders such sums as may be necessary to ensure the ratable repayment of each Lender's portion of any Term Loan and the ratable distribution of interest, fees and reimbursements paid or made by Borrower. Notwithstanding the foregoing, a Lender receiving a scheduled payment shall not be responsible for determining whether the other Lenders also received their scheduled payment on such date; provided, however, if it is later determined that a Lender received more than its ratable share of scheduled payments made on any date or dates, then such Lender shall remit to Collateral Agent or other Lenders such sums as may be necessary to ensure the ratable payment of such scheduled payments, as instructed by Collateral Agent. If any payment or distribution of any kind or character, whether in cash, properties or securities, shall be received by a Lender in excess of its ratable share, then the portion of such payment or distribution in excess of such Lender's ratable share shall be received by such Lender in trust for and shall be promptly paid over to the other Lender for application to the payments of amounts due on the other Lenders' claims. To the extent any payment for the account of Borrower is required to be returned as a voidable transfer or otherwise, the Lenders shall contribute to one another as is necessary to ensure that such return of payment is on a pro rata basis. If any Lender shall obtain possession of any Collateral, it shall hold such Collateral for itself and as agent and bailee for Collateral Agent and other Lenders for purposes of perfecting Collateral Agent's security interest therein.

9.5 **Liability for Collateral.** So long as Collateral Agent and the Lenders comply with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Collateral Agent and the Lenders, Collateral Agent and the Lenders shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 **No Waiver; Remedies Cumulative.** Failure by Collateral Agent or any Lender, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Collateral Agent or any Lender thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by Collateral Agent and the Required Lenders and then is only effective for the specific instance and purpose for which it is given. The rights and remedies of Collateral Agent and the Lenders under this Agreement and the other Loan Documents are cumulative. Collateral Agent and the Lenders have all rights and remedies provided under the Code, any applicable law, by law, or in equity. The exercise by Collateral Agent or any Lender of one right or remedy is not an election, and Collateral

Agent's or any Lender's waiver of any Event of Default is not a continuing waiver. Collateral Agent's or any Lender's delay in exercising any remedy is not a waiver, election, oracquiescence.

9.7 **Demand Waiver.** Borrower waives, to the fullest extent permitted by law, demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Collateral Agent or any Lender on which Borrower or any Subsidiary is liable.

10. NOTICES

All notices, consents, requests, approvals, demands, or other communication (collectively, "**Communication**") by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by facsimile transmission; (c) upon delivery, when sent by email mail, (d) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (e) when delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Any of Collateral Agent, Lender or Borrower may change its mailing address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower:	Sutro Biopharma, Inc. 310 Utah Avenue, Suite 150 South San Francisco, CA 94080 Attn: Edward Albini Email: ealbini@sutrobio.com
with a copy (which shall not constitute notice) to:	Fenwick & West LLP 1191 Second Ave, 10th Floor Seattle, WA 98101 Attn: Amanda Rose Fax: (415) 281-1350 Email: arose@fenwick.com
If to Collateral Agent:	OXFORD FINANCE LLC 133 North Fairfax Street Alexandria, Virginia 22314 Attention: Legal Department Fax: (703) 519-5225 Email: LegalDepartment@oxfordfinance.com
with a copy to	SILICON VALLEY BANK 3003 Tasman Drive Santa Clara, CA 95054 Attn: Peter Sletteland Fax: Email: PSletteland@svb.com
with a copy (which shall not constitute notice) to:	Troutman Sanders LLP 401 9th Street, NW, Suite 1000 Washington, DC 20004 Attn: Charles Charpentier Fax: (202) 274-2994 Email: charles.charpentier@troutmansanders.com

11. CHOICE OF LAW, VENUE AND JURY TRIAL WAIVER, AND JUDICIAL REFERENCE

California law governs the Loan Documents without regard to principles of conflicts of law. Borrower, Collateral Agent and each Lender each submit to the exclusive jurisdiction of the State and Federal courts in Santa Clara County, California; provided, however, that nothing in this Agreement shall be deemed to operate to preclude Collateral Agent or any Lender from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Collateral Agent or any Lender. Borrower expressly submits and consents in advance to such jurisdiction in any action or suit commenced in any such court, and Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such court. Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to Borrower at the address set forth in, or subsequently provided by Borrower in accordance with, Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, BORROWER, COLLATERAL AGENT AND EACH LENDER EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR EACH PARTY TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

WITHOUT INTENDING IN ANY WAY TO LIMIT THE PARTIES' AGREEMENT TO WAIVE THEIR
RESPECTIVE RIGHT TO A TRIAL BY JURY, if the above waiver of the right to a trial by jury is not enforceable, the parties hereto agree that any and all disputes or controversies of any nature between them arising at any time shall be decided by a reference to a private judge, mutually selected by the parties (or, if they cannot agree, by the Presiding Judge of the Santa Clara County, California Superior Court) appointed in accordance with California Code of Civil Procedure Section 638 (or pursuant to comparable provisions of federal law if the dispute falls within the exclusive jurisdiction of the federal courts), sitting without a jury, in Santa Clara County, California; and the parties hereby submit to the jurisdiction of such court. The reference proceedings shall be conducted pursuant to and in accordance with the provisions of California Code of Civil Procedure §§ 638 through 645.1, inclusive. The private judge shall have the power, among others, to grant provisional relief, including without limitation, entering temporary restraining orders, issuing preliminary and permanent injunctions and appointing receivers. All such proceedings shall be closed to the public and confidential and all records relating thereto shall be permanently sealed. If during the course of any dispute, a party desires to seek provisional relief, but a judge has not been appointed at that point pursuant to the judicial reference procedures, then such party may apply to the Santa Clara County, California Superior Court for such relief. The proceeding before the private judge shall be conducted in the same manner as it would be before a court under the rules of evidence applicable to judicial proceedings. The parties shall be entitled to discovery which shall be conducted in the same manner as it would be before a court under the rules of discovery applicable to judicial proceedings. The private judge shall oversee discovery and may enforce all discovery rules and orders applicable to judicial proceedings in the same manner as a trial court judge. The parties agree that the selected or appointed private judge shall have the power to decide all issues in the action or proceeding, whether of fact or of law, and shall report a statement of decision thereon pursuant to California Code of Civil Procedure § 644(a). Nothing in this paragraph shall limit the right of any party at any time to exercise self-help remedies, foreclose against collateral, or obtain provisional remedies. The private judge shall also determine all issues relating to the applicability, interpretation, and enforceability of this paragraph.

12. GENERAL PROVISIONS

12.1 **Successors and Assigns.** This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not transfer, pledge or assign this Agreement or any rights or obligations under it without Collateral Agent's and each Lender's prior written consent (which may be granted or withheld in Collateral Agent's and each Lender's discretion, subject to Section 12.6). The Lenders have the right,

without the consent of or notice to Borrower, to sell, transfer, assign, pledge, negotiate, or grant participation in **(any** such sale, transfer, assignment, negotiation, or grant of a participation, a **"Lender Transfer")** all or any part of, or any interest in, the Lenders' obligations, rights, and benefits under this Agreement and the other Loan Documents; *provided*, *however*, that any such Lender Transfer (other than a transfer, pledge, sale or assignment to an Eligible Assignee)of its obligations, rights, and benefits under this Agreement and the other Loan Documents shall require the prior written consent of the Required Lenders (such approved assignee, an "**Approved Lender**"). Borrower and Collateral Agent shall be entitled to continue to deal solely and directly with such Lender in connection with the interests so assigned until Collateral Agent shall have received and accepted an effective assignment agreement in form satisfactory to Collateral Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such Eligible Assignee or Approved Lender as Collateral Agent reasonably shall require. Notwithstanding anything to the contrary contained herein, so long as no Event of Default has occurred and is continuing, no Lender Transfer (other than a Lender Transfer (i) in respect of the Warrants or (ii) in connection with (x) assignments by a Lender due to a forced divestiture at the request of any regulatory agency; or (y) upon the occurrence of a default, event of default or similar occurrence with respect to a Lender's own financing or securitization transactions) shall be permitted, without Borrower's consent, to any Person which is an Affiliate or Subsidiary of Borrower, a direct competitor of Borrower or a vulture hedge fund, each as determined by Collateral Agent.

12.2 **Indemnification.** Borrower agrees to indemnify, defend and hold Collateral Agent and the Lenders and their respective directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Collateral Agent or the Lenders (each, an "**Indemnified Person**") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, "**Claims**") asserted by any other party in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents; and (b) all losses or Lenders' Expenses incurred, or paid by Indemnified Person in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents between Collateral Agent, and/or the Lenders and Borrower (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct. Borrower hereby further indemnifies, defends and holds each Indemnified Person harmless from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements of any kind or nature whatsoever (including the fees and disbursements of counsel for such Indemnified Person) in connection with any investigative, response, remedial, administrative or judicial matter or proceeding, whether or not such Indemnified Person shall be designated a party thereto and including any such proceeding initiated by or on behalf of Borrower, and the reasonable expenses of investigation by engineers, environmental consultants and similar technical personnel and any commission, fee or compensation claimed by any broker (other than any broker retained by Collateral Agent or Lenders) asserting any right to payment for the transactions contemplated hereby which may be imposed on, incurred by or asserted against such Indemnified Person as a result of or in connection with the transactions contemplated hereby and the use or intended use of the proceeds of the loan proceeds except for liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements directly caused by such Indemnified Person's gross negligence or willful misconduct.

12.3 **Time of Essence.** Time is of the essence for the performance of all Obligations in this Agreement.

12.4 **Severability of Provisions.** Each provision of this Agreement is severable from every other provision in determining the enforceability of anyprovision.

12.5 **Correction of Loan Documents.** Collateral Agent and the Lenders may correct patent errors and fill in any blanks in this Agreement and the other Loan Documents consistent with the agreement of theparties.

