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

Form 10-K

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

For the fiscal year ended December 31, 2021

or

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

For the transition period from to

Commission file number: 000-30171

SANGAMO THERAPEUTICS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**68-0359556**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
7000 Marina Blvd.	
Brisbane, California	**94005**
(Address of principal executive offices)	**(Zip Code)**

(510) 970-6000
(Registrant's telephone number, including area code)

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

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, par value $0.01 per share	**SGMO**	**Nasdaq Global Select Market**

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

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

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

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

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

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

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

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

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

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

The aggregate market value of the common stock held by non-affiliates of the registrant based upon the closing sale price of the common stock on June 30, 2021 (the last business day of the registrant's most recently completed second fiscal quarter), as reported on the Nasdaq Global Select Market was $1,733,656,253. For purposes of this calculation, directors and executive officers of the registrant have been deemed affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of February 22, 2022, a total of 145,968,135 shares of common stock, $0.01 par value per share were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required by Part III, Items 10-14 of this Form 10-K is incorporated by reference to the registrant's definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K, provided that if such Proxy Statement is not filed within such period, such information will be included in an amendment to this Form 10-K to be filed within such 120-day period.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some statements contained in this report are "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to our future events, including our anticipated operations, research, development, manufacturing and commercialization activities, clinical trials, operating results and financial condition. These forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- our strategy;
- anticipated research and development of product candidates and potential commercialization of any resulting approved products;
- the initiation, scope, rate of progress, enrollment, anticipated results and timing of our preclinical studies and clinical trials and those of our collaborators or strategic partners;
- the therapeutic and commercial potential of our product candidates, including the durability of therapeutic effects;
- the therapeutic and commercial potential of technologies used by us in our product candidates, including our gene therapy and cell therapy technologies, zinc finger protein technology platform, zinc finger nucleases and zinc finger protein transcription factors;
- our ability to establish and maintain collaborations and strategic partnerships and realize the expected benefits of such arrangements, including our ability to find a potential new collaboration partner for the SAR445136 program;
- anticipated revenues from existing and new collaborations and the timing thereof;
- our estimates regarding the impact of the evolving COVID-19 pandemic on our business and operations and the business and operations of our collaborators, including clinical trials and manufacturing, and our ability to manage such impacts;
- our research and development and other expenses;
- our ability to obtain adequate preclinical and clinical supplies of our product candidates from current and potential new suppliers and manufacturers or from our own in-house manufacturing facilities;
- the ability of Sangamo and our collaborators and strategic partners to obtain and maintain regulatory approvals for product candidates, including the ability to proceed with clinical trials following the imposition of regulatory holds on our clinical trials, and the timing and costs associated with obtaining regulatory approvals;
- our ability to comply with, and the impact of, regulatory requirements, obligations and restrictions on our business and operations;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others, including our ability to obtain and maintain rights to the technologies required to develop and commercialize our product candidates;
- competitive developments, including the impact on our competitive position of rival products and product candidates and our ability to meet competition from rival products and product candidates;
- our estimates regarding the sufficiency of our cash resources and our expenses, capital requirements and need for additional financing, and our ability to obtain additional financing;
- our ability to manage the growth of our business;
- our projected operating and financial performance;
- our operational and legal risks; and
- our plans, objectives, expectations and intentions and any other statements that are not historical facts.

In some cases, you can identify forward-looking statements by terms such as: "anticipates," "believes," "continues," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should," "will" and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this Annual Report on Form 10-K. Except as required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. Readers are cautioned not to place undue reliance on the forward-looking statements, which speak only as of the date of this Annual Report on Form 10-K.

SUMMARY OF RISK FACTORS

Our business involves significant risks. Below is a summary of the material risks that our business faces, which makes an investment in our common stock speculative and risky. This summary does not address all these risks. These risks are more fully described below under the heading "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K. Before making investment decisions regarding our common stock, you should carefully consider these risks. The occurrence of any of the events or developments described below could have a material adverse effect on our business, results of operations, financial condition, prospects and stock price. In such event, the market price of our common stock could decline, and you could lose all or part of your investment. There are also additional risks not described below that are either not presently known to us or that we currently deem immaterial, and these additional risks could also materially impair our business, operations or market price of our common stock.

- We are a clinical-stage biotechnology company with no approved products or product revenues. Our success depends substantially on clinical trial results demonstrating safety and efficacy of our product candidates to the satisfaction of regulatory authorities. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may never occur for any product candidates.
- Many of our product candidates are based on novel zinc finger protein technologies that have yet to yield any approved commercially viable therapeutic products.
- We have incurred significant operating losses since inception and anticipate continued losses for the foreseeable future. We may never become profitable.
- We require significant additional capital to fund our operations and continue operating as a viable business. This additional capital may not be available to us on favorable terms or at all.
- We rely heavily on collaborations with larger biopharmaceutical companies to generate revenues and develop, obtain regulatory approvals for and commercialize many of our product candidates. If conflicts arise with our collaborators or if the collaborations terminate for any reason, our revenues and product development efforts would be negatively impacted.
- Biotechnology and genomic medicine are highly competitive businesses. Our competitors may develop rival technologies and products that are superior to or are commercialized more quickly than our technologies and product candidates.
- Manufacturing genomic medicines is complex, expensive, highly regulated and risky. We currently rely heavily on third-party manufacturers and have limited experience manufacturing products ourselves. Manufacturing challenges may result in unexpected costs, supply interruptions and harm and delay to our product development efforts.
- Even if we obtain regulatory approvals for our product candidates, our approved products may not gain market acceptance among physicians and patients and adequate coverage and reimbursement from third-party payors and may not demonstrate commercial viability.
- We may not be able to obtain, maintain and enforce necessary and desirable intellectual property protections for our technologies and product candidates in all desired jurisdictions, which could adversely affect the value of our technologies and our product development efforts and could increase the risks of costly, lengthy and distracting litigation with unpredictable results.
- Third parties, who may or may not be competitors, may allege that we are infringing, misappropriating, or otherwise practicing in an unauthorized manner their patents or other proprietary rights. Such allegations may result in infringement actions, other misappropriation actions or threats of such actions, all of which could increase the risks of costly, lengthy and distracting litigation with unpredictable results.
- Our success depends on hiring, integrating and retaining additional highly qualified skilled employees and retaining current key executives and employees, which may be challenging given that competition for these individuals is intense.
- The ongoing and evolving COVID-19 pandemic could continue to adversely impact our business and operations and the business and operations of our collaborators, manufacturers and other business partners. If such impacts become material, our revenues and product development efforts could be negatively impacted.
- The market price of our common stock has been and will likely continue to be volatile, and you could lose all or part of any investment in our common stock.

PART I

ITEM 1 – BUSINESS

OVERVIEW

We are a clinical-stage genomic medicine company committed to translating ground-breaking science into medicines that transform the lives of patients and families afflicted with serious diseases. We plan to deliver on this mission through development of our clinical and preclinical product candidates leveraging our novel science and our in-house manufacturing capabilities.

Our Product Candidates

Today, we are in the clinic with first-generation gene therapy and autologous cell therapy candidates. Our long-term development strategy is to focus on leveraging our optimized zinc finger, or ZF, technology, a differentiated tool that we are using to develop next-generation genomic medicines, including allogeneic cell therapies and *in vivo* genome engineering therapies.

Our current clinical-stage product candidates are:

- Isaralgagene civaparvovec, also known as ST-920, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, is currently being evaluated in our Phase 1/2 STAAR clinical study, and we have initiated plans for a Phase 3 clinical trial;
- SAR445136, our zinc finger nuclease, or ZF nuclease, gene-edited cell therapy product candidate for the treatment of sickle cell disease, or SCD, is currently being evaluated in our Phase 1/2 PRECIZN-1 clinical study. We are developing SAR445136 with our collaborator Sanofi S.A., or Sanofi, through June 28, 2022, at which time SAR445136 will become a product candidate wholly-owned by Sangamo;
- TX200, our wholly-owned Chimeric Antigen Receptor, or CAR, engineered regulatory T cell, or CAR-Treg, cell therapy product candidate for the prevention of immune-mediated rejection in HLA-A2 mismatched kidney transplantation, is currently being evaluated in our Phase 1/2 STEADFAST clinical study; and
- Giroctocogene fitelparvovec, also known as SB-525, is a gene therapy product candidate for the treatment of moderately severe to severe hemophilia A and is the subject of the registrational Phase 3 AFFINE clinical trial. We are developing giroctocogene fitelparvovec with our collaborator Pfizer Inc., or Pfizer.

Our preclinical development is focused in two innovative priority areas: (i) CAR-Treg cell therapies for autoimmune disorders and (ii) genome engineering for neurological diseases. Indications for our preclinical programs include neurodevelopmental disorders, cancer, inflammatory bowel disease, or IBD, tauopathies and neurodegenerative diseases such as amyotrophic lateral sclerosis, or ALS, multiple sclerosis, or MS, and Huntington's disease, some of which we are developing with our collaborators Biogen MA, Inc. and Biogen International GmbH, which we refer to together as Biogen, Novartis Institutes for BioMedical Research, Inc., or Novartis, Pfizer, and Takeda Pharmaceutical Company Limited, or Takeda.

Our multiple collaborations with biopharmaceutical companies bring us important financial and strategic benefits and reinforce the potential of our research and development efforts and our ZF technology platform. They leverage our collaborators' therapeutic and clinical expertise and commercial resources with the goal to bring our medicines more rapidly to patients. We believe these collaborations reflect the value of our ZF technology platform and will potentially expand the addressable markets of our product candidates. To date, we have received approximately $815.0 million in upfront licensing fees, milestone payments and proceeds from sales of our common stock to collaborators and have the right to earn up to $6.7 billion in future milestone payments from our collaborations, in addition to potential product royalties.

Our Novel Science

We are a leader in the research and development of zinc finger proteins, or ZFPs, which are abundantly occurring human proteins that have evolved to regulate the genome through interactions with DNA and regulatory proteins. We have developed and optimized a proprietary synthetic ZF technology platform with potential clinical utility in (i) genome editing and genome regulation, which we refer to together as genome engineering, and (ii) gene-edited cell therapy, which we refer to as cell therapy.

Our strategy is to translate our differentiated and versatile ZF technology platform to product candidates with best- or first-in-class clinical potential. For example, ZFPs can be engineered to make ZF nucleases, which are proteins that can be used to edit genomes by specifically modifying DNA sequences by knocking in or knocking out select genes. ZFPs can also be engineered to make zinc finger protein transcription factors, or ZFP-TFs, which are proteins that can be used to regulate genomes by selectively increasing or decreasing gene expression.

In the process of developing these genome engineering technologies, we have additionally accrued significant scientific, manufacturing and development capabilities, as well as related know-how, that are broadly applicable to the field of gene therapy, which we have used to develop our gene therapy product candidates.

Finally, we have also leveraged our ZF technology platform and technologies obtained through acquisitions to become a leader in researching and developing CAR-Treg product candidates for the treatment of autoimmune and inflammatory diseases in broad patient populations, including kidney transplant rejection, MS and IBD. CAR-Tregs are considered to have enhanced suppressive function over polyclonal Tregs due to the antigen-specificity introduced by the CAR.

Our In-house Manufacturing

We believe that our in-house manufacturing capacity provides us a competitive advantage. We currently operate an adeno-associated virus, or AAV, manufacturing facility in our Brisbane, California headquarters and cell therapy manufacturing facilities in Brisbane, California and Valbonne, France. Our manufacturing strategy is to provide greater flexibility, quality and control by building a balanced and necessary capacity achieved through our in-house manufacturing and contract manufacturing organization, or CMO, partnerships, investing in manufacturing processes and analytics and developing a strong supply chain.

Business Updates

Isaralgagene civaparvovec - Fabry Disease

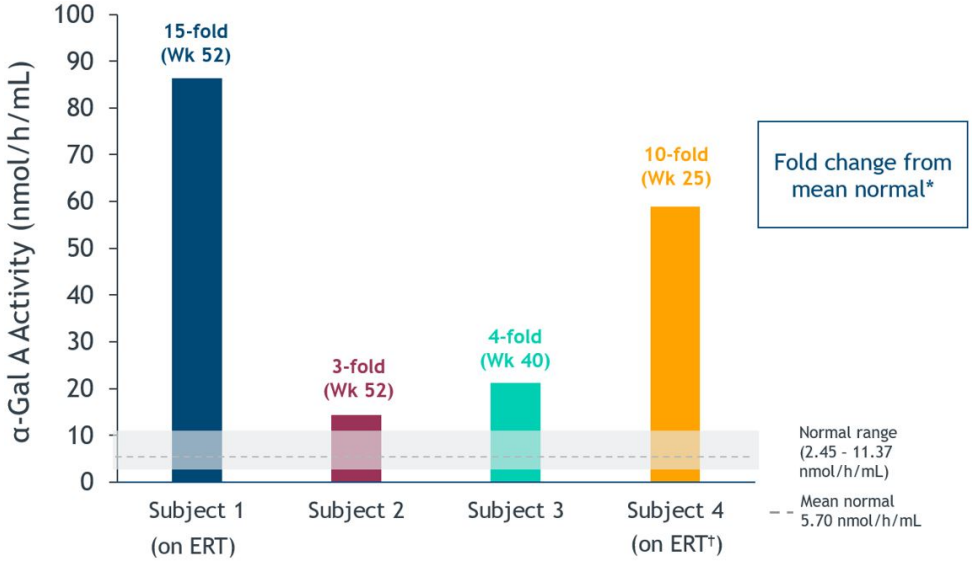
In February 2022, we presented updated preliminary clinical data from our Phase 1/2 STAAR study evaluating isaralgagene civaparvovec, or ST-920, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, a rare inherited metabolic disease. A summary of the data presented is below.

- STAAR is an ongoing Phase 1/2 multicenter, open-label, dose-ranging clinical study designed to assess the safety and tolerability of a single infusion of isaralgagene civaparvovec in Fabry disease patients ≥ 18 years of age. Patients are infused intravenously with a single dose and followed for 52 weeks. A separate long-term follow-up study is underway to monitor the patients treated in this study for up to five years following treatment. The study design provides for at least two subjects to be dosed in each dose cohort, with a potential expansion in each cohort. Patients who are on stable enzyme replacement therapy, or ERT, may withdraw ERT after treatment in a controlled and monitored fashion at the discretion of the patient and the investigator.
- The dose escalation phase includes males with classic Fabry disease. The study is expected to be subsequently expanded to treat females, as well as patients with Fabry-associated cardiac or renal disease. The study's primary endpoint is incidence of treatment-emergent adverse events. Additional safety evaluations include routine hematology, chemistry and liver tests; vital signs; electrocardiogram; echocardiogram; serial alpha-fetoprotein testing and magnetic resonance imaging, or MRI, of liver to monitor for potential formation of any liver mass. Secondary endpoints include change from baseline at specific time points over the one-year study period in alpha-galactosidase A, or α-Gal A, activity, globotriaosylceramide, or Gb3, and lyso-Gb3 levels in plasma; frequency of ERT infusion; changes in renal function, cardiac function and left ventricular mass, measured by cardiac MRI and rAAV2/6 vector clearance. Key exploratory endpoints include quality of life, Fabry symptoms and neuropathic pain scores; and immune response to AAV6 capsid and α-Gal A.
- As of the November 9, 2021 cutoff date, five patients, ranging in age from 22 to 48 years, were treated with isaralgagene civaparvovec. Two patients were treated in Cohort 1 at the dose of 0.5e13 vg/kg, two patients were dosed in Cohort 2 at the dose of 1e13 vg/kg and one patient was dosed in Cohort 3 at the dose of 3e13 vg/kg. As of the cutoff date, the first treated patients had been followed for at least 52 weeks and the most recently treated patient had been followed for three weeks. A sixth patient, the second patient in Cohort 3, was dosed following the cutoff date.
- As of the November 9, 2021 cutoff date, isaralgagene civaparvovec continued to be generally well tolerated across the three dose cohorts in the five treated patients. One patient each in Cohorts 1, 2 and 3 exhibited treatment-related adverse events for a total of eleven events, which were all graded as mild (Grade 1). No treatment-related serious adverse events were reported. Prophylactic steroids were not required per the study protocol, and as of the cutoff date, no patients had exhibited liver enzyme elevations necessitating steroid treatment.
- Results of plasma α-Gal A activity as of the cutoff date for the first four patients treated in the first two dose cohorts are shown in the figure below. All four patients exhibited above normal levels of α-Gal A activity by week 12 following treatment through 25 weeks for the most recently treated patient and 52 weeks for the first two patients treated. α-Gal A activity ranged from a 3-fold to 15-fold increase above mean normal activity levels as of

the last date of measurement. For the two patients on ERT, α-Gal A activity measured at ERT trough was 15-fold above mean normal at week 52 (Cohort 1) and 10-fold above mean normal at week 25 (Cohort 2). Withdrawal from ERT has been completed for one of these patients and is planned for the other patient on ERT, based on the stability of their α-Gal A activity following treatment. For the two ERT pseudo-naïve patients, α-Gal A activity was 3-fold above mean normal at week 52 (Cohort 1) and 4-fold above mean normal at week 40 (Cohort 2). The first patient in Cohort 3 exhibited α-Gal A activity within mean normal range by week 2.

- In the one patient with the highest elevated levels pre-treatment, plasma lyso-Gb3 levels decreased by approximately 40% from baseline within ten weeks after dosing through week 36. The other three patients, with lower baseline levels of lyso-Gb3, maintained steady lyso-Gb3 levels through the cutoff date.
- Several of the patients reported subjective improvements in quality-of-life measures as of the cutoff date. Three of the five patients exhibited improvements in anhidrosis (inability to sweat) or hypohidrosis (reduced ability to sweat), a primary and common Fabry disease symptom. Cardiac MRI findings stabilized following treatment in two patients.