12.6 **Amendments in Writing; Integration.** (a) No amendment, modification, termination or waiver of any provision of this Agreement or any other Loan Document, no approval or consent thereunder, or any consent to any departure by Borrower or any of its Subsidiaries therefrom, shall in any event be effective unless the same shall be in writing and signed by Borrower, Collateral Agent and the Required Lenders provided that:

(i) no such amendment, waiver or other modification that would have the effect of increasing or reducing a Lender's Term Loan Commitment or Commitment Percentage shall be effective as to such Lender without such Lender's written consent;

(ii) no such amendment, waiver or modification that would affect the rights and duties of Collateral Agent shall be effective without Collateral Agent's written consent or signature;

(iii) no such amendment, waiver or other modification shall, unless signed by all the Lenders directly affected thereby, (A) reduce the principal of, rate of interest on or any fees with respect to any Term Loan or forgive any principal, interest (other than default interest) or fees (other than late charges) with respect to any Term Loan (B) postpone the date fixed for, or waive, any payment of principal of any Term Loan or of interest on any Term Loan (other than default interest) or any fees provided for hereunder (other than late charges or for any termination of any commitment); (C) change the definition of the term "**Required Lenders**" or the percentage of Lenders which shall be required for the Lenders to take any action hereunder; (D) release all or substantially all of any material portion of the Collateral, authorize Borrower to sell or otherwise dispose of all or substantially all or any material portion of the Collateral or release any Guarantor of all or any portion of the Obligations or its guaranty obligations with respect thereto, except, in each case with respect to this clause (D), as otherwise may be expressly permitted under this Agreement or the other Loan Documents (including in connection with any disposition permitted hereunder); (E) amend, waive or otherwise modify this Section 12.6 or the definitions of the terms used in this Section 12.6 insofar as the definitions affect the substance of this Section 12.6; (F) consent to the assignment, delegation or other transfer by Borrower of any of its rights and obligations under any Loan Document or release Borrower of its payment obligations under any Loan Document, except, in each case with respect to this clause (F), pursuant to a merger or consolidation permitted pursuant to this Agreement; (G) amend any of the provisions of Section 9.4 or amend any of the definitions of Pro Rata Share, Term Loan Commitment, Commitment Percentage or that provide for the Lenders to receive their Pro Rata Shares of any fees, payments, setoffs or proceeds of Collateral hereunder; (H) subordinate the Liens granted in favor of Collateral Agent securing the Obligations; or (I) amend any of the provisions of Section 12.10. It is hereby understood and agreed that all Lenders shall be deemed directly affected by an amendment, waiver or other modification of the type described in the preceding clauses (C), (D), (E), (F), (G) and (H) of the preceding sentence;

(iv) the provisions of the foregoing clauses (i), (ii) and (iii) are subject to the provisions of any interlender or agency agreement among the Lenders and Collateral Agent pursuant to which any Lender may agree to give its consent in connection with any amendment, waiver or modification of the Loan Documents only in the event of the unanimous agreement of all Lenders.

(b) Other than as expressly provided for in Section 12.6(a)(i)-(iii), Collateral Agent may, if requested by the Required Lenders, from time to time designate covenants in this Agreement less restrictive by notification to a representative of Borrower.

(c) This Agreement and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Agreement and the Loan Documents merge into this Agreement and the Loan Documents.

12.7 **Counterparts.** This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.8 **Survival.** All covenants, representations and warranties made in this Agreement continue in full force and effect until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been satisfied. Without limiting the foregoing, except as otherwise provided in Section 4.1, the grant of security interest by Borrower in Section 4.1 shall survive until the termination of all Bank Services Agreements. The obligation of Borrower in Section 12.2 to indemnify each Lender and Collateral Agent, as well as the confidentiality provisions in Section 12.9 below, shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.9 **Confidentiality.** In handling any confidential information of Borrower, the Lenders and Collateral Agent shall exercise the same degree of care that it exercises for their own proprietary information, but disclosure of information may be made: (a) subject to the terms and conditions of this Agreement, to the Lenders' and Collateral

Agent's Subsidiaries or Affiliates, or in connection with a Lender's own financing or securitization transactions and upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction; (b) to prospective transferees (other than those identified in (a) above) or purchasers of any interest in the Credit Extensions (provided, however, the Lenders and Collateral Agent shall, except upon the occurrence and during the continuance of an Event of Default, obtain such prospective transferee's or purchaser's agreement to the terms of this provision or to similar confidentiality terms); (c) as required by law, regulation, subpoena, or other order; (d) to Lenders' or Collateral Agent's regulators or as otherwise required in connection with an examination or audit; (e) as Collateral Agent reasonably considers appropriate in exercising remedies under the Loan Documents; and (f) to third party service providers of the Lenders and/or Collateral Agent so long as such service providers have executed a confidentiality agreement with the Lenders and Collateral Agent with terms no less restrictive than those contained herein. Confidential information does not include information that either: (i) is in the public domain or in the Lenders' and/or Collateral Agent's possession when disclosed to the Lenders and/or Collateral Agent, or becomes part of the public domain after disclosure to the Lenders and/or Collateral Agent; or (ii) is disclosed to the Lenders and/or Collateral Agent by a third party, if the Lenders and/or Collateral Agent does not know that the third party is prohibited from disclosing the information. Collateral Agent and the Lenders may use confidential information for any purpose, including, without limitation, for the development of client databases, reporting purposes, and market analysis. The provisions of the immediately preceding sentence shall survive the termination of this Agreement. The agreements provided under this Section 12.9 supersede all prior agreements, understanding, representations, warranties, and negotiations between the parties about the subject matter of this Section 12.9.

12.10 **Right of Set Off.** Borrower hereby grants to Collateral Agent and to each Lender, a lien, security interestand right of set off as security for all Obligations to Collateral Agent and each Lender hereunder, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Collateral Agent or the Lenders or any entity under the control of Collateral Agent or the Lenders (including a Collateral Agent affiliate) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Collateral Agent or the Lenders may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations, provided that Collateral Agent shall use commercially reasonable efforts to promptly notify Borrower in writing of any such set- off. Notwithstanding the foregoing, in no event shall Collateral Agent's failure to notify Borrower pursuant to the foregoing sentence cause or result in any breach of this Agreement, subject Collateral Agent or any Lender to any liability or in any way limit or restrict any rights or remedies available to Collateral Agent or any Lender pursuant to this Agreement, any other Loan Document or otherwise. ANY AND ALL RIGHTS TO REQUIRE COLLATERAL AGENT TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

12.11 **Silicon Valley Bank as Agent**. Collateral Agent hereby appoints Silicon Valley Bank ("**SVB**") as its agent (and SVB hereby accepts such appointment) for the purpose of perfecting Collateral Agent's Liens in assets which, in accordance with Article 8 or Article 9, as applicable, of the Code can be perfected by possession or control, including without limitation, all deposit accounts maintained at SVB.

12.12 **Cooperation of Borrower.** If necessary, Borrower agrees to (i) execute any documents (including new Secured Promissory Notes) reasonably required to effectuate and acknowledge each assignment of a Term Loan Commitment or Loan to an assignee in accordance with Section 12.1, (ii) make Borrower's management available to meet with Collateral Agent and prospective participants and assignees of Term Loan Commitments or Credit Extensions (which meetings shall be conducted no more often than twice every twelve months unless an Event of Default has occurred and is continuing), and (iii) assist Collateral Agent or the Lenders in the preparation of information relating to the financial affairs of Borrower as any prospective participant or assignee of a Term Loan Commitment or Term Loan reasonably may request. Subject to the provisions of Section 12.9, Borrower authorizes each Lender to disclose to any prospective participant or assignee of a Term Loan Commitment, any and all information in such Lender's possession concerning Borrower and its financial affairs which has been delivered to such Lender by or on behalf of Borrower pursuant to this Agreement, or which has been delivered to such Lender by or on behalf of Borrower in connection with such Lender's credit evaluation of Borrower prior to entering into this Agreement.

13. DEFINITIONS

13.1 Definitions. As used in this Agreement, the following terms have the following meanings:

"**Account**" is any "account" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Borrower.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made.

"**Affiliate**" of any Person is a Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person's senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person's managers and members.

"**Agreement**" is defined in the preamble hereof.

"**Amortization Date**" is, with respect to a Term Loan, April 1, 2022. "**Annual Projections**" is defined in Section 6.2(a).

"**Anti-Terrorism Laws**" are any laws relating to terrorism or money laundering, including Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

"**Approved Fund**" is any (i) investment company, fund, trust, securitization vehicle or conduit that is (or willbe) engaged in making, purchasing, holding or otherwise investing in commercial loans and similar extensions of credit in the ordinary course of its business or (ii) any Person (other than a natural person) which temporarily warehouses loans for any Lender or any entity described in the preceding clause (i) and that, with respect to each of the preceding clauses (i) and (ii), is administered or managed by (a) a Lender, (b) an Affiliate of a Lender or (c) a Person (other than a natural person) or an Affiliate of a Person (other than a natural person) that administers or manages a Lender.

"**Approved Lender**" is defined in Section 12.1. "**Bank**" is defined in the preamble hereof.

"**Bank Services**" are any products, credit services, and/or financial accommodations previously, now, or hereafter provided to Borrower or any of its Subsidiaries by Bank or any Bank Affiliate, including, without limitation, any letters of credit, cash management services (including, without limitation, merchant services, direct deposit of payroll, business credit cards, and check cashing services), interest rate swap arrangements, and foreign exchange services as any such products or services may be identified in Bank's various agreements related thereto (each, a "**Bank Services Agreement**").

"**Basic Rate**" is, with respect to the Term Loan, the floating per annum rate of interest (based on a year of three hundred sixty (360) days) equal to the greater of (i) eight and seven one hundredths of one percent (8.07%) or (ii) the sum of (a) the greater of (1) the thirty (30) day U.S. LIBOR rate reported in the Wall Street Journal on the last Business Day of the month that immediately precedes the month in which the interest will accrue or (2) one and sixty- seven one hundredths of one percent (1.67%) plus (b) six and four tenths of one percent (6.40%). For the avoidance of doubt, the Basic Rate shall never be less than 8.07%. If The Wall Street Journal (or another nationally recognized rate reporting source acceptable to Collateral Agent) no longer reports the U.S. LIBOR Rate or if such interest rate no longer exists or if The Wall Street Journal no longer publishes the U.S. LIBOR Rate or ceases to exist, Collateral Agent may in good faith, and with reference to the margin above such interest rate in this definition, select a replacement interest rate and replacement margin above such interest rate that results in a substantially similar interest rate floor and total rate in effect immediately prior to the effectiveness of such replacement interest rate and

replacement margin, or replacement publication, as the case may be, and shall notify Borrower of such replacement interest rate and replacement margin or replacement publication. Notwithstanding the foregoing, the Basic Rate for the Term Loan for the period from the Effective Date through and including February 29, 2020 shall be eight and seven hundredths of one percent (8.07%).

"**Blocked Person**" is any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, ExecutiveOrder No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law, (d) a Person that commits, threatens or conspires to commit or supports "terrorism" as defined in Executive Order No. 13224, or
(e) a Person that is named a "specially designated national" or "blocked person" on the most current list published by OFAC or other similar list.

"**Borrower**" is defined in the preamble hereof.

"**Borrower's Books**" are Borrower's or any of its Subsidiaries' books and records including ledgers, federal, and state tax returns, records regarding Borrower's or its Subsidiaries' assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Collateral Agent is closed. '**Cash Equivalents**" are (a) marketable direct obligations issued or unconditionally guaranteed by the United

States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition;
(b) commercial paper or other debt securities maturing no more than one (1) year after the date of acquisition and a rating of at least A (or the equivalent) from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc., (c) time deposits, certificates of deposit and bankers' acceptances maturing no more than one (1) year after the date of acquisition, provided that the account in which any such time deposit, certificate of deposit or bankers' acceptance is maintained is subject to a Control Agreement in favor of Collateral Agent, (d) demand deposits and overnight bank deposits, provided that the account in which any such deposit is maintained is subject to a Control Agreement in favor of Collateral Agent, (e) money market funds that invest in short term investment grade investments, provided that the account in which any such money market funds are maintained is subject to a Control Agreement in favor of Collateral Agent, and (f) investments similar to those described in clauses (a) through (e) above that are permitted pursuant to Borrower's investment policy as approved by the Board of Directors of Borrower from time to time, provided that such investment policy (and any such amendment thereto) has been approved in writing by Collateral Agent. For the avoidance of doubt, the direct purchase by Borrower or any of its Subsidiaries of any Auction Rate Securities, or purchasing participations in, or entering into any type of swap or other derivative transaction, or otherwise holding or engaging in any ownership interest in any type of Auction Rate Security by Borrower or any of its Subsidiaries shall be conclusively determined by the Lenders as an ineligible Cash Equivalent, and any such transaction shall expressly violate each other provision of this Agreement governing Permitted Investments. Notwithstanding the foregoing, Cash Equivalents does not include and Borrower, and each of its Subsidiaries, are prohibited from purchasing, purchasing participations in, entering into any type of swap or other equivalent derivative transaction, or otherwise holding or engaging in any ownership interest in any type of debt instrument, including, without limitation, any corporate or municipal bonds with a long-term nominal maturity for which the interest rate is reset through a dutch auction and more commonly referred to as an auction rate security (each, an "**Auction Rate Security**").

"**Claims**" are defined in Section 12.2.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of California; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Collateral Agent's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of California, the term "Code" shall mean the Uniform Commercial Code as enacted and in effect in such other

jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collaboration Agreement**" means that certain Amended and Restated Collaboration and License Agreement entered into by the Borrower and Celgene Corporation as of August 2, 2017.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account, or any other bank account maintained by Borrower or any Subsidiary at any time.

"**Collateral Agent**" is, Oxford, not in its individual capacity, but solely in its capacity as agent on behalf of and for the benefit of the Lenders.

"**Commitment Percentage**" is set forth in Schedule 1.1, as amended from time to time.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made.

"**Communication**" is defined in Section 10.

"**Compliance Certificate**" is that certain certificate in the form attached hereto as Exhibit C.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation directly or indirectly guaranteed, endorsed, co-made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) the net obligations in respect of any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower or any of its Subsidiaries maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower or any of its Subsidiaries maintains a Securities Account or a Commodity Account, Borrower and such Subsidiary, and Collateral Agent pursuant to which Collateral Agent obtains control (within the meaning of the Code) for the benefit of the Lenders over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" is any Term Loan or any other extension of credit by Collateral Agent or Lenders for Borrower's benefit.

"**Default Rate**" is defined in Section 2.3(b).

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Designated Deposit Account**" is Borrower's deposit account, account number *****3228, maintained with Bank.

"**Disbursement Letter**" is that certain form attached hereto as Exhibit B-1.

"**Dollar Equivalent**" is, at any time, (a) with respect to any amount denominated in Dollars, such amount, and (b) with respect to any amount denominated in a Foreign Currency, the equivalent amount therefor in Dollars as determined by Bank at such time on the basis of the then-prevailing rate of exchange in San Francisco, California, for sales of the Foreign Currency for transfer to the country issuing such Foreign Currency.

"**Dollars**," "**dollars**" and "$" each mean lawful money of the United States. "**Effective Date**" is defined in the preamble of this Agreement.

"**Eligible Assignee**" is (i) a Lender, (ii) an Affiliate of a Lender, (iii) an Approved Fund and (iv) any commercial bank, savings and loan association or savings bank or any other entity which is an "accredited investor" (as defined in Regulation D under the Securities Act of 1933, as amended) and which extends credit or buys loans as one of its businesses, including insurance companies, mutual funds, lease financing companies and commercial finance companies, in each case, which either (A) has a rating of BBB or higher from Standard & Poor's Rating Group and a rating of Baa2 or higher from Moody's Investors Service, Inc. at the date that it becomes a Lender or (B) has total assets in excess of Five Billion Dollars ($5,000,000,000.00), and in each case of clauses (i) through (iv), which, through its applicable lending office, is capable of lending to Borrower without the imposition of any withholding or similar taxes; provided that notwithstanding the foregoing, "Eligible Assignee" shall not include, unless an Event of Default has occurred and is continuing, (i) Borrower or any of Borrower's Affiliates or Subsidiaries or (ii) a direct competitor of Borrower or a vulture hedge fund, each as determined by Collateral Agent. Notwithstanding the foregoing, (x) in connection with assignments by a Lender due to a forced divestiture at the request of any regulatory agency, the restrictions set forth herein shall not apply and Eligible Assignee shall mean any Person or party and (y) in connection with a Lender's own financing or securitization transactions, the restrictions set forth herein shall not apply and Eligible Assignee shall mean any Person or party providing such financing or formed to undertake such securitization transaction and any transferee of such Person or party upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction; provided that no such sale, transfer, pledge or assignment under this clause (y) shall release such Lender from any of its obligations hereunder or substitute any such Person or party for such Lender as a party hereto until Collateral Agent shall have received and accepted an effective assignment agreement from such Person or party in form satisfactory to Collateral Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such Eligible Assignee as Collateral Agent reasonably shall require.

"**EMD License Agreement**" means that certain License Agreement entered into by the Borrower and Merck KGaA as of September 16, 2014.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, as amended, and its regulations. "**Existing Indebtedness**" is the indebtedness of Borrower to Oxford Finance LLC and Silicon Valley Bank in the aggregate principal outstanding amount as of the Effective Date of approximately Nine Million Dollars ($9,000,000.00) pursuant to that certain Loan and Security Agreement, dated August 4, 2017, as amended and restated from time to time, entered into by and among Oxford Finance LLC, Silicon Valley Bank and Borrower.

"**Event of Default**" is defined in Section 8.

"**Final Payment**" is a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) due on the earliest to occur of (a) the Maturity Date, or (b) the acceleration of any

Term Loan, or (c) the prepayment of a Term Loan pursuant to Section 2.2(c) or (d), equal to the original principal amount of such Term Loan multiplied by the Final Payment Percentage, payable to Lenders in accordance with their respective Pro Rata Shares.

"**Final Payment Percentage**" is three and eighty-three one hundredths of one percent (3.83%). "**Foreign Currency**" means lawful money of a country other than the United States.
"**Foreign Subsidiary**" is a Subsidiary that is not an entity organized under the laws of the United States or any territory thereof.

"**Funding Date**" is any date on which a Credit Extension is made to or on account of Borrower which shall be a Business Day.

"**FX Contract**" is any foreign exchange contract by and between Borrower and Bank under which Borrower commits to purchase from or sell to Bank a specific amount of Foreign Currency on a specified date.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession in the United States, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" are all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, any trade secret rights, including any rights to unpatented inventions, payment intangibles, royalties, contract rights, goodwill, franchise agreements, purchase orders, customer lists, route lists, telephone numbers, domain names, claims, income and other tax refunds, security and other deposits, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Guarantor**" is any Person providing a Guaranty in favor of Collateral Agent.

"**Guaranty**" is any guarantee of all or any part of the Obligations, as the same may from time to time be amended, restated, modified or otherwise supplemented.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Indemnified Person**" is defined in Section 12.2.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief.

"**Insolvent**" means not Solvent.

"**Intellectual Property**" means all of Borrower's or any Subsidiary's right, title and interest in and to the following:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals, and domain names;

(c) any and all source code;

(d) any and all design rights which may be available to Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents. "**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of any Person's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance, payment or capital contribution to any Person.

"**Key Person**" is each of Borrower's (i) Chief Executive Officer, who is William Newell as of the Effective Date, and (ii) Chief Financial Officer, who is Edward C. Albini as of the Effective Date.

"**Lender**" is any one of the Lenders.

"**Lenders**" are the Persons identified on Schedule 1.1 hereto and each assignee that becomes a party to this Agreement pursuant to Section 12.1.