Phase 1/2 STAAR Study: Plasma α-Gal A activity



Biomarker results are presented from the four patients in the first two dose cohorts (0.5e13 vg/kg and 1.0e13 vg/kg) as of the cutoff date of November 9, 2021.

(*) Fold change was calculated at last measured time point. α-Gal A activity was measured using a 3-hour reaction time and presented in nmol/h/mL. For Patients 1 and 4 this was sampled at ERT trough. Normal range and mean were determined based on healthy male individuals.

(†) Patient was withdrawn from ERT at week 24.

The sixth patient in the STAAR study, who is the second patient in Cohort 3, was dosed after the cutoff date. We expect to provide updated data in the second half of 2022. Based on the Phase 1/2 data, we have initiated Phase 3 planning.

SAR445136 - Sickle Cell Disease

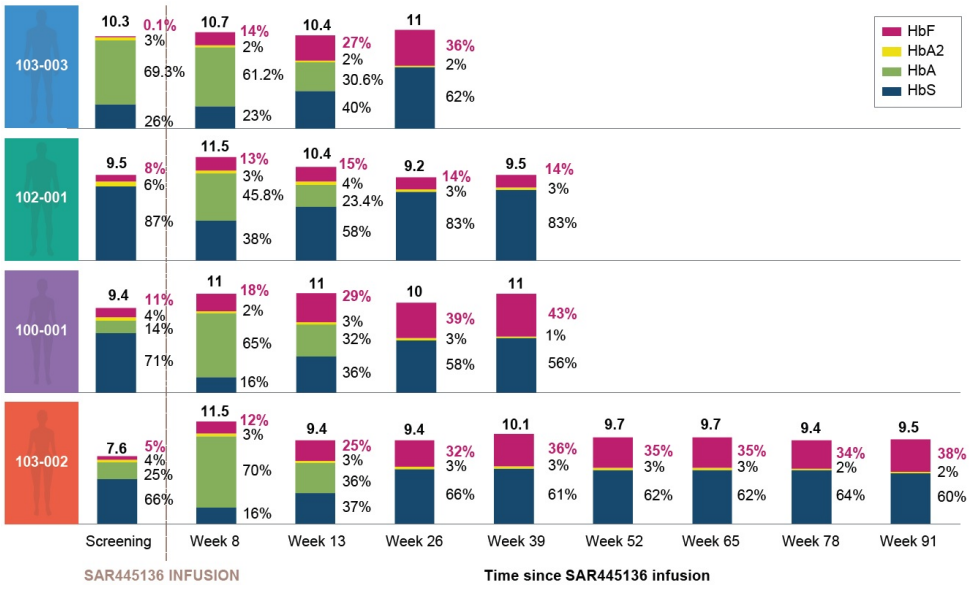
In December 2021, we and Sanofi presented updated preliminary proof-of-concept clinical data from our Phase 1/2 PRECIZN-1 study evaluating SAR445136, our ZF nuclease gene-edited cell therapy product candidate for the treatment of sickle cell disease. Nine patients were enrolled as of the data cutoff date of September 22, 2021. Of the eight patients who completed mobilization and apheresis as of the cutoff date, five achieved successful target yields of HSPCs whereas two patients failed to mobilize and one patient discontinued due to intercurrent cholangitis. Four of the five patients achieving successful target yields of HSPCs had been infused with SAR445136 as of the cutoff date. Baseline patient characteristics of these four patients are in Table 1 below. As of the September 22, 2021 cutoff date, the most recently treated patient in the PRECIZN-1 Phase 1/2 study had been followed for 26 weeks and the longest-treated patient had been followed for 91 weeks. None of the four treated patients required blood transfusions post engraftment. Total hemoglobin stabilized by week 26 after treatment with SAR445136 in all four patients. Fetal hemoglobin level increased from 0.1-11% at screening to 14-39% by week 26 in all four patients and was 38% in the longest-treated patient at 91 weeks (see Figure 1 below). Percent F cells increased to 64-96% by 39 weeks of follow-up in all four patients, persisting at 99% in the patient with 91 weeks of follow-up. SAR445136 had on-target BCL11A gene modification (61-78%) in all four patients. As of the cutoff date, SAR445136 was generally well tolerated, and there were no adverse events assessed as related to SAR445136. Most adverse events reported in the screening, mobilization, apheresis and conditioning periods were SCD-related events. The investigator reported two serious adverse events of sickle cell anemia with a vaso-occlusive crisis, or VOC, as related to plerixafor, and one serious adverse event of nausea as related to busulfan. Most adverse events reported after infusion of SAR445136 were related to busulfan. The investigator reported one serious adverse event of sickle cell anemia with a VOC nine months after infusion in one patient, and no other SCD-related events were reported in the four patients post-infusion. See Figure 2 below for VOCs reported before and after infusion of SAR445136. Additional data from this study are expected to be presented at a medical meeting in 2022.

Table 1: Baseline Characteristics and Clinical History

Subject	103-002	100-001	102-001	103-003
Genotype	HbSB0	HbSS	HbSS	HbSS
Gender	Female	Female	Male	Male
Race	African American	African American	African American	African American
Age at consent, years	35	20	18	25
Pain crises, #events/2 years	10	22	0	6
Disease modifying medications, Y/N	N	Y*	Y*	N
Chronic RBC transfusion therapy, Y/N	N	Y	Y	Y

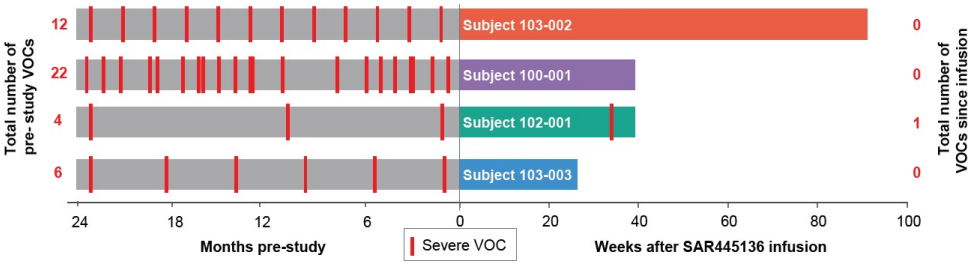
(*) Hydroxyurea, RBC = Red Blood Cell

Figure 1: Total Hb and Hb Fractionation in All Patients After SAR445136 Infusion



HbA = Adult hemoglobin, HbA2 = Variant adult hemoglobin, HbF = Fetal hemoglobin, HbS = Sickle hemoglobin

Figure 2: Number of VOCs Reported Pre- and Post- SAR445136 Infusion



VOC = Vaso-Occlusive Crisis

We expect that the next four patients treated in the study will be dosed with a product candidate manufactured using improved methods, which has been shown in internal experiments to increase long-term progenitor cells. We expect to complete dosing of these patients in the third quarter of this year.

In January 2022, we announced that Sanofi will be transitioning its rights and obligations related to SAR445136 to us as of June 28, 2022. This transition follows Sanofi's notice of termination for convenience of the collaboration and license agreement between Sanofi and Sangamo to develop genomic medicines for hemoglobinopathies. Sanofi has elected to transition the SAR445136 program to us following a recent change in Sanofi's strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies. We and Sanofi are collaborating on an orderly transition, while we explore options to advance the program, including seeking a potential new collaboration partner. We expect the Phase 1/2 PRECIZN-1 study of SAR445136 to be completed as planned and that Sanofi will continue to pay the costs of the Phase 1/2 PRECIZN-1 study until the termination date of June 28, 2022, as contemplated by the collaboration and license agreement.

TX200 – HLA-A2 Mismatched Kidney Transplant Rejection

We have enrolled the first patient into our Phase 1/2 STEADFAST clinical study evaluating TX200, our wholly owned autologous CAR-Treg cell therapy product candidate to prevent immune-mediated rejection in HLA-A2 mismatched kidney transplantation from a living donor, and we expect to dose this patient soon. We expect to dose the second patient in this study by the middle of 2022. We continue to open study sites and screen patients.

Giroctocogene Fitelparvovec - Hemophilia A

In December 2021, we and Pfizer presented updated follow-up data from the Phase 1/2 Alta study of giroctocogene fitelparvovec, our investigational gene therapy for the treatment of moderately severe to severe hemophilia A. Eleven male patients participated in the study overall, with five patients in the 3e13-vg/kg highest dose cohort. See Table 1 below for baseline patient demographics. As of the October 1, 2021 cutoff date, all five patients in the highest dose cohort had completed at least 104 weeks of follow-up. The results showed that, at 104 weeks, the five patients in the high dose cohort had mean factor VIII, or FVIII, activity of 25.4% of normal as measured by chromogenic clotting assay at the central laboratory. Maintenance of FVIII activity in the mild range (>5%) or greater improves outcomes for patients with severe hemophilia A.

In the highest dose cohort, mean annualized bleeding rate, or ABR, was zero in the first year post-infusion and was 1.4 throughout the total duration of follow-up as of the cutoff date. In this highest dose cohort, two patients experienced bleeding events necessitating treatment with exogenous FVIII, all occurring after week 69 post-infusion: one patient experienced 8 bleeding events (5 traumatic, 2 spontaneous, 1 unknown) and one patient experienced one bleeding event in a target joint, circumstances unknown. No participants in the highest dose cohort have resumed prophylaxis as of the cutoff date.

As of the October 1, 2021 cutoff date, six of the eleven patients had experienced treatment-related adverse events, including four of the five patients in the highest dose cohort. The most commonly reported treatment-related adverse events included elevated liver enzymes and infusion-related reactions: increased alanine aminotransferase, or ALT (5/11 (45.5%) overall; 3/5 (60.0%) in the highest dose cohort), increased aspartate aminotransferase, or AST (3/11 (27.3%) overall; 2/5 (40.0%) in the highest dose cohort), pyrexia (3/11 (27.3%) overall; 3/5 (60.0%) in the highest dose cohort), and tachycardia (2/11 (18.2%) overall; 2/5 (40.0%) in the highest dose cohort). Treatment-related serious adverse events were reported in one patient in the highest dose cohort who experienced grade 3 hypotension and fever with onset approximately six hours after giroctocogene fitelparvovec infusion; the events fully resolved with treatment and did not delay post-infusion discharge the next day. See Table 2 below for more details on treatment-related adverse events. Additionally, as of the cutoff date, no confirmed FVIII inhibitor development occurred, and no thrombotic events, neoplastic events, abnormal alfa-fetoprotein and/or liver masses were reported. Additional follow-up is required to assess durability of therapeutic effect and other long-term effects of giroctocogene fitelparvovec, such as impact on overall patient liver health.

Table 1: Baseline Participant Demographics

Characteristic		Cohort 1 9e11 vg/kg	Cohort 2 2e12 vg/kg	Cohort 3 1e13 vg/kg	Cohort 4 3e13 vg/kg	All Participants
Age, years	n	2	2	2	5	11
	Mean (SD)	30.5 (9.2)	35.5 (16.3)	32.5 (0.7)	27.2 (6.1)	30.3 (7.8)
	Median	30.5	35.5	32.5	29.0	31.0
	Min, max	24, 37	24, 47	32, 33	19, 34	19, 47
Sex, n (%)	Male	2 (100)	2 (100)	2 (100)	5 (100)	11 (100)
Race, n (%)	Asian	–	1 (50)	–	–	1 (9)
	White	2 (100)	1 (50)	2 (100)	4 (80)	9 (82)
	Other	–	–	–	1 (20)	1 (9)
Ethnicity, n (%)	Hispanic or Latino	–	–	–	2 (40)	2 (18)
	Not Hispanic or Latino	2 (100)	2 (100)	2 (100)	3 (60)	9 (82)

Data cut: October 1, 2021, Max = Maximum, Min = Minimum, SD = Standard Deviation, vg = vector genomes

Table 2: Treatment-Related Adverse Events

MedDRA Preferred Term	Cohort 2 2e12 vg/kg (n=2)		Cohort 4 3e13 vg/kg (n=5)		All Participants (N=11)	
	Participants, n	No. of Events	Participants, n	No. of Events	Participants, n	No. of Events
Any treatment-related event	2	5	4	21	6	26
Grade 3/4 AE	0	0	1[a]	1	1	1
ALT increased	2	3	3	10	5	13
AST increased	1	2	2	3	3	5
Pyrexia	0	0	3	3	3	3
Tachycardia	0	0	2	2	2	2
Myalgia	0	0	1	1	1	1
Hypotension	0	0	1	1	1	1

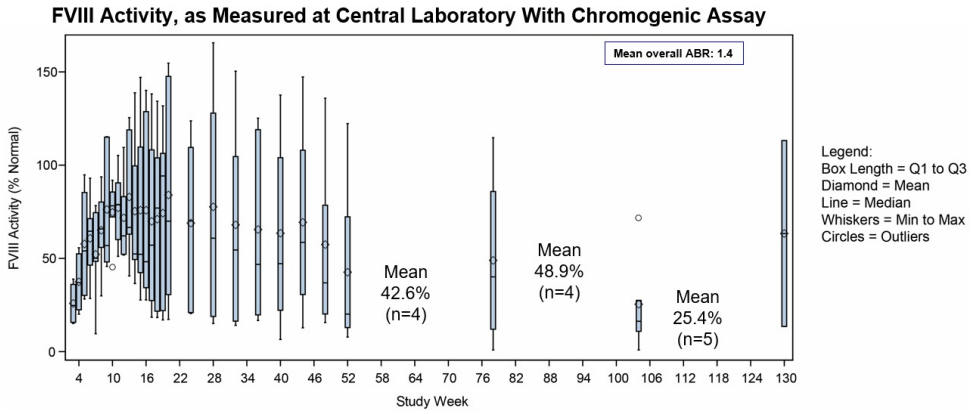
- No treatment-related AEs reported for participants in cohorts 1 and 3
- Infusion-related reactions, occurring within a day of dosing, were reported in 4 of 5 participants in cohort 4
  - Tachycardia (grade 1, n=2), pyrexia (grades 1 and 2, n=3), and hypotension (grade 3, n=1)

Data cut: October 1, 2021

[a] One patient experienced grade 3 hypotension that was considered related to study drug and resolved with treatment

AE = Adverse Event, ALT = Alanine Transaminase, AST = Aspartate Aminotransferase, vg = vector genomes

Table 3: FVIII Activity in Cohort 4 (3e13 vg/kg)



Latest available FVIII values from October 1, 2021 data cut, FVIII = Factor VIII, vg = vector genomes

In November 2021, following the observation of FVIII levels greater than 150% in some treated patients, we and Pfizer announced that Pfizer voluntarily paused screening and dosing of additional patients in the Phase 3 AFFINE clinical trial of giroctocogene fitelparvovec to implement a protocol amendment to provide clinical management guidance for elevated FVIII levels. Subsequently, on November 3, 2021, the U.S. Food and Drug Administration, or FDA, informed Pfizer that this trial had been placed on clinical hold while the protocol amendment and associated documents are reviewed.

Pfizer has announced that it is in the process of submitting the protocol amendment and associated documents to health authorities in the countries where the trial is being conducted and preparing responses to the FDA clinical hold, and in February 2022, Pfizer announced that it hopes to obtain agreements to resume the AFFINE trial and to begin to reopen trial sites in the first half of 2022.

AFFINE is a global Phase 3, open-label, multicenter, single arm trial evaluating the efficacy and safety of a single infusion of giroctocogene fitelparvovec in more than 60 adult (ages 18-64 years) male patients with moderately severe to severe hemophilia A. The primary endpoint is impact on ABR through 12 months following treatment with giroctocogene fitelparvovec, compared to ABR on FVIII replacement therapy collected in the Phase 3 lead-in study period. The Phase 3 study is over 50% enrolled, and enrollment in the Phase 3 lead-in study is completed. We and Pfizer anticipate pivotal data readouts for this trial to be based on a full analysis of all study participants, when the first 50 patients are twelve months past reaching a steady-state of FVIII expression. We have the potential to earn up to $245 million in future milestone payments plus tiered royalties of 14%-20% on potential future product sales.

OUR TECHNOLOGY

Our strategy is to translate our differentiated and versatile ZF technology platform to create product-candidates with best- or first-in-class clinical potential. We believe that the versatility and flexibility of our technology platforms enable us to design therapeutic approaches to resolve the underlying genetic or cellular causes of disease, using whichever technology is best suited to deliver that treatment. Our current innovative areas of focus in preclinical studies include genome regulation with our ZF technology platform in the central nervous system, or CNS, diseases and CAR-Treg cell therapy for autoimmune diseases.

ZFPs: Naturally Occurring Sequence Specific DNA Binding Proteins in Humans

ZFPs are naturally-occurring sequence-specific DNA-binding proteins in humans that recognize and bind to a specific DNA sequence within or near a particular gene and causes expression of that gene to be “turned on” (activated) or “turned off” (repressed). ZFPs are the most common class of such naturally-occurring proteins in a wide range of organisms from yeast to humans. Functional domains may be added to ZFPs that enable genome editing (with enzymes such as nucleases or integrases) or genome regulation (with activators and repressors) at a specific genomic site determined by the ZFP DNA-binding domain.

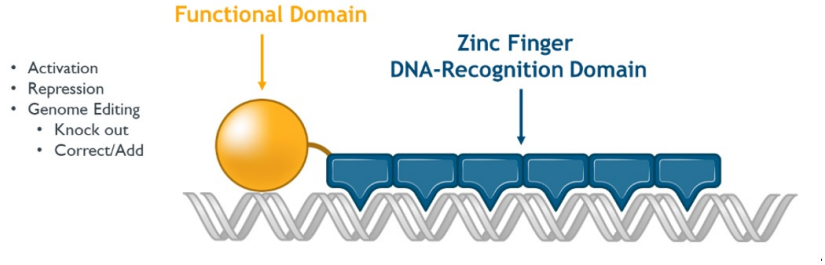


Figure 1: Schematic of the two-domain structure of a zinc finger DNA-binding domain and its functional domain

Consistent with the structure of natural ZFPs, we take a modular approach to the design of the proteins that we engineer. The DNA-recognition part of our engineered proteins is typically composed of four to six zinc fingers. Each individual finger recognizes and binds to a three or four base-pair sequence of DNA and multiple fingers can be linked together to form a zinc finger array that recognizes longer stretches of DNA, thereby improving specificity. By modifying the amino acid sequence of ZFPs, we can engineer novel zinc finger arrays capable of recognizing the unique DNA sequences of a chosen genomic target.