"**Lenders' Expenses**" are all audit fees and expenses, costs, and expenses (including reasonable attorneys' fees and expenses, as well as appraisal fees, fees incurred on account of lien searches, inspection fees, and filing fees) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred by Collateral Agent and/or the Lenders in connection with the Loan Documents.

"**Letter of Credit"** is a standby or commercial letter of credit issued by Bank upon request of Borrower based upon an application, guarantee, indemnity, or similar agreement.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest, or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement, the Warrants, the Perfection Certificates, each Compliance Certificate, each Disbursement Letter, each Loan Payment/Advance Request Form and any Bank Services

Agreement, the Post Closing Letter, each Guaranty, any subordination agreements, any note, or notes or guaranties executed by Borrower or any other Person, and any other present or future agreement entered into by Borrower, any Guarantor or any other Person for the benefit of the Lenders and Collateral Agent in connection with this Agreement; all as amended, restated, or otherwise modified.

"**Loan Payment/Advance Request Form**" is that certain form attached hereto as Exhibit B-2.

"**Material Adverse Change**" is (a) a material impairment in the perfection or priority of Collateral Agent's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, or operations or condition (financial or otherwise) of Borrower or, Borrower and each of its Subsidiaries, taken as a whole; or (c) a material impairment of the prospect of repayment of any portion of the Obligations.

"**Maturity Date**" is, for each Term Loan, March 1, 2024.

"**Merck Collaboration Agreement**" means that certain Exclusive Patent License and Research Collaboration Agreement entered into by the Borrower and Merck Sharp & Dohme Corp. as of July 23, 2018.

"**Obligations**" are all of Borrower's obligations to pay when due any debts, principal, interest, Lenders' Expenses, the Prepayment Fee, the Final Payment, and other amounts Borrower owes the Lenders now or later, in connection with, related to, following, or arising from, out of or under, this Agreement or, the other Loan Documents (other than the Warrants), or otherwise, including, without limitation, all obligations relating to letters of credit (including reimbursement obligations for drawn and undrawn letters of credit), cash management services, and foreign exchange contracts, if any, unless otherwise provided in any applicable Bank Services Agreement, and including interest accruing after Insolvency Proceedings begin (whether or not allowed) and debts, liabilities, or obligations of Borrower assigned to the Lenders and/or Collateral Agent, and the performance of Borrower's duties under the Loan Documents (other than the Warrants).

"**OFAC**" is the U.S. Department of Treasury Office of Foreign Assets Control.

"**OFAC Lists**" are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"**Payment Date**" is the first (1st) calendar day of each calendar month, commencing on April 1, 2020. "**Perfection Certificate**" and "**Perfection Certificates**" is defined in Section 5.1.

"Permitted Assignment" means an assignment (i) to Celgene Corporation by Borrower, or any of its Subsidiaries, of the composition of matter, methods of use, and formulation of each Nominated Development Candidate (as defined in the Collaboration Agreement) and corresponding Licensed Product (as defined in the Collaboration Agreement); provided that (a) in no event shall the foregoing include any SUTRO IP (as defined in the Collaboration Agreement); and (b) all upfront payments, milestone payments or other proceeds arising from the assignment that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement; (ii) to Merck Sharp & Dohme Corp. pursuant to the Merck Collaboration Agreement; provided

that (a) in no event shall the foregoing include any of Borrower's, or any of its Subsidiaries' background Intellectual Propertyand/or core technology (as such terms are to be defined in such license and/or collaboration agreement); and (b) all upfront payments, milestone payments or other proceeds arising from the assignment that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement; (iii) to Merck KGaA pursuant to the EMD License Agreement; provided that (a) in no event shall the foregoing include any of Borrower's, or any of its Subsidiaries' background Intellectual Property and/or core technology (as such terms are to be defined in such license and/or collaboration agreement); and (b) all upfront payments, milestone payments or other proceeds arising from the assignment that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement; and (iv) to a third party (other than Celgene Corporation, Merck Sharp & Dohme Corp. or Merck KGaA) by Borrower, or any of its Subsidiaries, of the composition of matter, methods of use, and formulation of any protein drug, antibody, antibody fragment, or antibody-drug conjugate identified as a development candidate or licensed product, in connection with such license and/or collaboration agreement with such third party; provided that (a) in no event shall the foregoing include any of Borrower's, or any of its Subsidiaries' background Intellectual Property and/or core technology (as such terms are to be defined in such license and/or collaboration agreement); and (b) all upfront payments, milestone payments or other proceeds arising from the assignment that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement. In order for an assignment under the preceding sub-clause (iv) to meet the requirements of a "Permitted Assignment", Borrower shall obtain Collateral Agent's and the Required Lenders' prior written approval (such approval shall be in Collateral Agent's or the Required Lenders' sole but reasonable discretion) of (A) the proposed definitive license and/or collaboration agreement evidencing the final material terms of such assignment, or (B) in the event such assignment relates to a protein drug, antibody, antibody fragment, or antibody-drug conjugate or other candidate to be identified as part of a discovery program conducted by Borrower pursuant to a licensing and/or collaboration agreement with such third party, the proposed final term sheet for such license and/or collaboration, provided that the final definitive license and/or collaboration agreement is consistent in all material respects with such term sheet.

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to the Lenders and Collateral Agent under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and disclosed on the PerfectionCertificate(s);

(c) Subordinated Debt;

(d) unsecured Indebtedness to trade creditors incurred in the ordinary course ofbusiness;

(e) Indebtedness consisting of capitalized lease obligations and purchase money Indebtedness, in each case incurred by Borrower or any of its Subsidiaries to finance the acquisition, repair, improvement or construction of fixed or capital assets of such person, provided that (i) the aggregate outstanding principal amount of all such Indebtedness does not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any time and (ii) the principal amount of such Indebtedness does not exceed the lower of the cost or fair market value of the property so acquired or built or of such repairs or improvements financed with such Indebtedness (each measured at the time of such acquisition, repair, improvement or construction is made);

(f) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of Borrower'sbusiness;

(g) Indebtedness owed in respect of any obligations (including, without limitation, overdrafts and related liabilities) arising under the Bank Services Agreement; and

(h) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (e) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose materially more burdensome terms upon Borrower, or its Subsidiary, as the case maybe.

"**Permitted Investments**" are:

(a) Investments disclosed on the Perfection Certificate(s) and existing on the Effective Date;

(b) (i) Investments consisting of cash and Cash Equivalents, and (ii) any other Investments permitted by Borrower's investment policy, as amended from time to time, provided that such investment policy as approved by the Board of Directors of Borrower (and any such amendment thereto) has been approved in writing by Collateral Agent;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower;

(d) Investments consisting of deposit accounts in which Collateral Agent has a perfected security interest;

(e) Investments in connection with Transfers permitted by Section 7.1;

(f) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by Borrower's Board of Directors; not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate for (i) and (ii) in any fiscal year;

(g) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(h) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (h) shall not apply to Investments of Borrower in any Subsidiary; and

(i) non-cash Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the non-exclusive licensing of technology, the development of technology or the providing of technical support.

"**Permitted Licenses**" are (A) licenses of over-the-counter software that is commercially available to the public, (B) non-exclusive and exclusive licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries entered into in the ordinary course of business, provided, that, with respect to each such license described in clause (B), (i) no Event of Default has occurred or is continuing at the time of such license; (ii) the license constitutes an arms-length transaction, the terms of which, on their face, do not provide for a sale or assignment of any Intellectual Property and do not restrict the ability of Borrower or any of its Subsidiaries, as applicable, to pledge, grant a security interest in or lien on, or assign or otherwise Transfer any Intellectual Property; (iii) in the case of any exclusive license,
(x) Borrower delivers ten (10) days' prior written notice and a brief summary of the terms of the proposed license to Collateral Agent and the Lenders and delivers to Collateral Agent and the Lenders copies of the final executed licensing documents in connection with the exclusive license promptly upon consummation thereof, and (y) any such license could not result in a legal transfer of title of the licensed property but may be exclusive in respects other than territoryand may be exclusive as to territory only as to discrete geographical areas outside of the United States; and
(iv) all upfront payments, royalties, milestone payments or other proceeds arising from the licensing agreement that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement, (C) licenses to (I) Celgene Corporation pursuant to the Collaboration Agreement, (II) Merck Sharp & Dohme Corp. pursuant to the Merck Collaboration Agreement, (III) Merck KGaA pursuant to the EMD License Agreement and (IV) SutroVax, Inc. pursuant to the SutroVax Agreement; provided, that, with respect to each such license described in clause (C), (i) no Event of Default has occurred or is continuing at the time of such license;
(ii) such license could not result in a legal transfer of title of the licensed property (other than with respect to any PermittedAssignment); and (iii) all upfront payments, royalties, milestone payments or other proceeds arising from

the licensing agreement that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governedby a Control Agreement, and (D) licenses to any third party of any protein drug, antibody, antibody fragment or antibody-drug conjugate or other candidate, provided, that, with respect to each such license described in clause (D), (i) no Event of Default has occurred or is continuing at the time of such license; (ii) the license constitutes an arms-length transaction, the terms of which, on their face, do not provide for a sale or assignment of the applicable candidate (or any Intellectual Property associated therewith), other than with respect to any Permitted Assignment; (iii) (x) Borrower delivers to Collateral Agent and the Lenders copies of the final executed licensing documents in connectionwith the license promptly upon consummation thereof, and (y) any such license could not result in a legal transfer of title of the licensed property (other than with respect to any Permitted Assignment); and (iv) all upfront payments, royalties, milestone payments or other proceeds arising from the licensing agreement that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement. In order for a license under the preceding clause (D) to meet the requirements of a "Permitted License", Borrower shall obtain Collateral Agent's and the Required Lenders' prior written approval (such approval shall be in Collateral Agent's or the Required Lenders' sole but reasonable discretion) of (1) the proposed definitive license and/or collaboration agreement evidencing the final material terms of such license, or (2) in the event such license relates to a protein drug, antibody, antibody fragment, or antibody-drug conjugate to be identified as part of a discovery program conducted by Borrower pursuant to a licensing and/or collaboration agreement with such third party, the proposed final term sheet for such license and/or collaboration, provided that the final definitive license and/or collaboration agreement is consistent in all material respects with such term sheet.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and disclosed on the Perfection Certificates or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) liens securing Indebtedness permitted under clause (e) of the definition of "**Permitted Indebtedness**," provided that (i) such liens exist prior to the acquisition of, or attach substantially simultaneous with, or within twenty (20) days after the, acquisition, lease, repair, improvement or construction of, such property financed or leased by such Indebtedness and (ii) such liens do not extend to any property of Borrower other than the property (and proceeds thereof) acquired, leased or built, or the improvements or repairs, financed by such Indebtedness;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00), and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old-age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c)but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(g) leases or subleases of real property granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases, non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Collateral Agent or any Lender a security interesttherein;