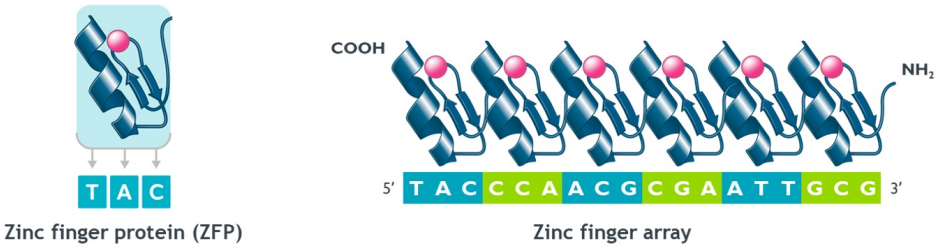


Figure 2: Schematic of a ZFP and a zinc finger array composed of 6 ZFPs

The engineered DNA-binding zinc finger array is then linked to a functional domain. The DNA-binding zinc finger array brings this functional domain to the target of interest. Our ability to use our highly specific ZFPs to precisely target a DNA sequence to a gene of interest provides us with a range of genome editing and genome regulation functionalities that can be applied to multiple cell types.

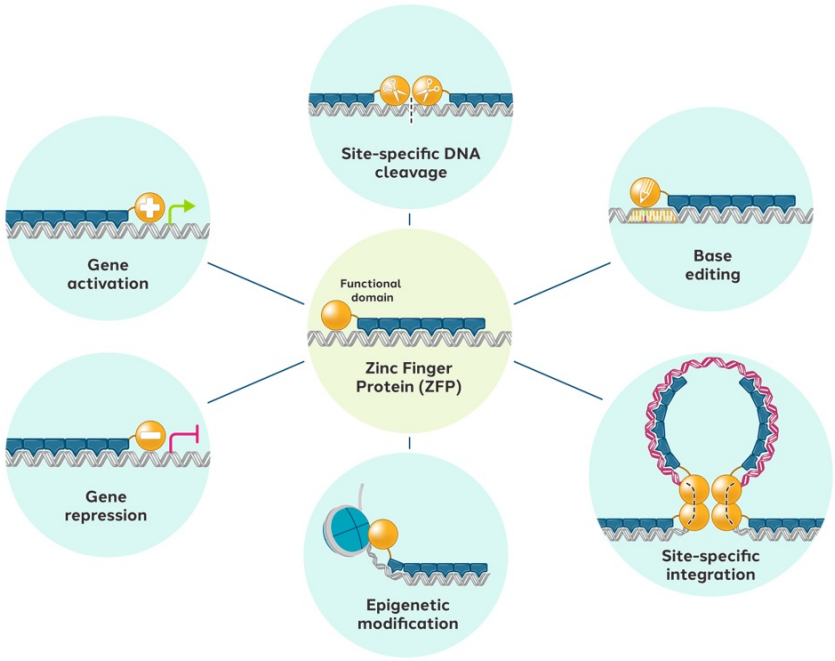


Figure 3: Examples of genome engineering tools that can be offered by our ZF platform

Our engineered zinc fingers can be attached to a cleavage domain of a restriction endonuclease, an enzyme that cuts DNA, creating a ZF nuclease. When a pair of ZF nucleases binds DNA in the correct orientation and spacing, a cut is introduced into the DNA sequence between the ZF binding sites. DNA binding by both ZF nucleases is necessary for cleavage, and the two halves of the endonuclease must be present in the correct orientation to interact with one another in order to mediate DNA cleavage. This break in the DNA triggers a natural process of DNA repair within the cell. This endogenous DNA repair process may be harnessed to achieve one of several outcomes that may be therapeutically useful (Figure 2). If cells are treated with ZF nucleases alone, the repair process joins the two ends of the broken DNA together and frequently results in the

loss (deletion) or addition (insertion) of a small amount of genetic material at the site of the break. These insertions and deletion events are collectively known as “indels.” These disrupt the target DNA sequence and result in the expression of a truncated or non-functional protein from the targeted gene, effectively “knocking out” the gene function. ZF nuclease-mediated genome editing can be used to disrupt genes that are involved in disease pathology. We are using ZF nuclease-mediated genome editing of the BCL11A erythroid specific enhancer, or ESE, in hematopoietic stem progenitor cells, or HSPCs, as the basis of a potential long-lasting and once only treatment for SCD (SAR445136).

In contrast, if cells with a mutation in a particular gene are treated not only with ZF nucleases, but also with an additional DNA sequence that encodes the correct gene sequence (referred to as a “donor” DNA) and with ZF nucleases that recognize and bind to sequences flanking the mutation, the cell’s repair machinery can use the donor DNA as a template to correct the mutated gene. This ZF nucleases-mediated gene correction enables the corrected gene to be expressed in its natural chromosomal context and may provide a novel approach for the precise repair of DNA sequence mutations responsible for certain monogenic diseases. In addition to providing a donor sequence that encodes a complete gene, a new copy of a gene can also be precisely added into the genome at a specific location. The ability to precisely place a gene-sized segment of DNA specifically into a pre-determined location in the genome broadens the range of mutations of a gene that can be corrected in a single step. It also reduces the insertional mutagenesis concerns associated with traditional integrating gene replacement approaches such as lentiviruses, in which the insertion of a new corrective copy of the gene typically occurs at random locations in the genome.

We are also evaluating ZF transcription factors, which have the potential to regulate the expression of a target gene (Figure 4). For instance, coupling an activation domain to a zinc finger will cause a target gene to be expressed at increased levels, relative to an untreated cell. Alternatively, a repression domain causes the gene to be downregulated or completely turned off. ZF transcription factors can also be designed to selectively repress expression of a mutant allele while allowing for the expression of the healthy allele. We have several preclinical programs evaluating the potential of ZF transcription factors that have been designed to down regulate the expression of genes as potential treatments for CNS diseases, including a collaboration agreement with Biogen for tauopathies and Parkinson’s disease, a collaboration with Takeda, for Huntington’s disease and a collaboration with Pfizer for ALS. We also have a preclinical collaboration with Novartis evaluating the potential of ZF transcription factors to upregulate expression of genes as a potential treatment for autism spectrum disorders and intellectual disability.

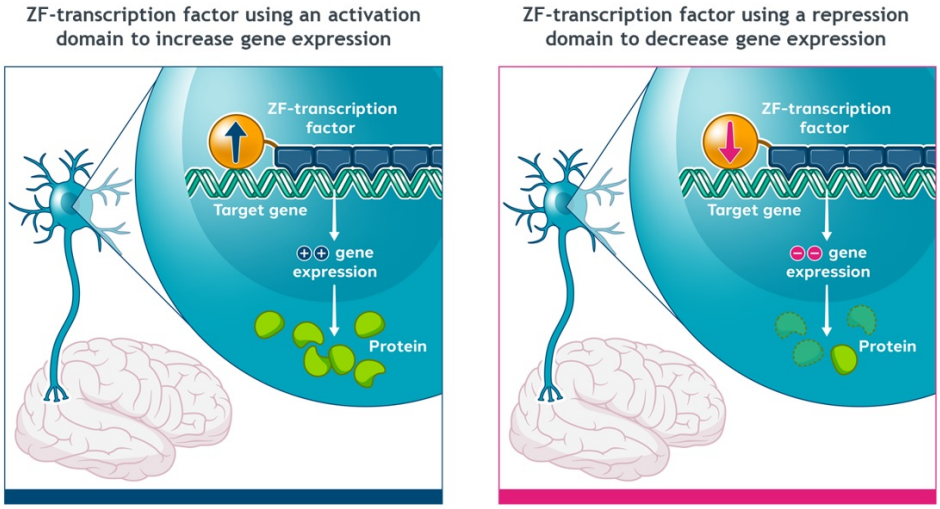


Figure 4: ZF transcription factors have the potential to regulate the expression of a target gene

ZF Platform Provides Opportunity to Develop a New Class of Human Therapeutics

We believe that our ZF platform provides a unique and proprietary basis for a broad new class of drugs that have differentiated technical advantages over small-molecule drugs, protein pharmaceuticals, RNA-based therapeutics, conventional gene therapy approaches and other gene and genome editing platforms, potentially enabling us to develop therapies that address

a broad range of unmet medical needs. We notably believe that our ZF genomic medicines have the potential to transform treatment strategies for severe diseases from symptom management to lasting cures.

We can generate highly specific ZF nucleases for genome editing and ZF transcription factors for genome regulation using a range of proprietary methods. We are developing delivery strategies to administer these therapeutics, including using mRNA, AAV, adenovirus, plasmid, lipid nanoparticles and direct injection into brain tissue or into the cerebrospinal fluid. As more genes and DNA sequences are linked to specific diseases, we believe that the clinical breadth and scope of our ZF therapeutic reagents will continue to expand.

CAR-Tregs Have Potential to Address Autoimmune and Inflammatory Diseases

A key area of focus in our preclinical pipeline is our CAR-Treg programs we are studying in autoimmune and inflammatory diseases. Tregs are a type of white blood cell and act as the key regulators of the immune system. Their natural role is to maintain immune homeostasis and prevent undesirable immune reactions to autoantigens (autoimmunity) or to antigens that are normally tolerated (food antigens, inhaled antigens, contact antigens and bacterial flora antigens). Tregs play the role of 'peacekeepers' containing other T cells before they become harmful to the organism, ensuring the immune system does not mistakenly attack healthy organs while still protecting the body from harm, e.g., from viruses and bacteria.

We are genetically re-programming Tregs *ex vivo* to add a CAR to give Tregs the ability to target a specific protein, called an antigen. CAR-Tregs are thus re-programmed to recognize and accumulate in specific tissues where the antigen is being expressed and an immune-mediated disorder is occurring. Our preclinical research shows that CAR-Tregs can inhibit overactive immune cells within the body. Moreover, they have the potential to induce long-term immune tolerance – a state of non-reactivity by the immune system to a particular auto-antigen. We aim to develop therapies that can induce and restore immune tolerance to address a wide range of inflammatory and autoimmune diseases.

CARs are composed of three main parts (see Figure 5):

- The extracellular section is composed of a single chain variable fragment, or scFv, typically derived from a monoclonal antibody and designed to recognize the target antigen, and a spacer or hinge to add spatial flexibility.
- The transmembrane domain anchors the CAR in the plasma membrane.
- The intracellular section, made of signaling and co-stimulatory domains, transmits an intracellular signal upon recognition of the antigen by the scFv.

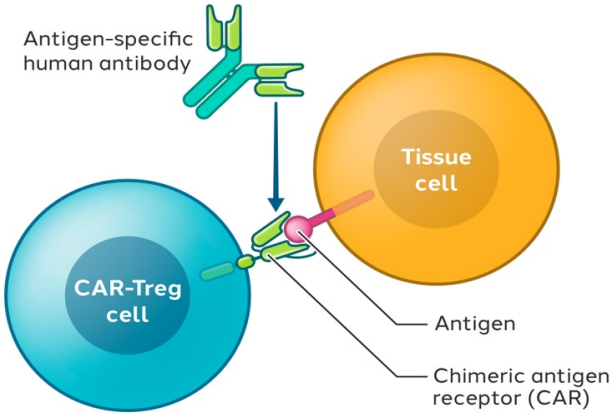


Figure 5: Schematic of CAR-Treg cell recognizing antigen on tissue cell

We carefully select the CAR target antigen for each autoimmune or inflammatory indication. Our CAR-Treg cells are designed to be active only at the site of inflammation, ensuring specific and selective action. For instance, for a CNS disease such as MS, we want to make sure that the target antigen is localized in the CNS. The target antigen may in some instances be linked to the disease etiology.

A major feature of Tregs is that they can act via multiple mechanisms to mediate suppression. Their mechanism of action can be mediated upon cell contact, through soluble factors, metabolism disruption and/or cytolysis.

- Following IV administration, CAR-Tregs are expected to migrate toward inflamed tissues due to Tregs' natural ability to migrate towards inflammatory tissues.
- Subsequently, CAR-Treg are expected to bind to their specific antigen, leading to the proliferation and activation of CAR-Treg cells.
- This activation is expected to allow Tregs to exert their natural anti-inflammatory and immuno-suppressive activities, acting through multiple molecular and cellular targets.

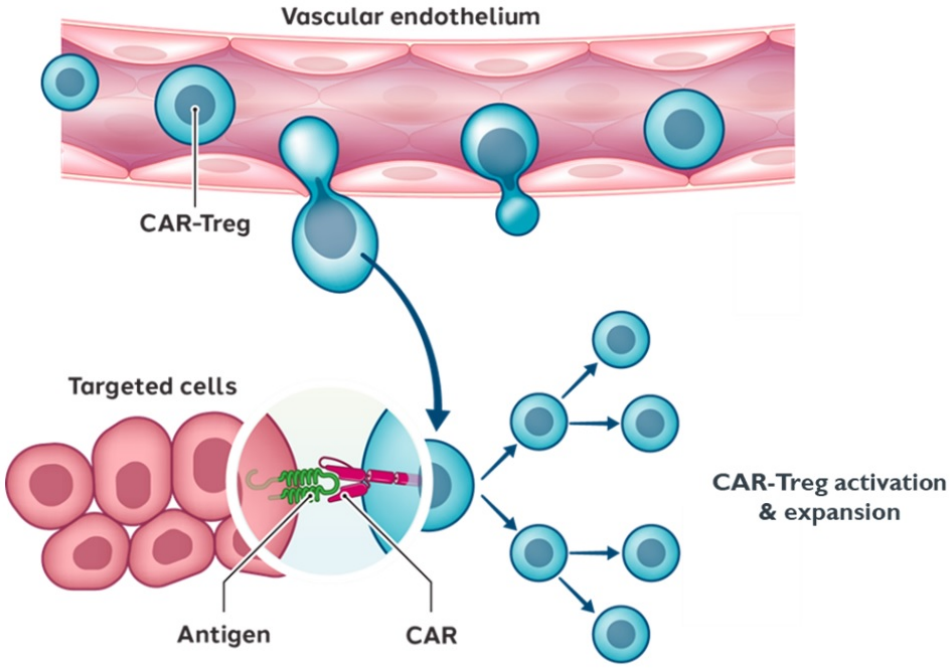


Figure 6: Expected mechanism of action of CAR-Tregs

Our most advanced CAR-Treg product candidate, TX200, is being studied for the prevention of immune-mediated rejection following HLA-A2 mismatched kidney transplantation from a living donor. TX200 is an autologous CAR-Treg cell therapy product candidate. An autologous cell therapy is made using cells from the same person as the recipient of the cells, as shown on Figure 7.

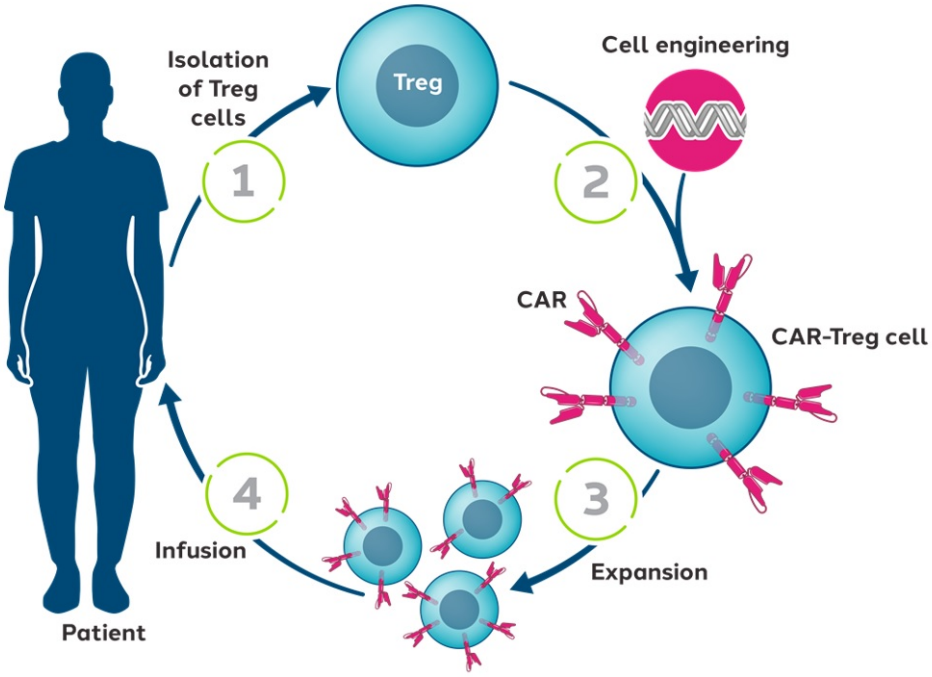


Figure 7: Schematic of our autologous CAR-Treg approach

In TX200, the patient's Tregs are collected before transplant, genetically engineered with a CAR, and then injected back into the same patient. As a result of this detailed process, we expect dosing of patients will occur several months after their enrollment. The CAR in TX200 is designed to recognize the HLA-A2 protein present on the transplanted kidney.

The first patient has been enrolled in our STEADFAST clinical study, which we expect will help us understand how CAR-Tregs work in humans and may provide broader proof of concept for genetically modified cell therapy using Tregs.