(h) banker's liens, rights of setoff and Liens in favor of financial institutions incurred in the ordinarycourse of business arising in connection with Borrower's deposit accounts or securities accounts held at such institutions solely to secure payment of fees and similar costs and expenses and provided such accounts are maintained in compliance with Section 6.6(b) hereof;

(i) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 8.4 or 8.7;

(j) Liens consisting of Permitted Licenses, or of intercompany licenses to which only Borrower and Subsidiaries of Borrower that are Guarantors of the Obligations are party; and

(k) Liens constituting deposits to secure real property lease obligations as a lessee incurred by Borrower or any Subsidiary in the ordinary course of business, including cash and Cash Equivalents deposited as collateral in support of a letter of credit issued on behalf of Borrower or any Subsidiary in connection with the same, provided that the aggregate amount of all such deposits does not exceed One Million Seven Hundred Fifty Thousand Dollars ($1,750,000.00) at any time.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

"**Post Closing Letter**" is that certain Post Closing Letter dated as of the Effective Date by and between Collateral Agent and Borrower.

"**Prepayment Fee**" is, with respect to any Term Loan subject to prepayment prior to the Maturity Date, whether by mandatory or voluntary prepayment, acceleration or otherwise, an additional fee payable to the Lenders in amount equal to:

(i) for a prepayment made on or after the Funding Date of such Term Loan through and including the first anniversary of the Funding Date of such Term Loan, three percent (3.00%) of the principal amount of such Term Loan prepaid;

(ii) for a prepayment made after the date which is after the first anniversary of the Funding Date of such Term Loan through and including the second anniversary of the Funding Date of such Term Loan, two percent (2.00%) of the principal amount of the Term Loans prepaid; and

(iii) for a prepayment made after the second anniversary of the Funding Date of such Term Loan and prior to the Maturity Date, one percent (1.00%) of the principal amount of the Term Loans prepaid.

"**Pro Rata Share**" is, as of any date of determination, with respect to each Lender, a percentage (expressed as a decimal, rounded to the ninth decimal place) determined by dividing the outstanding principal amount of Term Loans held by such Lender by the aggregate outstanding principal amount of all Term Loans.

"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

"**Required Lenders**" means (i) for so long as all of the Persons that are Lenders on the Effective Date (each an "**Original Lender**") have not assigned or transferred any of their interests in their Term Loan, Lenders holding one hundred percent (100%) of the aggregate outstanding principal balance of the Term Loan, or (ii) at any time from and after any Original Lender has assigned or transferred any interest in its Term Loan, Lenders holding at least sixty six percent (66%) of the aggregate outstanding principal balance of the Term Loan and, in respect of this clause (ii),
(A) each Original Lender that has not assigned or transferred any portion of its Term Loan, (B) each assignee or transferee of an Original Lender's interest in the Term Loan, but only to the extent that such assignee or transferee is an Affiliate or Approved Fund of such Original Lender, and (C) any Person providing financing to any Person

described in clauses (A) and (B) above; provided, however, that this clause (C) shall only apply upon the occurrence of a default, event of default or similar occurrence with respect to such financing.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Responsible Officer**" is any of the President, Chief Executive Officer, or Chief Financial Officer of Borrower acting alone.

"**Second Draw Period**" is the period commencing on the date of the occurrence of the Term B Milestone Event and ending on the earliest of (i) December 31, 2020, (ii) the thirtieth (30th) day following the occurrence of the Term B Milestone Event, and (iii) the occurrence of an Event of Default; provided, however, that the Second Draw Period shall not commence if on the date of the occurrence of the Term B Milestone Event an Event of Default has occurred and is continuing.

"**Secured Promissory Note**" is defined in Section 2.4.

"**Secured Promissory Note Record**" is a record maintained by each Lender with respect to the outstanding Obligations owed by Borrower to Lender and credits made thereto.

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made.

"**Shares**" is one hundred percent (100%) of the issued and outstanding capital stock, membership units or other securities owned or held of record by Borrower or Borrower's Subsidiary, in any Subsidiary and/or in any other entity; provided that, in the event Borrower, demonstrates to Collateral Agent's reasonable satisfaction, that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary which is a Foreign Subsidiary, creates a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code, "Shares" shall mean sixty-five percent (65%) of the issued and outstanding capital stock, membership units or other securities owned or held of record by Borrower or its Subsidiary in such Foreign Subsidiary; provided, further, that the "Shares" shall not include any capital stock of SutroVax, Inc. for so long as such capital stock is subject to (a) a right of first refusal of the other equityholders of SutroVax, Inc., or (b) call options awarded to employees and other service providers of Borrower pursuant to the Sutro Biopharma, Inc. 2017 Call Option Plan adopted by Borrower's Board of Directors on February 6, 2017, provided that upon the termination, lapsing or expiration of both such rights of first refusal and such call options, such capital stock shall automatically become part of the "Shares."

"**Solvent**" is, with respect to any Person: the fair salable value of such Person's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of such Person's liabilities; such Person is not left with unreasonably small capital after the transactions in this Agreement; and such Person is able to pay its debts (including trade debts) as they mature.

"**Subordinated Debt**" is indebtedness incurred by Borrower or any of its Subsidiaries subordinated to all Indebtedness of Borrower and/or its Subsidiaries to the Lenders (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Collateral Agent and the Lenders entered into between Collateral Agent, Borrower, and/or any of its Subsidiaries, and the other creditor), on terms acceptable to Collateral Agent and the Lenders.

"**Subsidiary**" is, with respect to any Person, any Person of which more than fifty percent (50%) of the voting stock or other equity interests (in the case of Persons other than corporations) is owned or controlled, directly or indirectly, by such Person or through one or more intermediaries.

"**SutroVax Agreement**" means that certain Amended and Restated SutroVax Agreement entered into by the Borrower and SutroVax, Inc. as of October 12, 2015.

"**Term Loan**" is defined in Section 2.2(a)(ii) hereof. "**Term A Loan**" is defined in Section 2.2(a)(i) hereof.

"**Term B Loan**" is defined in Section 2.2(a)(ii) hereof.

"**Term B Milestone Event**" is the achievement by Borrower of the closing of a new collaboration agreement that includes an upfront payment of at least $50,000,000 to Borrower, as determined by Collateral Agent in its sole and absolute discretion.

"**Term Loan Commitment**" is, for any Lender, the obligation of such Lender to make a Term Loan, up to the principal amount shown on Schedule 1.1. "**Term Loan Commitments**" means the aggregate amount of such commitments of all Lenders.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

"**Transfer**" is defined in Section 7.1.

"**Warrants**" are those certain Warrants to Purchase Stock dated as of the Effective Date, or any date thereafter, issued by Borrower in favor of each Lender or such Lender's Affiliates.

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IN WITNESS WHEREOF, the parties hereto have caused this Agreement tobe executed as of the Effective Date.

BORR OWER :

SUTRO BIOPHARMA, INC.

+-1->"'--+-- -1-----=:.....: l..d'-
By_

Name: -'-'<'=r
Title:_ = = ------

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By
Name:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Title:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

LENDER:

SILICON VALLEY BANK

By_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Name:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Title:

[Signature Page to Loan and Security Agreement]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

BORROWER:

SUTRO BIOPHARMA, INC.

By_______
Name:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Title:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By____________________________
Name: Colette H. Featherly
Title: Senior Vice President

LENDER:

SILICON VALLEY BANK

By_ _ _ _ _ _ _ _ _ _ _ _ _ _
Nam_e:._ _ _ _ _ _ _ _ _ _ _ _ _ _
Title:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

[Signature Page to Loan and Security Agreement]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

BORROWER:

SUTRO BIOPHARMA, INC.

ByName:
Title:

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By
Name:
Title:

LENDER:

SILICON VALLEY BANK

Title:

[Signature Page to Loan and Security Agreement]

SCHEDULE 1.1

Lenders and Commitments

Term A Loans

Lender	Term A Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$16,666,667	66.67%
SILICON VALLEY BANK	$8,333,333	33.33%
TOTAL	**$25,000,000**	**100.00%**

Term B Loans

Lender	Term B Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$3,333,333	66.67%
SILICON VALLEY BANK	$1,666,667	33.33%
TOTAL	**$5,000,000**	**100.00%**

Aggregate (all Term Loans)

Lender	Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$20,000,000	66.67%
SILICON VALLEY BANK	$10,000,000	33.33%
TOTAL	**$30,000,000**	**100.00%**

EXHIBIT A

Description of Collateral

The Collateral consists of all of Borrower's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as noted below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the aboveand all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include (i) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property; provided, further, that if a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Collateral Agent's security interest in such Accounts and such other property of Borrower that are proceeds of the Intellectual Property; and (ii) more than 65% of the total combined voting power of all classes of stock entitled to vote the shares of capital stock (the "Shares") of any Foreign Subsidiary, if Borrower demonstrates to Collateral Agent's reasonable satisfaction that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary creates a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code; (iii) any license, lease or contract, in each case if the granting of a Lien in such license, lease or contract is prohibited by or would constitute a default under the agreement governing such license, lease or contract (but (A) only to the extent such prohibition is enforceable under applicable law and (B) other than to the extent that any such term would be rendered ineffective pursuant to Sections 9-406, 9-408 or 9-409 (or any other Section) of Division 9 of the Code); provided that upon the termination, lapsing or expiration of any such prohibition, such license, lease or contract, as applicable, shall automatically be subject to the security interest granted in favor of Collateral Agent hereunder and become part of the "Collateral"; and (iv) any capital stock of SutroVax, Inc. for so long as such capital stock is subject to (a) a right of first refusal of the other equityholders of SutroVax, Inc., or (b) call options awarded to employees and other service providers of Borrower pursuant to the Sutro Biopharma, Inc. 2017 Call Option Plan adopted by Borrower's Board of Directors on February 6, 2017, provided that upon the termination, lapsing or expiration of both such rights of first refusal and such call options, such capital stock shall automatically be subject to the security interest granted in favor of Collateral Agent hereunder and become part of the "Collateral."

Pursuant to the terms of a certain negative pledge arrangement with Collateral Agent and the Lenders, Borrower has agreed not to encumber any of its Intellectual Property.

EXHIBIT B-1

Form of Disbursement Letter

[see attached]

41422438v8

DISBURSEMENT LETTER

February ___, 2020

The undersigned, being the duly elected and acting_ of Sutro Biopharma, Inc., a Delaware corporation with offices located at 310 Utah Avenue, Suite 150, South San Francisco, CA 94080 ("**Borrower**"), does hereby certify, solely in his or her capacity as an officer of the Borrower, and not in any personal capacity, to **OXFORD FINANCE LLC** ("**Oxford**" and "**Lender**"), as collateral agent (the "**Collateral Agent**") in connection with that certain Loan and Security Agreement dated as of February 28, 2020, by and among Borrower, Collateral Agent and the Lenders from time to time party thereto (the "**Loan Agreement**"; with other capitalized terms used below having the meanings ascribed thereto in the Loan Agreement) that:

1. The representations and warranties made by Borrower in Section 5 of the Loan Agreement and in the other Loan Documents are true and correct in all material respects as of the datehereof.

2. No event or condition has occurred that would constitute an Event of Default under the Loan Agreement or any other LoanDocument.

3. Borrower is in compliance with the covenants and requirements contained in Sections 4, 6 and 7 of the Loan Agreement.

4. All conditions referred to in Section 3 of the Loan Agreement to the making of the Loan to be made on or about the date hereof have been satisfied or waived by Collateral Agent.

5. No Material Adverse Change has occurred.

6. The undersigned is a Responsible Officer.

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7. The proceeds of the Term [A][B] Loan shall be disbursed as follows:

Disbursement from Oxford:		
Loan Amount	$25,000,000	
Plus:		
--Deposit Received		$50,000
Less:		
--Interim Interest	($)	
--Lender's Legal Fees	($)*	
Net Proceeds due from Oxford:	**$**	
TOTAL TERM [A][B] LOAN NET PROCEEDS FROM LENDERS	**$**	

8. The [initial][Term Loan][Term A Loan] shall amortize in accordance with the Amortization Table attached hereto.

9. The aggregate net proceeds of the Term Loans shall be transferred to the Designated Deposit Account as follows:

Account Name:	Sutro Biopharma, Inc.
Bank Name:	[Silicon Valley Bank]
Bank Address:	[3003 Tasman Drive Santa Clara, California 95054]
Account Number:	_ABA Number: [121140399]

[Balance of Page Intentionally Left Blank]

* Legal fees and costs are through the Effective Date. Post-closing legal fees and costs, payable after the Effective Date, to be invoiced and paid post-closing.

Dated as of the date first set forth above.

BORROWER:

SUTRO BIOPHARMA, INC.

By
Name: Title:

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By
Name: Title:

LENDER:

SILICON VALLEY BANK

By
Name: Title:

[*Signature Page to Disbursement Letter*]

41422438v8

AMORTIZATION TABLE
(Term [A][B] Loan) [see attached]

41422438v8

EXHIBIT B-2

Loan Payment/Advance Request Form

DEADLINE FOR SAME DAY PROCESSING IS NOON PACIFIC TIME*

Fax To: Date:
Phone Number:
Authorized Signature:
Print Name/Title:
To Account #
(Loan Account #)

and/or Interest $
From Account #
(Deposit Account #)

Principal $
Sutro Biopharma, Inc.
LOAN PAYMENT:
Phone Number:
Authorized Signature:
Print Name/Title:
Amount of Advance $

All Borrower's representations and warranties in the Loan and Security Agreement are true, correct and complete in all material respects on the date of the request for an advance; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date
shall be true, accurate and complete in all material respects as of such date:
To Account #
(Deposit Account #)

From Account #
(Loan Account #)

LOAN ADVANCE:

Complete *Outgoing Wire Request* section below if all or a portion of the funds from this loan advance are for an outgoing wire.
2nd Signature (if required): Print Name/Title:
Telephone #:
Authorized Signature: Print Name/Title:
Telephone #:
For Further Credit to:

Special Instruction:
By signing below, I (we) acknowledge and agree that my (our) funds transfer request shall be processed in accordance with and subject to the terms and conditions set forth in the agreements(s) covering funds transfer service(s), which agreements(s) were previously received and executed by me (us).
Beneficiary Bank Code (Swift, Sort, Chip, etc.):
(For International Wire Only)
Transit (ABA) #:
Beneficiary Bank Transit (ABA) #:

Intermediary Bank:
Amount of Wire: $
Account Number:
Beneficiary Name:
Beneficiary Bank: City and State:

OUTGOING WIRE REQUEST:
Complete only if all or a portion of funds from the loan advance above is to be wired.
Deadline for same day processing is noon, Pacific Time

EXHIBIT C

Compliance Certificate

TO: OXFORD FINANCE LLC, as Collateral Agent and Lender SILICON VALLEY BANK, as Lender

FROM: SUTRO BIOPHARMA, INC.

The undersigned authorized officer ("**Officer**") of Sutro Biopharma, Inc. ("**Borrower**"), hereby certifies that in accordance with the terms and conditions of the Loan and Security Agreement by and among Borrower, Collateral Agent, and the Lenders from time to time party thereto (the "**Loan Agreement**;" capitalized terms used but not otherwise defined herein shall have the meanings given them in the Loan Agreement),

(a) Borrower is in complete compliance for the period ending with all required covenants except as noted below;

(b) There are no Events of Default, except as noted below;

(c) Except as noted below, all representations and warranties of Borrower stated in the Loan Documents are true and correct in all material respects on this date and for the period described in (a), above; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date;

(d) Borrower, and each of Borrower's Subsidiaries, has timely filed all required tax returns and reports, Borrower, and each of Borrower's Subsidiaries, has timely paid all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower, or Subsidiary, except as otherwise permitted pursuant to the terms of Section 5.8 of the Loan Agreement; and

(e) No Liens have been levied or claims made against Borrower or any of its Subsidiaries relating to unpaid employee payroll or benefits of which Borrower has not previously provided written notification to Collateral Agent and the Lenders.

Attached are the required documents, if any, supporting our certification(s). The Officer, on behalf of Borrower, further certifies that the attached financial statements are prepared in accordance with Generally Accepted Accounting Principles (GAAP) and are consistently applied from one period to the next except as explained in an accompanying letter or footnotes and except, in the case of unaudited financial statements, for the absence of footnotes and subject to year-end GAAP and audit adjustments as to the interim financial statements.

Please indicate compliance status since the last Compliance Certificate by circling Yes, No, or N/A under "Complies" column.

	Reporting Covenant	**Requirement**		**Actual**	
1)	Financial statements	Quarterly within 40 days	Yes	No	N/A
2)	Annual (CPA Audited) statements	Within 90 days after FYE	Yes	No	N/A
3)	Annual Financial Projections/Budget (prepared on a monthly basis)	Annually (within 30 days of FYE), and when revised	Yes	No	N/A
4)	A/R & A/P agings	If applicable	Yes	No	N/A

5) 8-K, 10-K and 10-Q FilingsIf applicable, within 5 days of filingYesNoN/A

6) Compliance CertificateMonthly within 30 daysYesNoN/A

7) IP ReportWhen requiredYesNoN/A Total amount of Borrower's and Borrower's Subsidiaries

8)

unrestricted cash and cash equivalents at the last day of the prior measurement period	$	Yes	No
Net change in Borrower's and Borrower's Subsidiaries' unrestricted cash and cash equivalents since the last day of the prior measurement period			

9)

Total amount of Borrower's and Borrower's Subsidiaries' unrestricted cash and cash equivalents at the last day of the measurement period	$	Yes	No

10)

	$	Yes	No

Deposit and Securities Accounts
(Please list all accounts; attach separate sheet if additional space needed)

	Institution Name	Account Number		New Account?		Account Control Agreement in place?
1)	Yes	No	Yes	No		
2)	Yes	No	Yes	No		
3)	Yes	No	Yes	No		
4)	Yes	No	Yes	No		

Financial Covenants

	Covenant	Requirement	Actual
1)	None.		

Other Matters

1) Have there been any changes in management since the last Compliance Certificate? Yes No

2) Have there been any transfers/sales/disposals/retirement of Collateral or IP prohibited by the Loan Agreement? Yes No

3) Have there been any new or pending claims or causes of action against Borrower that involve more than Two Hundred Fifty Thousand Dollars ($250,000.00)? Yes No

4)	Have there been any material amendments of or other material changes to the capitalization table of Borrower and any amendments of or other changes to the Operating Documents of Borrower or any of its Subsidiaries? If yes, provide copies of any such amendments or changes with this Compliance Certificate.	Yes	No

Exceptions

Please explain any exceptions with respect to the certification above: (If no exceptions exist, state "No exceptions." Attach separate sheet if additional space needed.)

SUTRO BIOPHARMA, INC.