We are convinced of the fundamental impact of our CAR-Treg approach and are initiating the next step with the goal of making the approach available to a larger group of patients. Accordingly, we are developing ZF nuclease-edited allogeneic Treg therapies. Allogeneic cell therapies are donor derived, made using cells from a different person to the recipient of the cells, as opposed to autologous cell therapies. We believe that allogeneic therapies are the future of cell therapy and will overcome the challenges of autologous approaches such as scale and manufacturing. If we are able to demonstrate proof-of-concept of autologous TX200, we anticipate follow-on allogeneic programs. There is tremendous potential from there to go into many other large autoimmune indications such as rheumatoid arthritis or diabetes.

Gene Therapy Introduces Genes into a Patient's Cells to Treat Genetic Diseases

In the process of developing our ZFP technologies, we have refined our understanding of gene therapies. Gene therapy is the treatment of disease by delivery of a new gene into a patient's cells to replace an incorrect or damaged gene. Most often, gene therapy works by introducing a corrected copy of a defective gene into the patient's cells, without removing or modifying DNA. The goal of gene therapy is to treat, or potentially cure, a genetic disease by adding back a normal copy of the gene responsible for the disease.

In gene therapy, we can deliver a therapeutic gene by engineering a deactivated virus to deliver DNA for a human therapeutic protein rather than viral proteins. One virus that is commonly used in gene therapy is adeno-associated virus, or AAV. AAV is a naturally occurring virus that infects humans but is not known to cause disease. Engineered AAV has been used as a delivery method for gene therapy in many clinical trials in the U.S. and Europe and has been found thus far to be generally well-tolerated without major side effects. A gene encoding a therapeutic protein can be packaged into AAV and delivered to cells in tissues such as the liver, the eye, the brain or the heart. Once inside the cell, the gene is unpacked from the virus coat, or capsid, and can then enable that cell to make the therapeutic protein. AAV can be manufactured at a large enough scale for use as a human therapeutic.

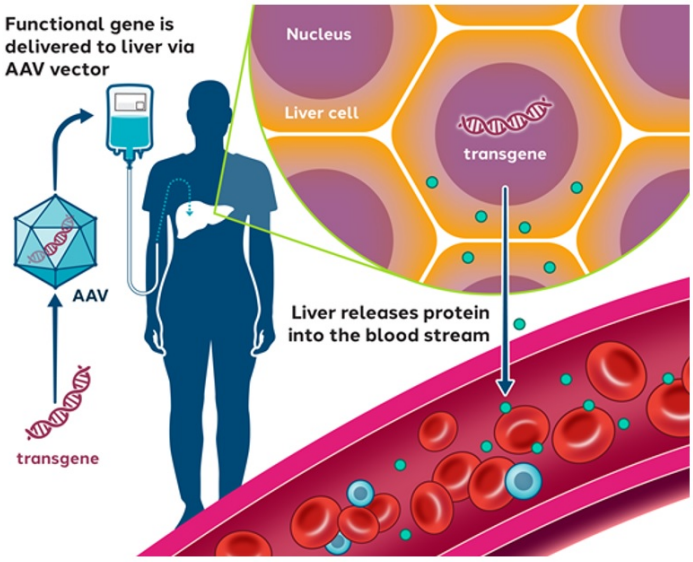
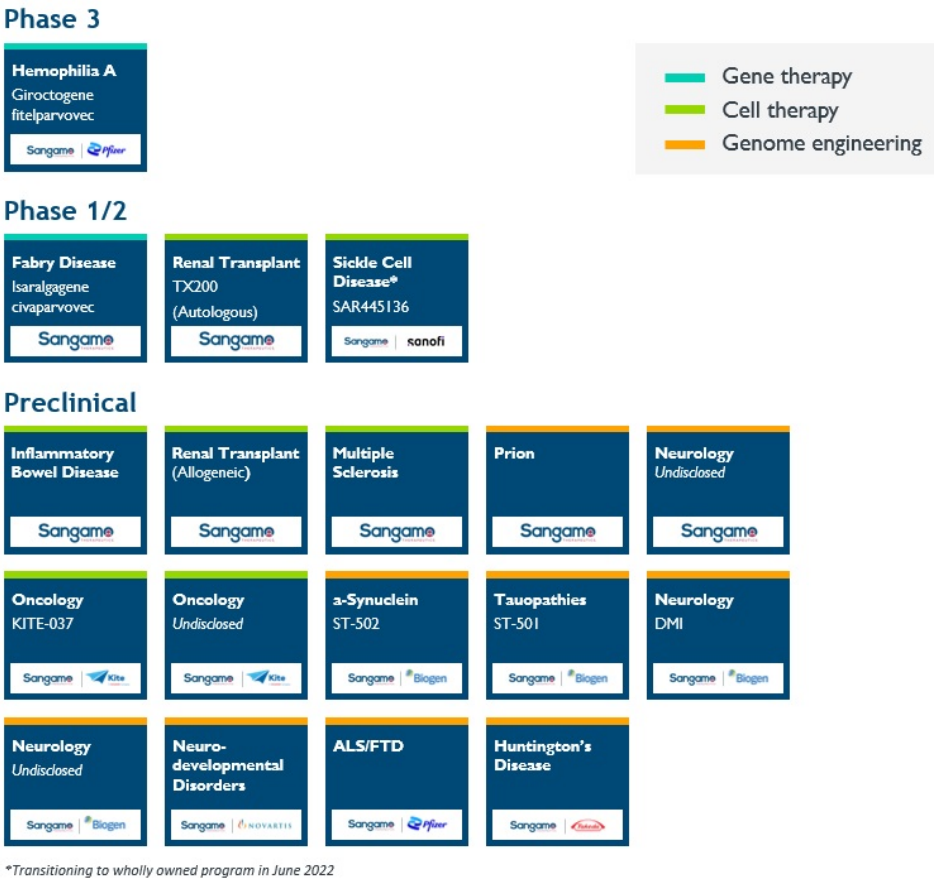


Figure 8: Our gene therapy technology

THERAPEUTIC PRODUCTS IN DEVELOPMENT



**Transitioning to wholly owned program in June 2022*

Proprietary Programs

Isaralgagene civaparvovec - Fabry Disease

Isaralgagene civaparvovec is our gene therapy product candidate being developed for the treatment of Fabry disease, a rare inherited metabolic disease. STAAR is an ongoing Phase 1/2 multicenter, open-label, dose-ranging clinical study designed to assess the safety and tolerability of a single infusion of isaralgagene civaparvovec in Fabry disease patients ≥ 18 years of age. Patients are infused intravenously with a single dose and followed for 52 weeks. A separate long-term follow-up study is underway to monitor the patients treated in this study for up to five years following treatment. The study design provides for at least two subjects to be dosed in each dose cohort, with a potential expansion in each cohort. Patients who are on stable enzyme replacement therapy, or ERT, may withdraw ERT after treatment in a controlled and monitored fashion at the discretion of the patient and the investigator.

The dose escalation phase includes males with classic Fabry disease. The study is expected to be subsequently expanded to treat females, as well as patients with Fabry-associated cardiac or renal disease. The study's primary endpoint is incidence of treatment-emergent adverse events. Additional safety evaluations include routine hematology, chemistry and liver tests; vital signs; electrocardiogram; echocardiogram; serial alpha-fetoprotein testing and magnetic resonance imaging, or MRI, of liver to monitor for potential formation of any liver mass. Secondary endpoints include change from baseline at specific time

points over the one-year study period in α-Gal A activity, Gb3 and lyso-Gb3 levels in plasma; frequency of ERT infusion; changes in renal function, cardiac function and left ventricular mass, measured by cardiac MRI and rAAV2/6 vector clearance. Key exploratory endpoints include quality of life, Fabry symptoms and neuropathic pain scores; and immune response to AAV6 capsid and α-Gal A.

The goal of the study is to abrogate the need for ERT with a recombinant AAV2/6 vector encoding cDNA for human α-Gal A, resulting in long-term expression of α-Gal A. As a liver-directed gene therapy, isaralgagene civaparvovec is designed to be delivered by a one-time IV infusion that does not require any preconditioning regimen for patients. We believe isaralgagene civaparvovec has the potential to deliver efficacy with preserved renal function and reduced cardiac morbidity and neuropathy.

For recent updates on isaralgagene civaparvovec, please see *Business Updates* above.

CAR-Treg Cell Therapy - TX200 - HLA-A2 Mismatched Kidney Transplant Rejection

TX200 is our autologous HLA-A2 specific CAR-Treg cell therapy product candidate that we have developed for the prevention of immune mediated rejection following HLA-A2 mismatched renal transplantation. We are currently evaluating TX200 in our Phase 1/2 STEADFAST clinical study. We believe the STEADFAST study will be critical for our understanding of CAR-Treg pharmacology and biology in patients as well as establishing process development and manufacturing know-how.

TX200 has been developed for patients with end-stage renal disease or ESRD, receiving a kidney transplant, where the recipient of the kidney is HLA-A2 negative and the donor is HLA-A2 positive. A kidney transplant is considered the best treatment option for ESRD, the last stage of chronic kidney disease, when a person’s kidneys are no longer working. HLA mismatch is the initial and most important barrier to successful transplantation after ABO blood types incompatibility, and approximately 21-26% of transplanted organs are HLA-A2 mismatched. In the case of an HLA-A2 positive kidney transplanted into an HLA-A2 negative patient, the recipient’s immune system can recognize this mismatch and, without long-term immunosuppressive medication, will attack the new kidney carrying the HLA-A2 protein, leading to graft rejection. A lifetime of immunosuppressive therapy is associated with significant morbidity and mortality, including the development of systemic infection, malignancy and cardiovascular disease, the leading cause of death in this patient population. Therefore, the induction of immunological tolerance defined a stable and acceptable graft function without the need for immunosuppression remains a key priority in this field of medicine.

TX200 is composed of autologous Treg cells engineered to express an HLA-A2 CAR, allowing them to localize to the renal graft and activate upon recognition of the HLA-A2 antigen. We believe that TX200 has the potential to prevent kidney rejection by binding to the HLA-A2 positive kidney and inducing immune tolerance.

Similar to other genetically engineered cell therapy approaches, patients undergo a leukapheresis procedure, from which their Treg cells are isolated and engineered then cryopreserved. The HLA-A2 negative patient subsequently undergoes transplantation surgery to receive a kidney from their HLA-A2 positive living donor. Following a recovery period, the transplant recipient receives their personalized TX200 drug candidate. As a result of this detailed process, we expect dosing of patients to occur several months after study initiation and patient enrollment.

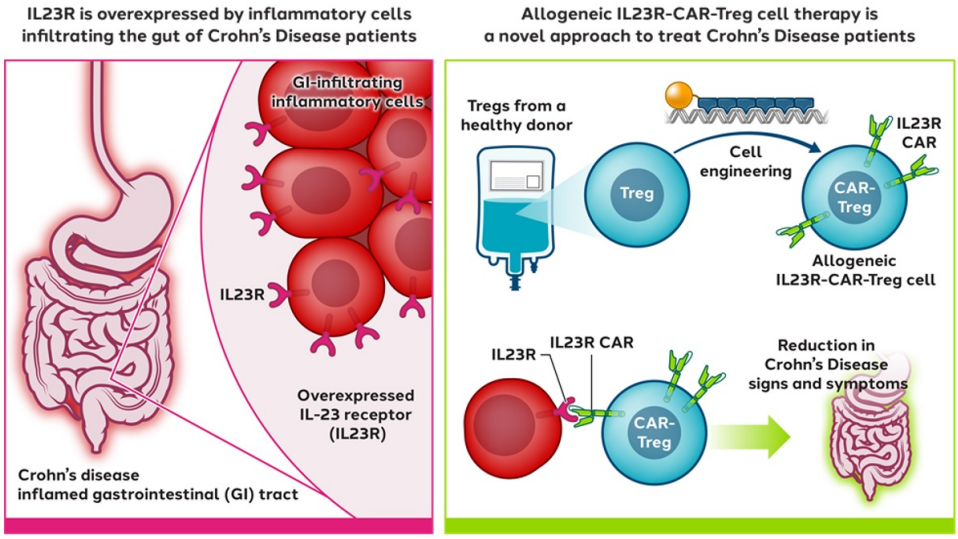
Our goal is that TX200 establishes the foundation for a portfolio of CAR-Tregs for major autoimmune indications. We believe that allogeneic therapies are the future of cell therapy and will overcome the challenges of autologous approaches such as scale and manufacturing. If we are able to demonstrate proof-of-concept of autologous TX200, we will continue to advance our kidney transplant allogeneic program which is currently in preclinical development.

For recent updates on TX200, please see *Business Updates* above.

CAR-Treg Cell Therapy - IBD

We continue to advance preclinical development of our wholly-owned CAR-Treg program to treat IBD. IBD covers debilitating disorders that involve chronic inflammation of the digestive tract, including ulcerative colitis and Crohn's disease. Our product candidate to treat IBD is composed of allogeneic Treg cells engineered to express a CAR designed to recognize an antigen relevant to IBD, so that it allows resulting CAR-Treg cells to localize and activate in the gut.

In October 2021, we presented the first preclinical data from our allogeneic IL23R-CAR-Treg product candidate in a poster at the European Society of Gene and Cell Therapy (ESGCT) Annual Congress. In this poster, we discussed our choice for the CAR target and the selection of the CAR scFv (antigen-recognition part). We showed *in vitro* results demonstrating that our IL23R-CAR-Treg product candidate binds to IL23R, gets activated upon binding to IL23R, and then shows an efficient suppressive function. Our *in vivo* data in two IBD mouse models confirmed these findings, showing that our product-candidate migrates to the site of inflammation and becomes activated after target encounter, resulting in a significant improvement of the overall disease score. Overall, our data suggest that engineered IL23R-CAR-Tregs have the potential to be a promising product-candidate for treating Crohn's Disease. Furthermore, we believe their mode of action could also pave the way for treating other IBD and chronic autoimmune pathologies involving IL23R.



Our IL23R CAR-Treg candidate for Crohn's disease

CAR-Treg Cell Therapy - MS

We continue to advance preclinical development of our wholly-owned CAR-Treg program to treat MS, an autoimmune disease of the CNS. Similar to our IBD program, our product candidate to treat MS is composed of allogeneic Treg cells engineered to express a CAR designed to recognize an antigen relevant to MS, so that resulting CAR-Tregs can localize and activate in the CNS.

Genome Engineering - Prion Disease

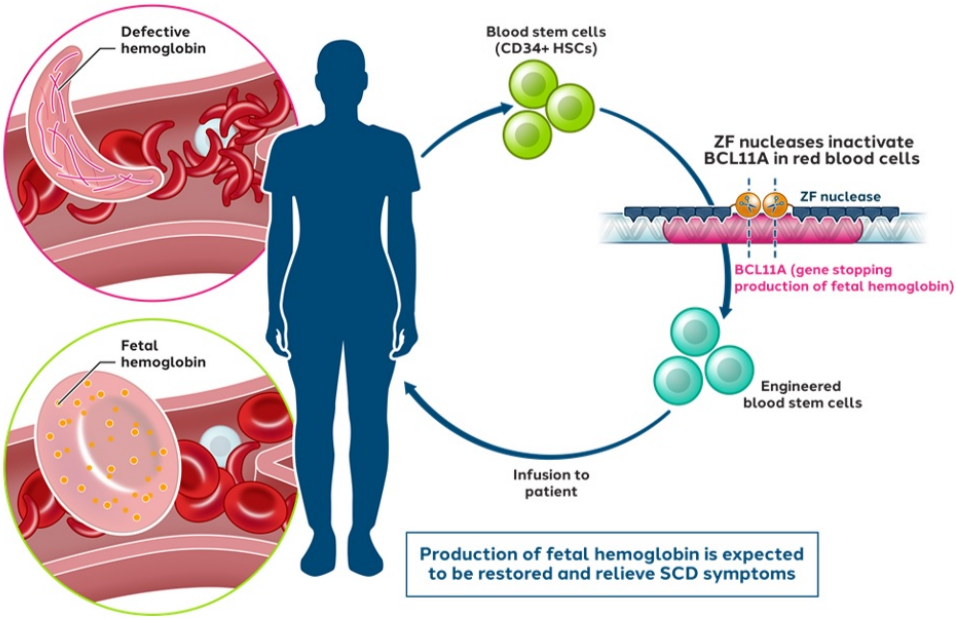
We continue to advance our wholly-owned preclinical genome engineering program in prion disease, a fatal and incurable neurodegenerative disease caused by the misfolding of the prion protein encoded by the gene PRNP.

Partnered Programs

SAR445136 - Sickle Cell Disease

We and Sanofi are currently evaluating SAR445136, our ZF nuclease gene-edited cell therapy product candidate for SCD in the Phase 1/2 PRECIZN-1 study.

SAR445136 involves genome editing of a patient's own hematopoietic stem progenitor cells using non-viral delivery of our ZF nuclease technology designed to induce the synthesis of fetal hemoglobin. This is achieved by gene-edited knock out of the erythroid specific enhancer of the BCL11a gene, which encodes a strong repressor of the gamma globin gene. In SCD, increased fetal hemoglobin synthesis may provide the patient with functional hemoglobin and help downregulate the abnormal sickle hemoglobin that results in painful sickle cell crises and other disease feature.



Our ZF cell therapy approach to treat SCD

In January 2022, we announced that Sanofi will be transitioning its rights and obligations related to SAR445136 to us as of June 28, 2022. Sanofi has elected to transition the SCD program to us following a recent change in Sanofi's strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies We and Sanofi are collaborating on an orderly transition, while we explore options to advance the program, including seeking a potential new collaboration partner. We expect the Phase 1/2 PRECIZN-1 study of SAR445136 to be completed as planned and that Sanofi will continue to pay the costs of the Phase 1/2 PRECIZN-1 study until the termination date of June 28, 2022, as contemplated by the collaboration and license agreement between Sangamo and Sanofi.