By
Name: Title:

Date:

LENDER USE ONLY

Received by:

Verified by:

Compliance
Status: Yes

41422438v8

EXHIBIT D

Form of Secured Promissory Note

[see attached]

41422438v8

SECURED PROMISSORY NOTE
(Term [A][B] Loan)

$_ Dated: [DATE]

FOR VALUE RECEIVED, the undersigned, Sutro Biopharma, Inc., a Delaware corporation with offices located at 310 Utah Avenue, Suite 150, South San Francisco, CA 94080 ("**Borrower**") HEREBY PROMISES TO PAY to the order of [OXFORD FINANCE LLC][SILICON VALLEY BANK] (" **Lender**") the principal amount of [_] MILLION DOLLARS ($_) or such lesser amount as shall equal the outstanding principal balance of the Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated February 28, 2020 by and among Borrower, Lender, Oxford Finance LLC, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Term[A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2 (c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Term[A][B] Loan, interest on the Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all out-of-pocket fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of California.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person orentity.

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IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

SUTRO BIOPHARMA, INC.

By
Name:
Title:

41422438v8

LOAN INTEREST RATE AND PAYMENTS OF PRINCIPAL

Date

Principal Amount	Interest Rate	Scheduled Payment Amount By	Notation

CORPORATE BORROWING CERTIFICATE

BORROWER: SUTRO BIOPHARMA, INC. **DATE**: February_, 2020
LENDERS: OXFORD FINANCE LLC, as Collateral Agent and Lender SILICON VALLEY BANK, asLender

I hereby certify, solely in my capacity as an officer of the Borrower, and not in any personal capacity, as follows, as of the date set forth above:

1. I am the Secretary, Assistant Secretary or other officer of Borrower. My title is as set forthbelow.

2. Borrower's exact legal name is set forth above. Borrower is a corporation existing under the laws of the State of Delaware.

3. Attached hereto as Exhibit A and Exhibit B, respectively, are true, correct and complete copies of (i) Borrower's Restated Certificate of Incorporation, as filed with the Secretary of State of the state in which Borrower is incorporated as set forth in paragraph 2 above; and (ii) Borrower's Restated Bylaws. Neither such Certificate of Incorporation nor such Bylaws have been further amended, annulled, rescinded, revoked or supplemented, and such Certificate of Incorporation and such Bylaws remain in full force and effect as of the date hereof.

4. The following resolutions were duly and validly adopted by the Borrower's Board of Directors at a duly held meeting of such directors. Such resolutions are in full force and effect as of the date hereof and have not been in any way modified, repealed, rescinded, amended or revoked, and the Lenders may rely on them until each Lender receives written notice of revocation from Borrower.

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RESOLVED, that **any one** of the following officers or employees of Borrower, whose names, titles and signatures are below, may act on behalf of Borrower:

Name	Title	Signature	Authorized to Add or Remove Signatories
William Newell	Chief Executive Officer		X
Edward C. Albini	Chief Financial Officer		X
			□
			□

RESOLVED FURTHER, that **any one** of the persons designated above with a checked box beside his or her name may, from time to time, add or remove any individuals to and from the above list of persons authorized to act on behalf of Borrower.

RESOLVED FURTHER, that such individuals may, on behalf of Borrower:

Borrow Money. Borrow money from the Lenders.
Execute Loan Documents. Execute any loan documents any Lender requires.
Grant Security. Grant Collateral Agent a security interest in any of Borrower's assets.
Negotiate Items. Negotiate or discount all drafts, trade acceptances, promissory notes, or other indebtedness in which Borrower has an interest and receive cash or otherwise use the proceeds.
Issue Warrants. Issue warrants for Borrower's capital stock.
Further Acts. Designate other individuals to request advances, pay fees and costs and execute other documents or agreements (including documents or agreement that waive Borrower's right to a jury trial) they believe to be necessary to effectuate such resolutions.

RESOLVED FURTHER, that all acts authorized by the above resolutions and any prior acts relating thereto are ratified.

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5. The persons listed above are Borrower's officers or employees with their titles and signatures shown next to their names.

By:

Name: Title:

[*Signature Page to Corporate Borrowing Certificate*]

EXHIBIT A

Restated Certificate of Incorporation

[see attached]

41422438v8

EXHIBIT B

Restated Bylaws

[see attached]

41422438v8

DEBTOR: SUTRO BIOPHARMA, INC. SECURED
PARTY: OXFORD FINANCE LLC,
as Collateral Agent

EXHIBIT A TO UCC FINANCING STATEMENT

Description of Collateral

The Collateral consists of all of Debtor's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as noted below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Debtor's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include (i) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property; provided, further, that if a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Secured Party's security interest in such Accounts and such other property of Debtor that are proceeds of the Intellectual Property; and (ii) more than 65% of the total combined voting power of all classes of stock entitled to vote the shares of capital stock (the "Shares") of any Foreign Subsidiary, if Debtor demonstrates to Secured Party's reasonable satisfaction that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary creates a present and existing adverse tax consequence to Debtor under the U.S. Internal Revenue Code; (iii) any license, lease or contract, in each case if the granting of a Lien in such license, lease or contract is prohibited by or would constitute a default under the agreement governing such license, lease or contract (but (A) only to the extent such prohibition is enforceable under applicable law and (B) other than to the extent that any such term would be rendered ineffective pursuant to Sections 9-406, 9-408 or 9-409 (or any other Section)of Division 9 of the Code); provided that upon the termination, lapsing or expiration of any such prohibition, such license, lease or contract, as applicable, shall automatically be subject to the security interest granted in favor of Secured Party hereunder and become part of the "Collateral"; and (iv) any capital stock of SutroVax, Inc. for so long as such capital stock is subject to (a) a right of first refusal of the other equityholders of SutroVax, Inc., or (b) call options awarded to employees and other service providers of Borrower pursuant to the Sutro Biopharma, Inc. 2017 Call Option Plan adopted by Debtor's Board of Directors on February 6, 2017, provided that upon the termination, lapsing or expiration of both such rights of first refusal and such call options, such capital stock shall automatically be subject to the security interest granted in favor of Secured Party hereunder and become part of the "Collateral."

Pursuant to the terms of a certain negative pledge arrangement with Secured Party and the Lenders, Debtor has agreed not to encumber any of its Intellectual Property.

Capitalized terms used but not defined herein have the meanings ascribed in the Uniform Commercial Code in effect in the State of California as in effect from time to time (the "Code") or, if not defined in the Code, then in the Loan and Security Agreement by and between Debtor, Secured Party and the other Lenders party thereto (as modified, amended and/or restated from time to time).

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER SAID ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED.

WARRANT TO PURCHASE STOCK

Company:	Sutro Biopharma, Inc., a Delaware corporation
Number of Shares:	[3.00% of the Holder's Term Loan amount using a per share strike price equal to the lower of the average closing price for the previous 10 days of trading (calculated on the day prior to funding) or the closing price on the day prior to funding.]
Type/Series of Stock:	Common Stock
Warrant Price:	$[_____] per share
Issue Date:	February __, 2020
Expiration Date:	February __, 2030. See also Section 5.1(b).
Credit Facility:	This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Loan and Security Agreement of even date herewith among Oxford Finance LLC, as Lender and Collateral Agent, the Lenders from time to time party thereto, including Silicon Valley Bank, and the Company (as modified, amended and/or restated from time to time, the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, OXFORD FINANCE LLC ("**Oxford**" and, together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means (i) any consolidation, merger or acquisition in which the Company is a constituent party (but excluding any merger effected solely for the purpose of reincorporating into another state), or any other corporate reorganization (including, without limitation, any consolidation, merger or acquisition in which a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger, consolidation or acquisition), in which, in each case, the stockholders of the Company immediately prior to such consolidation, merger, acquisition or reorganization, own less than 50% of the voting power of the surviving or successor entity or its parent immediately after such consolidation, merger, acquisition or reorganization; (ii) any transaction or series of related transactions to which the Company is a party in which in excess of fifty percent (50%) of the Company's voting power is transferred, excluding any consolidation or merger effected solely for the purpose of reincorporating into another state; or (iii) any sale, lease, transfer, exclusive license or other disposition by the Company or any subsidiary or subsidiaries of the Company of all or substantially all of the assets of the Company and its subsidiaries taken as a whole (or, if substantially all of the assets of the Company and its subsidiaries taken as a whole are held by one or more subsidiaries, the sale or disposition (whether by consolidation, merger, conversion or otherwise) of such subsidiaries of the Company or all or substantially all of the assets of such subsidiaries), except where such sale, lease, transfer, exclusive license or other disposition is made to the Company or one or more wholly owned subsidiaries of the Company. Notwithstanding the foregoing, no transaction or series of related transactions principally for bona fide equity financing purposes in which cash is received by the Company or indebtedness of the Company is cancelled or converted, or a combination thereof, nor the transfer by any stockholder of shares of the Company's capital stock to any third party in a transaction or series of related transactions to which the Company is not a party, shall be an Acquisition for purposes of this Warrant.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in a Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received

had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations, substitutions, replacements or other similar events.

2.3 Reserved.

2.4 Reserved.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the per share strike price equal to the lower of the average closing price for the previous 10 days of trading (calculated on the day prior to funding) or the closing price on the day prior to funding.[1]

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class; or

(d) effect an Acquisition or to liquidate, dissolve or wind up;

11 NTD: While the price will be set for the initial warrant, having the mechanics here for guidance when the additional warrants are issued provide a benefit for retaining this language as drafted in the warrants.

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above; and

(2) in the case of the matters referred to in (c) and (d) above, at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event).

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements.

SECTION 4. REPRESENTATIONS AND WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless an exemption from such registration and qualification is otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Reserved.