For recent updates on SAR445136, please see *Business Updates* above.

Giroctocogene Fitelparvovec - Hemophilia A

We and Pfizer continue to develop giroctocogene fitelparvovec, or SB-525, which is currently the subject of our registrational Phase 3 AFFINE clinical trial as an investigational gene therapy for moderately severe to severe hemophilia A. Under our collaboration agreement with Pfizer, we conducted the Phase 1/2 Alta clinical study and certain manufacturing activities, while Pfizer is responsible for subsequent worldwide development, manufacturing, marketing and commercialization, including the Phase 3 AFFINE clinical trial.

AFFINE is a global Phase 3, open-label, multicenter, single arm trial evaluating the efficacy and safety of a single infusion of giroctocogene fitelparvovec in more than 60 adult (ages 18-64 years) male patients with moderately severe to severe hemophilia A. The primary endpoint is impact on annual bleed rate, or ABR, through 12 months following treatment with giroctocogene fitelparvovec, compared to ABR on FVIII replacement therapy collected in the Phase 3 lead-in study period. The Phase 3 study is over 50% enrolled, and enrollment in the Phase 3 lead-in study is completed.

Based on initial results from the Alta study, the FDA granted regenerative medicine advanced therapy, or RMAT, designation to giroctocogene fitelparvovec. RMAT designation is granted to regenerative medicine therapies intended to treat, modify, reverse, or cure a serious condition, for which preliminary clinical evidence indicates that the medicine has the potential to address an unmet medical need. The RMAT designation includes all the benefits of the fast track and breakthrough therapy designation programs, including early interactions with the FDA. The FDA also granted giroctocogene fitelparvovec Orphan Drug and Fast Track designation, and the European Medicines Agency, or EMA, granted it Orphan Medicinal Product designation.

For recent updates on giroctocogene fitelparvovec, please see *Business Updates* above.

KITE-037 - Cancer

We and Kite Pharma, Inc., or Kite, a wholly-owned subsidiary of Gilead Sciences, Inc., continue to develop cell therapies to treat cancer using our research to design ZF nucleases and viral vectors to disrupt and insert select genes in T cells and natural killer cells, or NK-cells, including the insertion of genes that encode CARs, T cell receptors, or TCRs, and NK-cell receptors, or NKRs, directed to mutually agreed targets. Kite is responsible for all clinical development, manufacturing, marketing and commercialization. In May 2021, we announced that as part of their recent portfolio review, Kite made a decision not to submit an investigational new drug application, or IND, for KITE-037 at that time. The development program for KITE-037 remains active, and we and Kite are working closely towards the development of one or more new product candidates.

ST-501 - Tauopathies, ST-502 - Synucleinopathies and Type 1 Myotonic Dystrophy (DM1)

We and Biogen continue to develop preclinical genome engineering therapies, including our ST-501 product candidate to treat tauopathies, our ST-502 product candidate to treat synucleinopathies including Parkinson's disease and a product candidate targeting DM1, a neuromuscular disease. Biogen has also selected an undisclosed fourth neurological disease gene target under our collaboration agreement, and we have begun early research activities on therapies addressing this target. Under our collaboration agreement with Biogen, it has exclusive rights to nominate up to eight additional targets over a target selection period of five years. This collaboration leverages ZF transcription factors to aim to modulate the expression of key genes involved in neurological diseases.

In March 2021, we published preclinical data in *Science Advances*, showing that tau-targeted ZF-transcription factors selectively reduced tau messenger RNA and proteins by 50% to 80% out to 11 months without detectable off-target events.

In the first half of 2021, we presented preclinical data at the 15th International Conference on Alzheimer's and Parkinson's Diseases (AD/PD) and at the American Society of Gene & Cell Therapy (ASGCT) Annual Meeting, showing that alpha synuclein-targeted ZF-transcription factors could significantly repress human alpha synuclein and were well tolerated *in vivo*.

Genome Engineering - Autism Spectrum Disorder and Neurodevelopmental Disorders

We and Novartis continue to develop preclinical genome engineering therapies for three neurodevelopmental targets, including genes linked to autism spectrum disorder and intellectual disability. The collaboration leverages our ZF-transcription factors to aim to upregulate the expression of key genes involved in neurodevelopmental disorders.

Genome Engineering - ALS and Frontotemporal Lobar Degeneration

We and Pfizer continue to develop preclinical genome engineering product candidates that use allele-specific ZF-transcription factors to treat ALS and frontotemporal lobar degeneration, or FTLD, linked to mutations in the *C9ORF72* gene. The most frequent genetic cause of ALS is the expansion of hexanucleotide repeats, or G4C2 repeats, in the first intron of the *C9ORF72* gene. Our approach is to design ZF-transcription factors to repress specifically pathogenic gene expression from the disease allele, while preserving expression of the healthy allele.

In September 2020, we completed our research obligations associated with this collaboration, which required us to identify, characterize and preclinically develop ZF-transcription factors satisfying pre-agreed criteria. Pfizer is now responsible for subsequent research and development activities as well as subsequent development, manufacturing, marketing and commercialization.

In May 2021, we presented preclinical data at the ASGCT Annual Meeting, showing that ZF-transcription factors were capable of selectively repressing the expression of both disease sense and antisense isoforms over a wide dose range while preserving the expression of normal isoform in patient-derived neural cells. No detectable off-target gene regulation was observed.

Takeda – Huntington's Disease

We and Takeda continue to develop potential preclinical genome engineering product candidates to treat Huntington's Disease that use a ZF-transcription factor designed to differentially down regulate the mutated disease-causing huntingtin gene, or HTT gene, while preserving the expression of the normal version of the gene.

For more information on the collaborations underlying these partnered programs, see "—Collaborations" below.

Legacy Clinical Research Programs

We have stopped development of the following clinical research programs. We continue to perform the appropriate long-term follow-up and closeout activities of the legacy studies in accordance with the study protocols.

ST-400 - Beta Thalassemia

In November 2021, we and Sanofi announced that we made a business decision to cease development of the beta thalassemia indication in order to focus resources on the sickle cell disease program. Five patients were dosed in the Phase 1/2 Thales study, an open-label, single arm clinical study to evaluate the safety and efficacy of ST-400. Results were last presented at American Society for Hematology Annual Meeting and Exposition 2021.

SB-728 - Human Immunodeficiency Virus, or HIV

SB-728 was one of the first clinical candidates to use an early generation of our ZF nuclease-mediated genome editing technology. We conducted several clinical studies evaluating SB-728, demonstrating the safety of the platform and showing immune responses from a subset of patients, however the studies did not meet our clinical expectations and we have stopped development in HIV.

SB-913 - MPS II

In January 2021, we announced that we have stopped development of SB-913, our ZF nuclease genome editing product candidate for the treatment of Mucopolysaccharidosis Type II, or MPS II. While the Phase 1/2 CHAMPIONS study evaluating SB-913 demonstrated the first molecular evidence of genome editing, the study did not meet our clinical expectations. Research is ongoing to improve the potency and delivery of our ZF nuclease for genome editing, which we believe will optimize the platform for therapeutic effect.

SB-318 - MPS I and SB-FIX - Hemophilia B

We have stopped development of SB-318 and SB-FIX, genome editing product candidates for the treatment of MPS I and hemophilia B, respectively.

COLLABORATIONS

We have entered into strategic collaborations with larger biopharmaceutical companies for several of our therapeutic programs and other partnerships for several non-therapeutic applications of our technology. We will continue to pursue further collaborations when appropriate to fund internal research and development activities and to assist in product development, manufacturing, regulatory approval and commercialization. Decisions to collaborate or not will be based on review of our internal resources, institutional knowledge and commercial considerations.

Novartis

In July 2020, we entered into a collaboration and license agreement with Novartis for the research, development and commercialization of gene regulation therapies to treat three neurodevelopmental disorders. Under the agreement, we granted to Novartis an exclusive, royalty bearing and worldwide license, under our relevant patents and know-how, to develop, manufacture and commercialize certain of our ZF-transcription factors targeted to three undisclosed genes that are associated with neurodevelopmental disorders, including autism spectrum disorder and intellectual disability. We perform early research activities over the collaboration period for each gene target and manufacture the ZF-transcription factors required for such research, costs of which are funded by Novartis. Novartis is responsible for additional research activities, IND-enabling studies, clinical development, regulatory approvals, manufacturing of preclinical, clinical and approved products, and global commercialization. Subject to certain exceptions set forth in the agreement, we are prohibited from developing, manufacturing or commercializing any therapeutic product targeting any of the three genes that are the subject of the collaboration. Novartis also has the option to license certain of our proprietary AAVs for the sole purpose of developing, manufacturing and commercializing licensed products arising from the collaboration.

Under the agreement, Novartis paid us a $75.0 million upfront license fee payment in August 2020. In addition, we are eligible to earn from Novartis up to $420.0 million in development milestones and up to $300.0 million in commercial

milestones. We are also eligible to earn from Novartis tiered high single-digit to sub-teen double-digit royalties on potential net commercial sales of licensed products arising from the collaboration. These royalty payments are subject to reduction due to patent expiration, loss of market exclusivity and payments made under certain licenses for third-party intellectual property. The agreement continues, on a product-by-product and country-by-country basis, until the expiration of the applicable royalty term. Novartis has the right to terminate the agreement, in its entirety or on a target-by-target basis, for any reason after a specified notice period. Each party has the right to terminate the agreement on account of the other party's bankruptcy or material, uncured breach.

Biogen

In February 2020, we entered into a global licensing collaboration agreement with Biogen for the research, development and commercialization of gene regulation therapies for the treatment of neurological diseases which became effective in April 2020. Our collaboration aims to leverage our proprietary ZFP technology delivered via AAV to modulate expression of key genes involved in neurological diseases. Concurrently with the execution of the collaboration agreement, we also entered into a stock purchase agreement with Biogen MA, Inc., pursuant to which Biogen MA, Inc. purchased 24,420,157 shares of our common stock, or the Biogen Shares, for an aggregate purchase price of $225.0 million.

Under the collaboration agreement, Biogen paid us an upfront license fee payment of $125.0 million. We are also eligible to earn research, development, regulatory and commercial milestone payments that could total up to approximately $2.4 billion if Biogen selects all of the targets allowed under the agreement and all the specified milestones set forth in the agreement are achieved, which includes up to $925.0 million in pre-approval milestone payments and up to $1.5 billion in first commercial sale and other sales-based milestone payments. In addition, we are also eligible to receive tiered high single-digit to sub-teen royalties on potential net commercial sales of licensed products arising from the collaboration. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

Under the collaboration agreement, we granted to Biogen an exclusive, royalty bearing and worldwide license, under our relevant patents and know-how, to develop, manufacture and commercialize certain ZFP and/or AAV-based products directed to up to twelve neurological disease gene targets selected by Biogen. Biogen has already selected four of these: our ST-501 product candidate to treat tauopathies, our ST-502 product candidate to treat synucleinopathies including Parkinson's disease, a third product candidate targeting DM1, a neuromuscular disease, and a fourth undisclosed neurological disease gene target. Biogen has exclusive rights to nominate up to eight additional targets over a target selection period of five years. For each gene target selected by Biogen, we perform early research activities, costs for which are shared by the companies, aimed at the development of the combination of proprietary CNS delivery vectors and ZF-transcription factors targeting therapeutically relevant genes. Biogen then assumes responsibility and costs for the IND-enabling studies, clinical development, related regulatory interactions, and global commercialization. We are primarily responsible for Good Manufacturing Practice, or GMP, manufacturing activities for the initial clinical studies for the first three products of the collaboration and plan to leverage our in-house manufacturing capacity. Biogen is responsible for GMP manufacturing activities beyond the first clinical study for each of the first three products. Subject to certain exceptions set forth in the collaboration agreement, we are prohibited from developing, manufacturing or commercializing any therapeutic product directed to the targets selected by Biogen.

The collaboration agreement continues, on a product-by-product and country-by-country basis, until the expiration of the applicable royalty term. Biogen has the right to terminate the collaboration agreement, in its entirety or on target-by-target basis, for any reason after a specified notice period. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach. In addition, we may terminate the collaboration agreement if Biogen challenges any patents licensed by us to Biogen.

Pursuant to the terms of the stock purchase agreement, Biogen has agreed not to, without our prior written and subject to specified conditions and exceptions, directly or indirectly acquire shares of our outstanding common stock, seek or propose a tender or exchange offer or merger between the parties, solicit proxies or consents with respect to any matter, or undertake other specified actions related to the potential acquisition of additional equity interests in us. Subject to customary exceptions, such standstill restrictions expire on the earlier of the three-year anniversary of the effectiveness of the Biogen collaboration agreement and the date that Biogen beneficially owns less than 5% of our common stock.

The stock purchase agreement also provides that until the first anniversary of the effectiveness of the Biogen collaboration agreement, Biogen must hold and not sell any of the Biogen Shares and from the first anniversary through the second anniversary, Biogen must hold and not sell at least 50% of the Biogen Shares, in addition to being subject to certain volume limitations. The stock purchase agreement further provides that, subject to certain limitations, upon Biogen's request, we must register for resale any of the Biogen Shares on a registration statement to be filed with the SEC, until such time as all remaining Biogen Shares may be sold pursuant to Rule 144 promulgated under the Securities Act during any 90-day period.

In addition, Biogen has agreed that, excluding specified extraordinary matters, it must vote the Biogen Shares in accordance with our recommendation and has granted us an irrevocable proxy with respect to the foregoing. Such voting provisions expire on the earlier of (i) the two-year anniversary of the effectiveness of the Biogen collaboration agreement, (ii) the date that Biogen beneficially owns less than 5% of our common stock and (iii) the date the Biogen collaboration agreement is terminated; provided, however, that in no event shall such expiration date be prior to the one-year anniversary of the effectiveness of the Biogen collaboration agreement.

Kite

In February 2018, we entered into a collaboration and license agreement with Kite, which became effective in April 2018 and was amended and restated in September 2019, for the research, development and commercialization of engineered cell therapies for cancer. Kite is responsible for all clinical development and commercialization of any resulting products.

Subject to the terms of this agreement, we granted Kite an exclusive, royalty-bearing, worldwide, sublicensable license, under our relevant patents and know-how, to develop, manufacture and commercialize, for the purpose of treating cancer, specific cell therapy products that may result from the research program and that are engineered *ex vivo* using selected ZF nuclease and AAVs developed under the research program, to express CARs, TCRs or NKRs directed to candidate targets.

During the research program term and subject to certain exceptions, except pursuant to this agreement, we are prohibited from researching, developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of *ex vivo* genome editing, expresses a CAR, TCR or NKR that is directed to a target expressed on or in a human cancer cell. After the research program term concludes and subject to certain exceptions, except pursuant to this agreement, we are prohibited from developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of *ex vivo* genome editing, expresses a CAR, TCR or NKR that is directed to a candidate target.

We received a $150.0 million upfront payment from Kite when the agreement became effective in April 2018. In addition, Kite reimburses our direct costs to conduct the joint research program, and Kite is responsible for all subsequent development, manufacturing and commercialization of any licensed products. We are also eligible to earn contingent development- and sales-based milestone payments that could total up to $3.0 billion if all the specified milestones set forth in this agreement are achieved. Of this amount, approximately $1.3 billion relates to the achievement of specified research, clinical development, regulatory and first commercial sale milestones, and approximately $1.8 billion relates to the achievement of specified sales-based milestones if annual worldwide net sales of licensed products reach specified levels. Each development- and sales-based milestone payment is payable (i) only once for each licensed product, regardless of the number of times that the associated milestone event is achieved by such licensed product, and (ii) only for the first 10 times that the associated milestone event is achieved, regardless of the number of licensed products that may achieve such milestone event. In addition, we are entitled to receive escalating, tiered royalty payments with a percentage in the single digits based on potential future annual worldwide net sales of licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

Kite has the right to terminate this agreement, in its entirety or on a per licensed product or per candidate target basis, for any reason after a specified notice period. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach.

Pfizer

We have two separate collaboration agreements with Pfizer:

Giroctocogene Fitelparvovec Collaboration

In May 2017, we entered into an exclusive, global collaboration and license agreement with Pfizer for the research, development and commercialization of giroctocogene fitelparvovec, also known as SB-525, our gene therapy product candidate for hemophilia A, and closely related products, which we amended in December 2019.

Under this agreement, we were responsible for conducting the Phase 1/2 clinical study and certain manufacturing activities for giroctocogene fitelparvovec, while Pfizer is responsible for subsequent worldwide development, manufacturing, marketing and commercialization of giroctocogene fitelparvovec. We may also collaborate in the research and development of additional AAV-based gene therapy products for hemophilia A.

We received an upfront license fee of $70.0 million, achieved a $25.0 million milestone in December 2019 upon completion of the transfer of the IND for giroctocogene fitelparvovec to Pfizer, and achieved a $30.0 million milestone in October 2020 upon the dosing of the first patient in our pivotal Phase 3 AFFINE trial. We are eligible to earn further

development milestone payments on the achievement of specified clinical development, intellectual property, regulatory and first commercial sale milestones for giroctocogene fitelparvovec and potentially other products. The total amount of potential clinical development, intellectual property, regulatory, and first commercial sale milestone payments, assuming the achievement of all specified milestones in this agreement, is $475.0 million, which includes up to $300.0 million for giroctocogene fitelparvovec and up to $175.0 million for other products that may be developed under the agreement, subject to reduction on account of payments made under certain licenses for third-party intellectual property. In addition, Pfizer agreed to pay us royalties for each potential licensed product developed under the agreement that are an escalating tiered, double-digit percentage of the annual net sales of such product and are subject to reduction due to patent expiration, entry of biosimilar products to the market and payment made under certain licenses for third-party intellectual property.