4.7 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term; Automatic Cashless Exercise Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Eastern time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. Each certificate evidencing Shares (and each certificate evidencing the securities issued upon conversion of any Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO OXFORD FINANCE LLC DATED FEBRUARY [__], 2020, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO THE SHARES UNDER SAID ACT OR AN OPINION OF COUNSEL, SATISFACTORY TO THE ISSUER, THAT SUCH REGISTRATION IS NOT REQUIRED.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issued upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to an affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act.

5.4 Transfer Procedure. After receipt by Oxford of the executed Warrant, Oxford may transfer all or part of this Warrant to one or more of Oxford's affiliates (each, an "**Oxford Affiliate**"), by execution of an Assignment substantially in the form of Appendix 2. Subject to the provisions of Article 5.3 and upon providing the Company with written notice, Oxford, any such Oxford Affiliate and any subsequent Holder, may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the Shares issuable directly or indirectly, upon conversion of the Shares, if any) to any other transferee, provided, however, in connection with any such transfer, the Oxford Affiliate(s) or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the

transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable).

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

Oxford Finance LLC
133 N. Fairfax Street
Alexandria, VA 22314
Attn: Legal Department
Telephone: (703) 519-4900
Facsimile: (703) 519-5225
Email: LegalDepartment@oxfordfinance.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Sutro Biopharma, Inc.
310 Utah Avenue, Suite 150
South San Francisco, CA 94080
Attn: Edward Albini
Email: ealbini@sutrobio.com

With a copy (which shall not constitute notice) to:

Fenwick & West LLP
1191 Second Ave., 10th Floor
Seattle, WA 98101
Attn: Amanda Rose
Facsimile: 415-281-1350
Email: arose@fenwick.com

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]

[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

SUTRO BIOPHARMA, INC.

By:

Name:
(Print)
Title:

"HOLDER"

OXFORD FINANCE LLC

By:

Name:
(Print)
Title:

[*Signature Page to Warrant to Purchase Stock*]

APPENDIX 1

NOTICE OF EXERCISE

1. The undersigned Holder hereby exercises its right to purchase _____ shares of the Common Stock of Sutro Biopharma, Inc. (the "**Company**") in accordance with the attached Warrant To Purchase Stock, and tenders payment of the aggregate Warrant Price for such shares as follows:

[ ] check in the amount of $_____ payable to the order of the Company enclosed herewith

[ ] Wire transfer of immediately available funds to the Company's account

[ ] Cashless Exercise pursuant to Section 1.2 of the Warrant

[ ] Other [Describe] _____

2. Please issue a certificate or certificates representing the Shares in the name specified below:

Holder's Name

(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Section 4 of the Warrant to Purchase Stock as of the date hereof.

HOLDER:

By:

Name:

Title:

Date:

APPENDIX 2

ASSIGNMENT

For value received, Oxford Finance LLC hereby sells, assigns and transfers unto

Name: [OXFORD TRANSFEREE]

Address:

Tax ID:]

that certain Warrant to Purchase Stock issued by Sutro Biopharma, Inc. (the "**Company**"), on February __, 2020 (the "**Warrant**") together with all rights, title and interest therein.

OXFORD FINANCE LLC

By:

Name:

Title:

Date:

By its execution below, and for the benefit of the Company, [OXFORD TRANSFEREE] makes each of the representations and warranties set forth in Article 4 of the Warrant and agrees to all other provisions of the Warrant as of the date hereof.

[OXFORD TRANSFEREE]

By:

Name:

Title:

Schedule 1

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER SAID ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED.

WARRANT TO PURCHASE STOCK

Company:	Sutro Biopharma, Inc., a Delaware corporation
Number of Shares:	[3.00% of the Holder's Term Loan amount using a per share strike price equal to the lower of the average closing price for the previous 10 days of trading (calculated on the day prior to funding) or the closing price on the day prior to funding.]
Type/Series of Stock:	Common Stock
Warrant Price:	$[_____] per share
Issue Date:	February __, 2020
Expiration Date:	February __, 2030. See also Section 5.1(b).
Credit Facility:	This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Loan and Security Agreement of even date herewith among Oxford Finance LLC, as Lender and Collateral Agent, the Lenders from time to time party thereto, including Silicon Valley Bank, and the Company (as modified, amended and/or restated from time to time, the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "**Shares**") of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means (i) any consolidation, merger or acquisition in which the Company is a constituent party (but excluding any merger effected solely for the purpose of reincorporating into another state), or any other corporate reorganization (including, without limitation, any consolidation, merger or acquisition in which a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger, consolidation or acquisition), in which, in each case, the stockholders of the Company immediately prior to such consolidation, merger, acquisition or reorganization, own less than 50% of the voting power of the surviving or successor entity or its parent immediately after such consolidation, merger, acquisition or reorganization; (ii) any transaction or series of related transactions to which the Company is a party in which in excess of fifty percent (50%) of the Company's voting power is transferred, excluding any consolidation or merger effected solely for the purpose of reincorporating into another state; or (iii) any sale, lease, transfer, exclusive license or other disposition by the Company or any subsidiary or subsidiaries of the Company of all or substantially all of the assets of the Company and its subsidiaries taken as a whole (or, if substantially all of the assets of the Company and its subsidiaries taken as a whole are held by one or more subsidiaries, the sale or disposition (whether by consolidation, merger, conversion or otherwise) of such subsidiaries of the Company or all or substantially all of the assets of such subsidiaries), except where such sale, lease, transfer, exclusive license or other disposition is made to the Company or one or more wholly owned subsidiaries of the Company. Notwithstanding the foregoing, no transaction or series of related transactions principally for bona fide equity financing purposes in which cash is received by the Company or indebtedness of the Company is cancelled or converted, or a combination thereof, nor the transfer by any stockholder of shares of the Company's capital stock to any third party in a transaction or series of related transactions to which the Company is not a party, shall be an Acquisition for purposes of this Warrant.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in a Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received

had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations, substitutions, replacements or other similar events.

2.3 Reserved.

2.4 Reserved.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the per share strike price equal to the lower of the average closing price for the previous 10 days of trading (calculated on the day prior to funding) or the closing price on the day prior to funding.[1]

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class; or

(d) effect an Acquisition or to liquidate, dissolve or wind up;

11 NTD: While the price will be set for the initial warrant, having the mechanics here for guidance when the additional warrants are issued provide a benefit for retaining this language as drafted in the warrants.

then, in connection with each such event, the Company shall give Holder:

(1) at least seven (7) Business Days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above; and

(2) in the case of the matters referred to in (c) and (d) above, at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event).

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements.

SECTION 4. REPRESENTATIONS AND WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless an exemption from such registration and qualification is otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Reserved.

4.7 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term; Automatic Cashless Exercise Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. Each certificate evidencing Shares (and each certificate evidencing the securities issued upon conversion of any Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT** "), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED FEBRUARY [__], 2020, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO THE SHARES UNDER SAID ACT OR AN OPINION OF COUNSEL, SATISFACTORY TO THE ISSUER, THAT SUCH REGISTRATION IS NOT REQUIRED.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issued upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and

taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HA 200
Santa Clara, CA 95054
Telephone: 408-654-7400
Facsimile: 408-496-2405
Email: warradmi@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Sutro Biopharma, Inc.
310 Utah Avenue, Suite 150
South San Francisco, CA 94080
Attn: Edward Albini
Email: ealbini@sutrobio.com

With a copy (which shall not constitute notice) to:

Fenwick & West LLP
1191 Second Ave., 10th Floor
Seattle, WA 98101
Attn: Amanda Rose
Facsimile: 415-281-1350
Email: arose@fenwick.com

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]

[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

SUTRO BIOPHARMA, INC.

By:

Name:
(Print)
Title:

"HOLDER"

SILICON VALLEY BANK

By:

Name:
(Print)
Title:

[*Signature Page to Warrant to Purchase Stock*]

APPENDIX 1

NOTICE OF EXERCISE

1. The undersigned Holder hereby exercises its right to purchase _____ shares of the Common Stock of Sutro Biopharma, Inc. (the "**Company**") in accordance with the attached Warrant To Purchase Stock, and tenders payment of the aggregate Warrant Price for such shares as follows:

[ ] check in the amount of $_____ payable to the order of the Company enclosed herewith

[ ] Wire transfer of immediately available funds to the Company's account

[ ] Cashless Exercise pursuant to Section 1.2 of the Warrant

[ ] Other [Describe] _____

2. Please issue a certificate or certificates representing the Shares in the name specified below:

Holder's Name

(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Section 4 of the Warrant to Purchase Stock as of the date hereof.

HOLDER:

By:

Name:

Title:

Date:

Schedule 1

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Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements (Form S-8 Nos. 333-227551 and 333-230641) of Sutro Biopharma, Inc and the Registration Statement (Form S-3 No. 333-234101) and related base prospectus and sales agreement prospectus of Sutro Biopharma, Inc. of our report dated March 13, 2020, with respect to the financial statements of Sutro Biopharma, Inc., included in this Annual Report (Form 10-K) for the year ended December 31, 2019.

/s/ Ernst & Young LLP

Redwood City, California
March 13, 2020

Exhibit 31.1

CERTIFICATION 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, William J. Newell certify that:

1. I have reviewed this Annual Report on Form 10-K of Sutro Biopharma, 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 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)) for the registrant and have:

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

   b. 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

   c. 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;

5. The registrant's other certifying officer 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 13, 2020

/s/ William J. Newell
William J. Newell
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION 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, Edward C. Albini, certify that:

1. I have reviewed this Annual Report on Form 10-K of Sutro Biopharma, 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 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)) for the registrant and have:

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

   b. 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

   c. 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;

5. The registrant's other certifying officer 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 13, 2020

/s/ Edward C. Albini
Edward C. Albini
Chief Financial Officer
(Principal Accounting Officer and Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, William J. Newell, Chief Executive Officer of Sutro Biopharma, Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

1. the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Dated: March 13, 2020

/s/ William J. Newell
William J. Newell
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Edward C. Albini, Chief Financial Officer of Sutro Biopharma, Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

1. the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Dated: March 13, 2020

/s/ Edward C. Albini
Edward C. Albini
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)