Subject to the terms of the agreement, we granted Pfizer an exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses, to use certain technology controlled by us for the purpose of developing, manufacturing and commercializing giroctocogene fitelparvovec and related products. Pfizer granted us a non-exclusive, worldwide, royalty free, fully paid license, with the right to grant sublicenses, to use certain manufacturing technology developed under the agreement and controlled by Pfizer to manufacture our products that utilize the AAV delivery system. During a specified period, neither we nor Pfizer are permitted to clinically develop or commercialize, outside of the collaboration, certain AAV-based gene therapy products for hemophilia A.

Unless earlier terminated, the agreement has a term that continues, on a per product and per country basis, until the later of (i) the expiration of patent claims that cover the product in a country, (ii) the expiration of regulatory exclusivity for a product in a country, and (iii) 15 years after the first commercial sale of a product in a country. Pfizer has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. Upon termination for any reason, the license granted by us to Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec and related products automatically terminate. Upon termination by us for cause or by Pfizer in any country or countries, Pfizer is required to automatically grant us an exclusive, royalty-bearing license under certain technology controlled by Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec in the terminated country or countries.

C9ORF72 Collaboration

In December 2017, we entered into a separate exclusive, global collaboration and license agreement with Pfizer for the development and commercialization of potential gene therapy products that use ZF-transcription factors to treat ALS and FTLD linked to mutations of the *C9ORF72* gene. Pursuant to this agreement, we agreed to work with Pfizer on a research program to identify, characterize and preclinically develop ZF-transcription factors that bind to and specifically reduce expression of the mutant form of the *C9ORF72* gene.

We received a $12.0 million upfront payment from Pfizer and achieved a $5.0 million milestone payment in September 2020 associated with the completion of all of our research activities for the *C9ORF72* collaboration. We are eligible to earn up to $60.0 million in development milestone payments from Pfizer contingent on the achievement of specified preclinical development, clinical development and first commercial sale milestones, and up to $90.0 million commercial milestone payments if annual worldwide net sales of the licensed products reach specified levels. In addition, Pfizer will pay us royalties based on an escalating tiered, mid- to high-single digit percentage of the annual worldwide net sales of the licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property. Each party is responsible for the cost of its performance of the research program. Pfizer is operationally and financially responsible for subsequent development, manufacturing and commercialization of the licensed products.

Subject to the terms of the agreement, we granted Pfizer an exclusive, worldwide, royalty-bearing, license under our relevant patents and know-how to develop, manufacture and commercialize gene therapy products that use resulting ZF-transcription factors that satisfy pre-agreed criteria. During a specified period, neither we nor Pfizer will be permitted to research, develop, manufacture or commercialize outside of the collaboration any ZFPs that specifically bind to the *C9ORF72* gene.

Unless earlier terminated, the agreement has a term that continues, on a per licensed product and per country basis, until the later of (i) the expiration of patent claims that cover the licensed product in a country, (ii) the expiration of regulatory exclusivity for a licensed product in a country, and (iii) 15 years after the first commercial sale of a licensed product in a major market country. Pfizer has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. The agreement will also terminate if we are unable to identify any lead candidates for development within a specified period of time or if Pfizer elects not to advance a lead candidate beyond a certain development milestone within a specified period of time. Upon termination for any reason, the license granted by us to Pfizer to develop, manufacture and commercialize licensed products under the agreement will automatically terminate. Upon termination by us for cause or by Pfizer without cause for any licensed product or licensed products in any country or countries, we will have the right to negotiate with Pfizer to obtain a non-exclusive, royalty-bearing license under certain technology controlled by Pfizer to develop, manufacture and commercialize the licensed product or licensed products in the terminated country or countries.

Following termination by us for Pfizer's material breach, either party will not be permitted to research, develop, manufacture or commercialize ZFPs that specifically bind to the *C9ORF72* gene for a period of time.

Sanofi

In January 2014, we entered into an exclusive worldwide collaboration and license agreement with Biogen MA, Inc., who subsequently assigned it to Bioverativ Inc., who was then subsequently acquired by Sanofi to develop therapeutics for hemoglobinopathies. Under the agreement, we were originally jointly conducting two research programs: a beta thalassemia program, which was discontinued in the third quarter of 2021, and a program which resulted in the development of SAR445136, a ZF nuclease, gene-edited cell therapy product candidate for the treatment of SCD, which remains active.

Under the SCD program, we and Sanofi were jointly responsible for research and development activities prior to filing of an IND, but Sanofi is now responsible for subsequent worldwide clinical development, manufacturing and commercialization of licensed products developed under the agreement. Subject to the terms of the agreement, we have granted Sanofi an exclusive, royalty-bearing license, with the right to grant sublicenses, to use certain ZFP and other technology controlled by us for the purpose of researching, developing, manufacturing and commercializing licensed products developed under the agreement. We have also granted Sanofi a non-exclusive, worldwide, royalty-free, fully paid license, with the right to grant sublicenses, under our interest in certain other intellectual property developed pursuant to the agreement. During the term of the agreement, we are not permitted to research, develop, manufacture or commercialize, outside of the agreement, certain gene therapy products that target genes relevant to the licensed products.

Under the agreement, we received an upfront license fee of $20.0 million, achieved a $6.0 million milestone in August 2019 upon dosing of the third subject in the beta thalassemia Phase 1/2 clinical trial and achieved a $7.5 million milestone in December 2019 upon dosing of the first subject in the Phase 1/2 PRECIZN-1 clinical study evaluating SAR445136.

In January 2022, we announced that Sanofi will be transitioning its rights and obligations related to SAR445136 to us as of June 28, 2022. This transition follows Sanofi's notice of termination for convenience of the collaboration and license agreement between Sanofi and Sangamo. Sanofi has elected to transition the SAR445136 program to us following a recent change in Sanofi's strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies. We and Sanofi are collaborating on an orderly transition, while we explore options to advance the program, including seeking a potential new collaboration partner. We expect the Phase 1/2 PRECIZN-1 study of SAR445136 to be completed as planned and that Sanofi will continue to pay the costs of the Phase 1/2 PRECIZN-1 study until the termination date of June 28, 2022, as contemplated by the collaboration and license agreement

Takeda

In January 2012, we entered into a collaboration and license agreement with Shire International GmbH, a wholly-owned subsidiary of Takeda, which we amended and restated in September 2015, to research, develop and commercialize human therapeutics and diagnostics for monogenic diseases based on our ZFP technology. We received an upfront license fee of $13.0 million in 2012 and achieved a $1.0 million milestone in 2014. Pursuant to the amended and restated agreement, Takeda has an exclusive, worldwide license to ZFP therapeutics for treating Huntington's disease.

Under the amended and restated agreement, Takeda has full control over, and full responsibility for the costs of, the Huntington's disease program, subject to certain obligations, including the obligation to retain us to perform ZFP design, optimization and assessment services and to reimburse us for the costs of such services. Takeda does not have any milestone payment obligations but is required to pay single digit percentage royalties to us, up to a specified maximum cap, on the commercial sales of ZFP therapeutic products for Huntington's disease. During the term of the amended and restated agreement, we are not permitted to research, develop or commercialize, outside of the agreement, certain products that target the HTT gene.

Under the amended and restated agreement, we have full control over, and full responsibility for the costs of, the hemophilia A and B programs returned to us by Takeda, subject to certain diligence obligations. We also granted Takeda a right of first negotiation to obtain a license to such programs under certain circumstances. We are required to pay single digit percentage royalties to Takeda, up to a specified maximum cap, on commercial sales of therapeutic products from the programs returned to us by Takeda. We will be required to pay Takeda this single digit percentage royalty, subject to the maximum royalty cap, on any commercial sales of giroctocogene fitelparvovec, our gene therapy product candidate for the treatment of moderately severe to severe hemophilia A that we are developing with our collaborator Pfizer, if giroctocogene fitelparvovec receives regulatory approvals and is commercialized.

The amended and restated agreement may be terminated by (i) us or Takeda, in whole or in part, for the uncured material breach of the other party, (ii) us or Takeda for the bankruptcy or other insolvency proceeding of the other party and (iii) Takeda, in its entirety, effective upon at least 90 days' advance written notice.

Other Partnerships

In addition to our partnerships for the development of human therapeutic applications, we have also licensed our technology in several other areas, such as plant agriculture and research reagents, including the production of transgenic animals and cell-line engineering. These license partners include Corteva AgriScience, formerly known as Dow AgroSciences LLC, or DAS, Sigma-Aldrich Corporation (now MilliporeSigma in the United States and Merck KGaA outside the United States), Genentech, Inc., Open Monoclonal Technology, Inc. (now Ligand Pharmaceuticals Inc.) and F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc.

INTELLECTUAL PROPERTY

Patents, trade secrets, know-how and licensed technologies are important to our business. Our strategy includes filing, obtaining, maintaining, licensing, and when necessary, defending our patents and patent applications to protect technologies, inventions, and improvements to inventions that we consider important for the research, development, and commercialization of our technologies and our product candidates. We have filed numerous patent applications with the U.S. Patent and Trademark Office, or USPTO, and with patent offices in multiple foreign jurisdictions. Our proprietary intellectual property includes methods relating to the design of zinc finger proteins, Transcription Activator-Like Effector, or TALE, proteins and Clustered Regularly Interspaced Short Palindromic Repeats, or CRISPR/Cas, editing systems, therapeutic applications of genome editing technology, enabling technologies related to our platform and the use of genome editing across a variety of applications. We rely on a combination of patents, copyrights, trademarks, proprietary know-how, continuing technological innovations and trade secret protections, as well as confidentiality agreements, materials transfer agreements, research agreements and licensing agreements, to establish and protect our proprietary rights.

In-licensed Technology

We have exclusively licensed in relevant fields certain intellectual property directed to the design, selection, and use of ZFPs, ZF nucleases and ZF-transcription factors for genome editing and genome regulation from numerous academic institutions. Although no individual in-license is material to our overall protection of our ZFP and ZF nuclease platforms, we believe that these in-licenses, in combination with our own know-how, patent applications and patents, protect us from unauthorized third parties who might try to copy or use our products or technologies.

In addition, with respect to our cell therapy products, our subsidiary, Sangamo France, has a license agreement with the University of British Columbia pursuant to which it exclusively licensed in relevant fields the right to the CAR for use in our TX200 product candidate. This license includes one patent family, which is expected to expire in September 2038, absent any patent term adjustment, or PTA, patent term extension, or PTE, or disclaimers.

Our Intellectual Property

In addition to our in-licensed patent portfolio, we have numerous issued patents and pending patent applications directed to the design, compositions and uses of ZFPs, ZF nucleases, ZF-transcription factors, TALE proteins and CRISPR/Cas editing systems and other technologies related to our programs.

Given our over two-decade history with zinc finger technology, some of the earliest zinc finger patents in our portfolio began expiring in 2015. However, we have continued to build on this patent portfolio and have been issued additional patents and have applications pending that provide protection for our ZFP technology. Additionally, patents that may be issued from our pending applications will extend the patent exclusivity of our patent estate.

We believe that our in-licensed and our owned patents and patent applications, in combination with our know-how and trade secrets, in the aggregate, will provide us with substantial protection of and exclusivity around the commercial development of our gene therapy, cell therapy and genome engineering programs. In this regard, patents issued to us, applied

for by us, or exclusively and non-exclusively licensed to us, cover our commercially relevant technologies, including the following types of inventions, processes and products:

- *ZFP and ZF nuclease design, engineered nucleases, and compositions (multiple patents issued with expected expiration dates ranging from 2029 to 2036), absent any PTA, PTE or disclaimers):* These patents cover inventions including DNA target site selection, zinc finger binding domain design, nuclease domain design, linker design, DNA nickases, ZFP libraries databases and methods of construction, as well as methods to increase zinc finger binding specificity (see, e.g., US9982245, US10066242, US10113207);
- *ZFP Therapeutics (multiple patents issued with expected expiration dates ranging from 2028 to 2031, absent any PTA, PTE or disclaimers):* These patents cover inventions including methods relating to activation and inhibition of endogenous genes, identification of accessible regions within chromatin, including treatment of Huntington's disease, HIV, cancer therapeutics, modulation of cardiac contractility and methods to regulate the glucocorticoid receptor (see, e.g., US9943565);
- *Nuclease Therapeutics (multiple patents issued with expected expiration dates ranging from 2031 to 2036, absent any PTA, PTE or disclaimers):* These patents cover inventions including treatments for HIV, beta thalassemia and SCD, hemophilia inherited metabolic diseases, genome editing, Parkinson's Disease, regulation of the expression of PD1; Immunomodulatory therapeutics; Cystic Fibrosis; CNS disease; Severe combined immunodeficiency, Modified T cells, including HLA knock out and methods of editing stem cells (see, e.g., US9877988, US9963715, US10072066, US10081661, US10143760); and
- *Non-Therapeutic Applications of ZFPs and Nucleases (multiple patents issued with expected expiration dates ranging from 2028 to 2035, absent any PTA, PTE or disclaimers):* These patents cover inventions including identification of regulatory sequences, analysis of gene regulation, structure and biological function, methods of agricultural biotechnology, methods of altering cellular differentiation state, development of cell lines for improved protein production, methods of transgenic animal development, engineering of stem cells, methods of genome editing (see, e.g., US9890395).

The patent positions of biopharmaceutical companies, including our patent position, are uncertain and involve complex legal and factual questions for which important legal tenets are largely unresolved and are subject to administrative, judicial, and regulatory interpretation and refinement. Obtaining, maintaining, and enforcing patent protection in the U.S. and other countries remains uncertain and depends, in part, upon decisions of the patent offices, courts, administrative bodies and lawmakers in these countries. It is also possible that we may develop proprietary products or technologies in the future that are not patentable. Patent applications may not result in the issuance of patents and the coverage claimed in a patent application may be significantly reduced before a patent is issued. It is possible that, under certain circumstances, patent applications will be rejected and we subsequently abandon them. It is possible that we may decide that an issued patent or pending patent application may provide us with little or no competitive advantage in view of its associated costs, in which case we may abandon or allow to lapse such patent or patent applications. Although we have filed for patents on some aspects of our technology, we cannot provide assurances that patents will be issued as a result of these pending applications or that any patent that has been or may be issued will be upheld. It is possible that our current patents, or patents which we may later acquire, may be successfully challenged, invalidated in whole or in part, or deemed unenforceable. The laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States.

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

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Competitors may use our technologies in jurisdictions where we have

not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. Ultimately, patent protection must ultimately be sought on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States. 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 third parties, including government agencies or government contractors. In some countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors is forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations, and prospects may be adversely affected.

In the future, third parties may assert patent, copyright, trademark, and other intellectual property rights to technologies that are important to our business. The outcome following any potential legal assertions of infringement, invalidity and unenforceability is unpredictable. Any claims asserting that our products infringe or may infringe proprietary rights of third parties, if determined adversely to us, could significantly harm our business. See "Risk Factors—*Risks Relating to Our Intellectual Property.*"

COMPETITION

We and our biopharmaceutical collaborators are leaders in the research and development of gene therapies, cell therapies and genome engineering therapies using ZFP DNA-binding proteins.

We are aware of several other companies focused on other methods for editing genes and regulating gene expression and a limited number of commercial and academic groups pursuing the development of ZFP genome engineering technologies. The fields of gene therapy, cell therapy and genome engineering are highly competitive, and we expect competition to persist and intensify in the future from a number of different sources, including other biopharmaceutical companies; academic and research institutions; and government agencies that will seek to develop ZFPs as well as technologies that will compete with our ZFP technology platform, such as TALE proteins and the CRISPR-Cas editing system.

Accordingly, our competitors may succeed in obtaining patent protection, receiving FDA approval or commercializing competitive products before we do. If we commence commercial product sales, we may be competing against companies with greater marketing, sales, distribution and manufacturing capabilities, areas in which we have limited or no experience. In addition, any product candidate that we successfully develop may compete with existing products that have long histories of safe and effective use.

Although we are in the clinical development phase of operations and have no current therapeutic product sales, we believe the following companies, products and/or technologies may potentially be competitive with our technology or our product candidates under development:

- Protein pharmaceuticals under development at pharmaceutical and biotechnology companies such as F. Hoffman-LaRoche Ltd., Protalix Biotherapeutics, Inc., Amicus Therapeutics, Inc., Novartis AG, Global Blood Therapeutics, Inc., Vertex Pharmaceuticals, Inc., Biogen, Inc. and numerous other biopharmaceutical firms.
- Gene therapy companies developing gene-based products in clinical trials such as BioMarin Pharmaceutical, Inc., F. Hoffman-LaRoche Ltd. through their wholly-owned subsidiary Spark Therapeutics, Freeline Therapeutics Holdings plc and 4D Molecular Therapeutics, Inc. Other competitors in this category may include PTC Therapeutics, Inc., Taysha Gene Therapies, Inc., uniQure N.V., Ultragenyx Pharmaceutical Inc., Amicus Therapeutics, Inc. and numerous other gene therapy companies.
- Cell therapy companies developing cell-based products, including Vertex Pharmaceuticals and CRISPR Therapeutics AG, Bluebird bio, Inc., Aruvant Sciences, Inc., Editas Medicines, Inc., Graphite Bio, Inc., Beam Therapeutics, Inc., Medeor Therapeutics, Inc., Quell Therapeutics, Inc., Sonoma Biotherapeutics, Inc.,

AZTherapies, Inc., Reflection Therapeutics, Inc., Abata Therapeutics, Inc., TeraImmune, Inc., GentiBio, Inc. , Kyverna, Inc., Allogene Therapeutics, Inc., Cellectis S.A., Precision BioSciences, Inc., Orchard Therapeutics, Inc. and numerous other cell therapy companies.

- Nuclease and base editing technologies under development for therapeutic applications of genome modification including companies such as Editas Medicine, Inc., CRISPR Therapeutics AG, Caribou Biosciences, Inc., Intellia Therapeutics, Inc. and Beam Therapeutics developing the CRISPR/Cas editing system, Cellectis S.A. developing TALE nucleases and meganucleases, bluebird bio, Inc. developing Homing Endonucleases and MegaTALs and Precision BioSciences, Inc. developing meganucleases and numerous other gene editing companies.
- Antisense therapeutics and RNA interference technology, including RNAi and microRNA, which are technologies that may compete with ours in the development of novel therapeutic products acting through the regulation of gene expression. These technologies are being developed by several companies including Alnylam Pharmaceuticals, Inc., Ionis Pharmaceuticals, Inc., Wave Life Sciences, Inc., Moderna, Inc., Regulus Therapeutics Inc., Voyager Therapeutics, Inc and numerous other companies.
- Small molecules in development from both in-house drug discovery programs of pharmaceutical companies such as Global Blood Therapeutics, Inc., Vertex Pharmaceuticals, Inc., Biogen, Inc. and numerous other companies.

We expect to face intense competition from other companies for collaborative arrangements with biopharmaceutical companies, for establishing relationships with academic and research institutions, for licenses to proprietary technology and for subjects in our clinical trials of treatments for rare diseases. These competitors, either alone or with their collaborative partners, may succeed in developing technologies or products that are more effective or less costly than ours.

Our ability to compete successfully will depend, in part, on our ability to:

- develop safe, efficacious and commercially attractive proprietary products;
- obtain access to gene transfer technology on commercially reasonable terms;
- obtain required regulatory approvals;
- obtain reimbursement for our products in approved indications;
- attract and retain qualified scientific and product development personnel;
- enter into collaborative and strategic partnerships with others, including our competitors, to develop our technology and product candidates;
- obtain and enforce patents, licenses or other proprietary protection for our products and technologies;
- formulate, manufacture, market and sell any product that we develop;
- develop and maintain products that reach the market first and are technologically superior to or are of lower cost than other products in the market; and
- recruit subjects into our clinical trials in a timely fashion.

MANUFACTURING

We currently rely heavily on CMOs to produce our preclinical and clinical product candidates in accordance with FDA and EMA mandated regulations, also known as current Good Manufacturing Practices, or cGMPs. We employ a technical operations staff in the areas of process development, analytical development, quality control, quality assurance, project management, and manufacturing to facilitate appropriate oversight of our CMOs, support of our regulatory filings and execution of clinical trials.

We believe that in-house manufacturing capability can provide a competitive advantage. To this end, we have recently completed and brought online an AAV cGMP manufacturing facility in Brisbane, California designed to manufacture Phase 1/2 clinical study supplies for our gene therapy pipeline, as well as cell therapy manufacturing facilities in Brisbane, California and Valbonne, France.

We intend to continue to rely on CMOs for the manufacture of our product candidates for any Phase 3 clinical trials, and if approved, for commercial supply. We believe this balanced approach to manufacturing, investing in internal capacity and capabilities while strengthening our commitment with external capacity, will enable us to meet our anticipated pipeline needs.

We currently leverage three distinct manufacturing platforms: AAV vector production for our genome engineering and gene therapy product candidates, HSPC modification for some of our cell therapy product candidates and engineered T cell therapies. We use a commercial scale baculovirus manufacturing platform to manufacture AAV vectors for genome editing and

gene therapy, with each AAV vector packaging a different transgene specific to the target indication or ZF nuclease. The manufacturing process for our HSPC cell therapy product candidates utilizes the patient's own HSPCs. These HSPCs are transfected using mRNA to produce ZF nucleases that target specific DNA sites, resulting in modified HSPCs. The third platform utilizes our ZF nuclease technology to transform CAR-Tregs for autologous and allogeneic cell therapies. We believe we have capabilities to manufacture regulatory T cells in therapeutic quantities to be used to treat inflammatory and autoimmune disorders.

GOVERNMENT REGULATION

We operate within the heavily regulated biopharmaceutical industry and much of our operations, including nonclinical and clinical trials, development, manufacturing, commercialization, marketing and reimbursement are subject to regulatory approvals. Relevant regulatory authorities include, but are not limited to, the FDA, the EMA, Commission of the European Union, or EU, Member State agencies, including the UK Medicines and Healthcare Products Regulatory Agency, or MHRA.

Product Regulation

In the United States, the FDA regulates biologic products including gene therapy and human cellular therapy products under the Federal Food, Drug, and Cosmetic Act, or the FDCA, the Public Health Service Act, or the PHSA, and regulations and guidance implementing these laws. The FDCA, PHSA and their corresponding regulations govern, among other things, the testing, manufacturing, safety, efficacy, labeling, packaging, storage, record keeping, distribution, reporting, advertising and other promotional practices involving biologic products. Applications to the FDA are required before conducting human clinical testing of biologic products and in the EU, approval must be obtained from the EMA. FDA approval also must be obtained before marketing of biologic products. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources and we may not be able to obtain the required regulatory approvals.

U.S. Biologic Products Development Process

Our product candidates must be approved by the FDA before they may be legally marketed in the United States. The process required by the FDA before a biologic product candidate may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and *in vivo* studies in accordance with the FDA's current Good Laboratory Practice, or GLP, regulations and applicable requirements for the humane use of laboratory animals or other applicable regulations;
- submission to the FDA of an IND application, which allows human clinical trials to begin unless FDA objects within 30 days;
- approval by an independent institutional review board, or IRB, reviewing each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials according to the FDA's Good Clinical Practice, or GCP, regulations, and any additional requirements for the protection of human research subjects and their health information, to establish the safety and efficacy of the proposed biologic product candidate for its intended use;
- preparation and submission to the FDA of a biologics license application, or BLA, for marketing approval that includes substantial evidence of safety and efficacy from results of nonclinical testing and clinical trials and payment of user fees, if applicable;
- review of the product by an FDA advisory committee, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the biologic product candidate is produced to assess compliance with cGMP requirements and to assure that the facilities, methods and controls are adequate to preserve the biologic product candidate's identity, safety, strength, quality, potency and purity;
- potential FDA inspection of the nonclinical and clinical trial sites that generated the data in support of the BLA; and
- FDA review and approval, or licensure, of the BLA.

Before testing any biologic product candidate in humans, including a gene therapy product candidate, the product candidate must undergo preclinical testing. Preclinical tests, also referred to as nonclinical studies, include laboratory evaluations of product chemistry, toxicity and formulation, as well as *in vivo* studies to assess the potential safety and activity of the product candidate and to establish a rationale for therapeutic use. The conduct of the preclinical tests must comply with federal regulations and requirements including GLPs.

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

Human gene transfer protocols are subject to the FDA's oversight and other clinical trial regulations, and oversight at the local level as set forth in National Institutes of Health, or NIH, Guidelines. Specifically, under the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. Compliance with the NIH Guidelines is mandatory for investigators at institutions receiving NIH funds for research involving recombinant DNA. However, many companies and other institutions, not otherwise subject to the NIH Guidelines, voluntarily follow them.

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

EU Drug Development Process

Similar to the United States, the EU regulatory framework sets both EU-wide and national, Member State-specific requirements for the development and approval of medicinal products. Article 8(3) of Directive 2001/83/EC sets out the contents of a marketing authorization, or MA, application and all the information that must be submitted for the evaluation of a medicinal product. Certain preclinical (also termed "non-clinical") data is required in order to enable clinical trials and later be used in dossier for a marketing authorization application. All studies should take place in accordance with GLP and all applicable EMA, Commission and European Pharmacopoeia guidelines on preclinical studies, including guidance on quality, non-clinical and clinical aspects of medicinal products containing genetically modified cells.

The requisite amount of preclinical data enables the design of a clinical trial, from Phase 1 (first-in-human clinical trials) through to Phases 2 and 3, which are safety and efficacy studies. Similar restrictions and requirements apply as in the United States regarding preclinical data to support trials using viral vectors. The preclinical tests should establish parameters such as toxicity, pharmacodynamics and pharmacokinetic properties, as well as the quality of the gene therapy medicinal products. Due to the particular nature of gene therapy medicinal products, it is recognized that it may not always be possible for the non-clinical safety studies to be in conformity with the principles of GLP and a proper justification should be submitted where a pivotal non-clinical safety study has not been conducted under GLP rules.

Clinical studies are crucial to obtaining the required data and the requirements governing the conduct of clinical trials are further analyzed below.

All medicinal products and advanced therapy medicinal products, or ATMPs, must be manufactured in accordance with the guidelines on GMP and in a GMP licensed facility, which can be subject to GMP inspections.

Human Clinical Trials Under an IND

Clinical trials involve the administration of the biologic product candidate to patients under the supervision of qualified investigators which generally are physicians not employed by, or under, the control of the trial sponsor. Clinical trials are conducted under written study protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria and the parameters to be used to monitor subject safety, including stopping rules that

assure a clinical trial will be stopped if certain adverse events should occur. Each protocol and any amendments to the protocol must be submitted to the FDA as part of the IND. Clinical trials must be conducted and monitored in accordance with the FDA's regulations comprising the GCP requirements, including the requirement that all research subjects provide informed consent.

Further, each clinical trial must be reviewed and approved by an IRB at or servicing each institution at which the clinical trial will be conducted. An IRB is charged with protecting the welfare and rights of trial participants and considers items such as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the form and content of the informed consent that must be signed by each clinical trial subject, or their legal representative, reviews and approves the study protocol, and must monitor the clinical trial until completed.

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

- *Phase 1.* The biologic product candidate initially is introduced into a small number of human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an early understanding of its effectiveness. Phase 1 clinical trials of gene and cell therapies are typically conducted in patients rather than healthy volunteers.
- *Phase 2.* The biologic product candidate is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product candidate for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- *Phase 3.* Phase 3 clinical trials are commonly referred to as "pivotal" studies, which typically denotes a study which presents the data that the FDA or other relevant regulatory agency will use to determine whether or not to approve a biologic product. In Phase 3 studies, the biologic product candidate is administered to an expanded patient population, generally at multiple geographically dispersed clinical trial sites in adequate and well-controlled clinical trials to generate sufficient data to statistically confirm the efficacy and safety of the product for approval. These clinical trials are intended to establish the overall risk/benefit ratio of the product candidate and provide an adequate basis for product labeling.

Post-approval clinical trials, sometimes referred to as Phase 4 clinical trials, may be conducted after initial approval. These clinical trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication, particularly for long-term safety follow-up. Sometimes approval for a product is conditional upon the completion of post-marketing clinical studies.

During all phases of clinical development, regulatory agencies (such as the FDA, the EMA and other comparable regulatory agencies) require extensive monitoring and auditing of all clinical activities, clinical data and clinical trial investigators. Annual progress reports detailing the results of the clinical trials must be submitted to the FDA.

Written IND safety reports must be promptly submitted to the FDA and the investigators for: serious and unexpected adverse events; any findings from other trials, *in vivo* laboratory tests or *in vitro* testing that suggest a significant risk for human subjects; or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information.

The FDA or the sponsor or its data safety monitoring board may suspend a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable safety risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the biologic product candidate has been associated with unexpected serious harm to patients.

The FDA usually recommends that sponsors observe subjects for potential gene therapy-related delayed adverse events for up to a 15-year period.

In the EU, clinical trials almost always require approval from a national competent authority of the relevant Member State and an approval from an Ethics Committee. If the medicinal product is considered to be a genetically modified organism, or GMO, then GMO approval must also be obtained. There is no harmonization between Member States regarding the approach to and timelines of GMO approval, which may result in the submission of additional information, which may impact study initiation in a given country.

The conduct of clinical trials should follow the approved clinical trial protocol and be in accordance with the principles of GCP. Gene therapy medicinal products are in addition subject to the rules of GCP for ATMPs, which outline specific additional safeguards and requirements. Record retention requirements are increased for ATMPs as there are relevant long-term follow-up and human safety and traceability requirements.

Compliance with cGMP Requirements

Manufacturers of biologics must comply with applicable current Good Manufacturing Practices, or cGMP, regulations, including quality control and quality assurance and maintenance of records and documentation. Manufacturers and others involved in the manufacture and distribution of such products also must register their establishments with the FDA and certain state agencies. Both domestic and foreign manufacturing establishments must register and provide additional information to the FDA upon their initial participation in the manufacturing process. Any material changes to the manufacturing equipment, process or location of the approved manufacturing site must be reported to the relevant agency/authority. Establishments may be subject to periodic, unannounced inspections by government authorities (including regulatory agencies) to ensure compliance with cGMP requirements and other laws. Discovery of problems may result in a government entity placing restrictions on a product, manufacturer or holder of an approved BLA, and may extend to requiring withdrawal of the product from the market, issue warning or similar letters or seeking civil, criminal or administrative sanctions against the company. The FDA will not approve a BLA unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specification.

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

For a product candidate that is also a human cellular or tissue product, the FDA also requires compliance with current Good Tissue Practices, or cGTPs. These are FDA regulations that govern the methods used in, and the facilities and controls used for, the manufacture of human cells, tissues and cellular and tissue-based products, or HCT/Ps, which are human cells or tissue intended for implantation, transplant, infusion, or transfer into a human recipient. The primary intent of the GTP requirements is to ensure that cell and tissue-based products are manufactured in a manner designed to prevent the introduction, transmission and spread of communicable disease. FDA regulations also require tissue establishments to register and list their HCT/Ps with the FDA and, when applicable, to evaluate donors through screening and testing.

U.S. Review and Approval Processes

The results of the preclinical tests and clinical trials, together with detailed information relating to the product's Chemistry, Manufacturing and Controls, or CMC, and proposed labeling, among other things, are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications.

Under the Prescription Drug User Fee Act, or PDUFA, as amended, each BLA must be accompanied by a significant user fee. The FDA adjusts the PDUFA user fees on an annual basis. The PDUFA also imposes an annual program fee for approved biologics. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business or for a product indication for orphan diseases.

The FDA reviews a BLA within 60 days of submission to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In that event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth, substantive review of the BLA.

The FDA reviews the BLA to determine, among other things, whether the proposed product candidate is safe and effective, for its intended use and whether the product candidate is being manufactured in accordance with cGMP to assure and preserve the product candidate's identity, safety, strength, quality, potency and purity. The FDA may 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 and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the product approval process, the FDA also will determine whether a risk evaluation and mitigation strategy, or REMS, is necessary to assure the safe use of the

product candidate. REMS use risk minimization strategies beyond the professional labeling to ensure that the benefits of the product outweigh the potential risks. To determine whether a REMS is needed, the FDA will consider the size of the population likely to use the product, seriousness of the disease, expected benefit of the product, expected duration of treatment, seriousness of known or potential adverse events, and whether the product is a new molecular entity. A REMS could include medication guides, physician communication plans and elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. If the FDA concludes a REMS is needed, the sponsor of the BLA must submit a proposed REMS; the FDA will not approve the BLA without a REMS, if required.

Before approving a BLA, the FDA will inspect the facilities at which the product candidate is manufactured. The FDA will not approve the product candidate unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product candidate within required specifications. Additionally, before approving a BLA, the FDA typically will inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with IND trial requirements and GCP requirements.

On the basis of the BLA and accompanying information, including the results of the inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the biologic product with specific prescribing information for specific indications. 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 and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the BLA, the FDA will issue an approval letter.

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

The FDA has agreed to specified performance goals in the review of BLAs under the PDUFA. One such goal is to review standard BLAs in 10 months after the FDA accepts the BLA for filing, and priority BLAs in six months, whereupon a review decision is to be made. The FDA does not always meet its PDUFA goal dates for standard and priority BLAs and its review goals are subject to change from time to time. The review process and the PDUFA goal date may be extended by three months if the FDA requests or the BLA sponsor otherwise provides additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

EU Review and Approval Process

Before a medicinal product can be placed on the market in the EU, it must have received an MA. This could either be at national or EU level under a mutual recognition, decentralized or centralized procedure. Our product candidates are innovative treatments, which will bear the classification of ATMP. As such, the appropriate authorization procedure is the centralized procedure, which involves an MA being granted by the European Commission following a positive opinion by the EMA. A centralized MA is simultaneously valid in all EU Member States and the European Economic Area, or EEA (Iceland, Liechtenstein and Norway). A centralized MA also results in a single set of product information (patient information leaflet, labelling and summary of product characteristics) for all EU Member States.

The timeline for the grant of a centralized MA since the time of the application is 210 days for the assessment of the application (including "clock stops" for the applicant to prepare answers to the questions from the EMA). The Committee for Medicinal Products for Human Use, or the CHMP, may either provide a positive or negative opinion. Following a positive opinion, the European Commission will usually issue its legally binding MA after 67 days. A negative opinion may be appealed by the applicant who must submit a request for re-examination within 60 days. There is the possibility for accelerated timelines of drug applications for eligible applicants, which can reduce the timeline to 150 days, if the applicant can produce sufficient justification.

If the MA application contains less comprehensive than the required standard as at the time of the application, when there are public health grounds and often in the case of orphan medicinal products, the EMA may recommend to the European Commission that it issues a different type of an MA, as follows: (a) a Conditional MA (valid for one year and renewable), when the medicinal product shows a positive benefit-risk balance and targets an unmet medical need and it is expected that the applicant will be able to provide comprehensive data in due course; or (b) an MA under 'exceptional circumstances', when it is not expected that the applicant will be able to provide comprehensive efficacy and safety data (often for very rare indications).

Manufacturing Regulation in Europe

Various requirements apply to the manufacturing and placing on the EU market of medicinal products. The manufacturing of medicinal products in the EU requires a manufacturing authorization, and the manufacturing authorization holder must comply with various requirements set out in the applicable EU laws, regulations and guidance, including EU cGMP standards. Similarly, the distribution of medicinal products into and within the EU is subject to compliance with the applicable EU laws, regulations and guidelines, including the requirement to hold appropriate authorizations for distribution granted by the competent authorities of the EU member states. Marketing authorization holders may be subject to civil, criminal or administrative sanctions, including suspension of manufacturing authorization, in case of non-compliance with the EU or EU member states' requirements applicable to the manufacturing of medicinal products.

Post-approval Requirements

Rigorous and extensive FDA regulation of biologic products continues after approval, particularly with respect to cGMP requirements. Manufacturers are required to comply with applicable requirements in the cGMP regulations, including quality control and quality assurance and maintenance of records and documentation. Other post-approval requirements applicable to biologic products include reporting of cGMP deviations that may affect the identity, potency, purity and overall safety of a distributed product, record-keeping requirements, reporting of adverse effects, reporting updated safety and efficacy information and complying with electronic record and signature requirements. After a BLA is approved, the product also may be subject to official lot release. 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 tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products before releasing the lots for distribution. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency and effectiveness of biologic products. Failure to comply with the FDA's post-approval regulations can result in withdrawal of product approval and licensure.

A sponsor also must comply with the FDA's or appropriate national authority's advertising and promotion requirements, such as the prohibition on promoting products for uses or in patient populations that are not described in the product's approved labeling (known as "off-label use"). Discovery of previously unknown problems or the failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions. In addition, changes to the manufacturing process or facility generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

Orphan and RMAT Designation

Products that are intended for treating rare conditions that affect fewer than 200,000 people in the U.S., or that affect more than 200,000 persons but are not expected to recover the costs of developing and marketing a treatment drug, may qualify for orphan designation. In the EU, these rare conditions are defined as having a prevalence of no more than five in every 10,000 people in the EU. Once a medicinal product with orphan designation obtains a marketing approval, it can benefit from a marketing exclusivity period in respect of the specific orphan indication for which the drug has been approved for a period of seven years in the U.S. and for up to 10 years in the EU. If the manufacturer is no longer able to assert that the product meets the orphan designation criteria or is not able to provide sufficient quantities, it may lose the orphan market exclusivity.

Regenerative medicine advanced therapy, or RMAT, designation is intended to expedite review of a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition and for which preliminary clinical evidence indicates the potential to address unmet medical needs for such a disease or condition.

RMAT designation provides potential benefits that include more frequent meetings with the FDA to discuss the development plan for the product candidate, and eligibility for rolling review and priority review of the related BLA. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites. However, RMAT designation does not change the FDA's standards for product approval. Additionally, RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges.

Clinical Trial Data Disclosure

Many jurisdictions have mandatory clinical trial information obligations on sponsors. In the EU this is under the Transparency Regulation No. 1049/ 2001, EMA Policy 0043, EMA Policy 0070, as well as the new Clinical Trials Regulation No. 536/2014, all of which impose on sponsors the obligation to make publicly available certain information stemming from clinical studies. In the EU, the transparency framework provides for a wide right for (EU-based at the moment) interested parties to submit an access to documents request to the EMA for information included in the marketing authorization

application dossier for approved medicinal products. Only very limited information is exempted from disclosure (i.e., commercially confidential information, which is construed increasingly narrowly and protected personal data). It is possible for competitors to access and use this data in their own research and development programs anywhere in the world, once these data are in the public domain.

Regulation of Our Operations

Although we currently do not have any products on the market, we may be subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which we conduct our business. Such laws include, without limitation:

- the federal healthcare Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid;
- federal civil and criminal false claims laws, including the federal False Claims Act, and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment or approval that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and also created federal criminal laws that prohibit, among other things, knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statements in connection with the delivery of or payment for healthcare benefits, items or services;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, which impose obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information held by certain healthcare providers, health plans and healthcare clearinghouses, known as covered entities, and individuals and entities that perform services for them that involve individually identifiable health information, known as business associates as well as covered subcontractors;
- the federal Physician Payments Sunshine Act created under the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the ACA, which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare and Medicaid Services, or CMS, information related to payments and other transfers of value to physicians (currently defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other healthcare professionals (such as physician assistants and nurse practitioners) and teaching hospitals, and ownership and investment interests held by physicians and their immediate family members;
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, require drug manufacturers to report information related to payments and other transfers of value to other healthcare providers and healthcare entities, marketing expenditures; or drug pricing; and/or ensure the registration of sales personnel; and
- state and foreign laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

If our operations are found to be in violation of any of such laws or any other governmental regulations that apply to us, we may be subject to significant penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, the curtailment or restructuring of our operations, exclusion from participation in federal and state healthcare programs, imprisonment, suspension or withdrawal of our marketing and commercialization in respect of our commercially approved products, and additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, any of which could adversely affect our ability to operate our business and our financial results. Responding to investigations can be time-and resource-consuming and can

divert management's attention from the business. Any such investigation or settlement could increase our costs or otherwise have an adverse effect on our business. See "Risk Factors—*Our current and future relationships with healthcare providers, customers and third-party payors subject us to applicable anti-kickback, fraud and abuse, privacy, data security and other healthcare laws and regulations. If we fail to comply with such regulations, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected*."

Healthcare Reform

The U.S. and some foreign jurisdictions are considering enacting or have enacted a number of additional legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our product candidates profitably, if approved. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts, which include major legislative initiatives, such as the ACA, to reduce the cost of care through changes in the healthcare system, including limits on the pricing, coverage, and reimbursement of pharmaceutical and biopharmaceutical products, especially under government-funded health care programs, and increased governmental control of drug pricing. The ACA and its implementing regulations, among other things, addressed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for certain drugs and biologics, including products similar to our product candidates, that are inhaled, infused, instilled, implanted or injected, increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program, extended the Medicaid Drug Rebate Program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations, subjected manufacturers to new annual fees and taxes for certain branded prescription drugs, created a new Patient Centered Outcomes Research Institute, which provides incentives to programs that increase the federal government's comparative effectiveness research, established a new Medicare Part D coverage gap discount program, in which manufacturers must now agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D, and created a licensure framework for follow-on biologic products.

There have been legal and political challenges to certain aspects of the ACA, as well as efforts to repeal or replace certain aspects of the ACA. For example, on June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Thus, the ACA will remain in effect in its current form. Prior to the U.S. Supreme Court ruling, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is possible that the ACA will be subject to judicial or Congressional challenges in the future. It is unclear how such challenges and the healthcare reform measures of the Biden administration will impact the ACA.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. In August 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, which went into effect in April 2013, and, due to subsequent legislative amendments to the statute, including the Bipartisan Budget Act of 2018, will remain in effect through 2031 unless additional Congressional action is taken. However, pursuant to COVID-19 pandemic relief legislation, these Medicare sequester reductions are suspended from May 1, 2020 through March 31, 2022 due to the COVID-19 pandemic. Under current legislation, the actual reduction in Medicare payments will vary from 1% in 2022 to up to 3% in the final fiscal year of this sequester. Additionally, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024. In January 2013, the American Taxpayer Relief Act of 2012, or the ATRA, was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. Further, Congress is considering additional health reform measures.

Also, there has been heightened governmental scrutiny recently over pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent Presidential executive orders, 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 pharmaceutical products. For example, on July 24, 2020 and

September 13, 2020, the Trump administration announced several executive orders related to prescription drug pricing that seek to implement several of the administration's proposals. As a result, the FDA concurrently released a final rule and guidance in September 2020 providing pathways for states to build and submit importation plans for drugs from Canada. Further, on November 20, 2020, the U.S. Department of Health and Human Services, or HHS, finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The rule also creates a new safe harbor for price reductions reflected at the point-of-sale, as well as a safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers. This rule has been delayed by the Biden administration until 2023. On November 20, 2020, CMS issued an interim final rule implementing President Trump's Most Favored Nation executive order, which would tie Medicare Part B payments for certain physician-administered drugs to the lowest price paid in other economically advanced countries, effective January 1, 2021. As a result of litigation challenging the Most Favored Nation model, on December 27, 2021, CMS published a final rule that rescinds the Most Favored Nation model interim final rule. Additionally, in July 2021, the Biden administration released an executive order, "Promoting Competition in the American Economy," with multiple provisions aimed at prescription drugs. In response to Biden's executive order, on September 9, 2021, HHS released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform and sets out a variety of potential legislative policies that Congress could pursue as well as potential administrative actions HHS can take to advance these principles. No legislation or administrative actions have been finalized to implement these principles. It is unclear whether these or similar measures will be implemented in the future. At the state level, legislatures have increasingly passed legislation and implemented 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.

In the United States, the EU and other potentially significant markets for our product candidates, government authorities and third-party payors are increasingly attempting to limit or regulate the price of medical products and services, particularly for new and innovative products and therapies, which has resulted in lower average selling prices. Furthermore, the increased emphasis on managed healthcare in the United States and on country and regional pricing and reimbursement controls in the EU will put additional pressure on product pricing, reimbursement and usage, which may adversely affect our future product sales and results of operations. These pressures can arise from rules and practices of managed care groups, judicial decisions and governmental laws and regulations related to Medicare, Medicaid and healthcare reform, pharmaceutical reimbursement policies and pricing in general. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

See "Risk Factors—*Recently enacted and future legislation, including potentially unfavorable pricing regulations or other healthcare reform initiatives, may increase the difficulty and cost for us to obtain regulatory approval of and commercialize our product candidates and affect the prices we may obtain.*"

Pricing, Coverage and Reimbursement

Pricing and reimbursement of a therapeutic product will largely determine the affordability of the product, and whether the product is prescribed and supplied to patients and private insurance companies may take into account government reimbursement methodologies. Due to these proposed and enacted laws, as well as other actions, significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we obtain regulatory approval, particularly for novel products. In both domestic and foreign markets, sales and reimbursement of any approved products will depend, in part, on the extent to which third-party payors, such as government health programs, commercial insurance and managed healthcare organizations provide coverage, and establish adequate reimbursement levels, for such products. Third-party payors are increasingly challenging the prices charged for medical products and services and imposing controls to manage costs. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the FDA-approved products for a particular indication. Additionally, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the cost-effectiveness of our products. If third-party payors do not consider our products to be cost-effective compared to other therapies, these payors may not cover our products after approved as a benefit under their plans or, if they do, the level of reimbursement may not be sufficient to allow us to sell our products on a profitable basis. See "Risk Factors—*Even if we are able to commercialize our product candidates, the products may not receive coverage and adequate reimbursement from third-party payors in the United States and in other countries in which we seek to commercialize our products, which could harm our business*."

In the EU, pricing and reimbursement are the prerogative of Member States. Therefore, the requirements around reimbursement of medicinal products can vary widely. Each Member State can follow its own approach, subject to common rules of transparency, competition, and freedom of trade and movement in the EU. Many Member States, including France, Germany and the United Kingdom, follow a health technology assessment, or HTA, procedure for medicinal products in order to assess the cost-effectiveness of a product which could then be recommended for reimbursement under the national health services. There is increasingly exchange of information concerning HTAs on a voluntary basis among EU Member States. In

the United Kingdom, the National Institute for Health and Care Excellence is the body which conducts HTAs and issues guidance to be followed by the regional health bodies called clinical commissioning groups.

Environmental Regulation

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

Privacy Regulation

We are, or may become, subject to numerous privacy and data security laws and regulations in the United States and in other foreign jurisdictions, including, as applicable, the Federal Trade Commission Act, the EU General Data Protection Regulation, or GDPR, the GDPR as it forms part of the United Kingdom's law by virtue of Section 3 of the European Union (Withdrawal) Act 2018, or UK GDPR, and the California Consumer Privacy Act of 2018, or CCPA.

The collection, use, disclosure, transfer or other processing of personal data regarding individuals in the European Economic Area, or EEA, including personal health data, is subject to the GDPR. The GDPR, which is wide-ranging in scope, imposes several requirements on us relating to, among other things, the control over personal data by individuals to whom the personal data relates, notice we must provide to individuals regarding our processing of their personal data, the documentation we must maintain, the security and confidentiality of the personal data, data breach notification, and the use of third-party processors in connection with the processing of personal data. The GDPR also imposes strict rules on the transfer of personal data to countries that the European Commission does not consider to provide an adequate level of privacy and data security (including the United States). While the European Commission recently issued a decision that allows transfers of personal data from the EEA to the United Kingdom to occur without restriction for a period of four years ending June 27, 2025, this decision could be withdrawn or not renewed, which would require us to implement additional mechanisms to continue making such transfers. The GDPR authorizes the imposition of large penalties for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenue of the noncompliant company, whichever is greater. The GDPR requirements related to international data transfers apply not only to third-party transactions, but also to transfers of information between us and our subsidiaries such as Sangamo France, including employee information. The GDPR has increased our responsibility and potential liability in relation to personal data that we process compared to prior EU law, particularly in light of our acquisition of Sangamo France, and we may be required to put in place additional mechanisms to ensure compliance with the GDPR, which could divert management's attention and increase our cost of doing business.

In the United States, federal, state and local governments have enacted numerous privacy and data security laws, including laws on data breach notification, personal data privacy and consumer protection. For example, the CCPA imposes various obligations, including obligations to provide detailed disclosures in privacy notices and affording California residents certain rights related to their personal data (including the right to delete their personal data and to opt out of the sale of their personal data). The CCPA includes potentially severe statutory damages (up to $7,500 per violation) and a private right of action for data breaches. The California Privacy Rights Act of 2020, or CPRA, effective on January 1, 2023, will significantly expand the CCPA. For example, the CPRA establishes the California Privacy Protection Agency to implement and enforce the new law and impose administrative fines. Other states have enacted similar laws. For example, Virginia passed the Consumer Data Protection Act, and Colorado passed the Colorado Privacy Act, both of which become effective in 2023.

Compliance with these and any other applicable privacy and data security laws and regulations is a rigorous and time-intensive process, and we may be required to put in place additional mechanisms ensuring compliance with the new data protection rules. If we fail to comply with any such laws or regulations, we may face significant fines and penalties that could adversely affect our business, financial condition and results of operations. Furthermore, the laws are not consistent, and compliance in the event of a widespread data breach is costly. See "Risk Factors—*Our current and future relationships with healthcare providers, customers and third-party payors subject us to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations. If we fail to comply with federal, state and foreign laws and regulations, including healthcare, privacy and data security laws and regulations, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.*"

HUMAN CAPITAL MANAGEMENT

Our Mission and Our Employees

At Sangamo, we are committed to translating ground-breaking science into genomic medicines that transform patients' lives. We are a passionate group of biotechnology professionals based in the United States, France and the United Kingdom with years of experience and technical expertise, committed to developing best-in-class genomic medicines. We embrace collaboration, discipline and efficiency while welcoming fresh ideas and stimulating personal development. We encourage and embrace diversity, equity and inclusion, and believe it enhances our work towards one common goal: to transform the lives of the patients we aim to serve.

We view our employees as one of our most valuable assets in serving our mission. We compete in the highly competitive biotechnology industry, and attracting, retaining and developing a diverse group of talented employees is crucial to our strategy and our ability to compete effectively. We are committed to the development and retention of our workforce to support our research, product development, manufacturing and regulatory efforts and our plans for commercializing our wholly-owned product candidates when approved. There currently is a shortage of skilled individuals with substantial experience discovering, developing and manufacturing genomic medicines, which is likely to continue. As a result, competition for these individuals is intense and the turnover rate can be high. We face substantial competition among numerous biopharmaceutical companies and academic institutions for individuals with these skills.

Our Values

We believe success comes when we align our core values with our mission to deliver genomic medicines that replace today's symptomatic treatments and transform patients' lives. Our core values are:

- Doing what's right for patients:
  - We collaborate with purpose and are driven by results that benefit patients.
  - We strive to put patient safety and quality first.
  - Patient needs drive our sense of urgency to deliver medicines.
  - We embrace our responsibility to pioneer the field of genomic medicine bioethically.
  - We take an inclusive approach to guide our drug development.
- Succeeding through teamwork:
  - We are driven by our shared vision that genomic medicine will transform the lives of patients and the field of healthcare.
  - We are a passionate and dedicated group of individuals who collaborate proactively and openly to execute and progress our business forward.
  - We define our priorities clearly, communicate them, and take collective accountability to deliver results for all stakeholders.
  - We are resilient and determined to succeed together because patients are depending on us.
- Innovating through smart decisions:
  - We courageously, relentlessly, and urgently pursue the journey of innovation to succeed in the field of genomic medicine.
  - We mine scientific possibilities with the goal of unlocking new treatment solutions for serious diseases.
  - We strive to achieve our business goals through agile, inclusive and efficient decision making.
  - We learn and grow from decades of scientific experience to develop therapies at the cutting edge of medicine.
  - We learn from failure, and seek to continuously improve performance, as part of the journey to achieve breakthroughs.
- Fostering belonging:
  - We develop shared goals that create a sense of belonging.
  - We are a company where diverse individuals can flourish, grow and develop their expertise while bringing their authentic selves to work.

- We feel connected to our local communities, the environment in which we live and the patient communities we serve.
- We come together to understand our scientific learnings and progress the evolution of our business.
- We embrace diversity, equity and inclusion.
- We are committed to nurturing diverse and inclusive environments to advance healthcare equity.

Our Management of Human Capital

We hired our first Chief People Officer in September 2020 to lead our human resources function and to expand our investments in recruiting, retaining and developing our employees. As of December 31, 2021, our global human resources function was comprised of 10 full time human resources professionals.

As of December 31, 2021, we had 431 full time employees located in the United States, France and the United Kingdom. Of these employees, 341 were located in the United States, primarily in the San Francisco Bay Area, 83 were located in Valbonne, France and the remaining seven were located near London, United Kingdom. Of these employees, 185 were primarily engaged in research and development activities, 163 were primarily engaged in technical operations and manufacturing and 83 were primarily engaged in general and administrative activities. We also engage the services of independent contractors and consultants as needed for special or temporary projects or specific expertise.

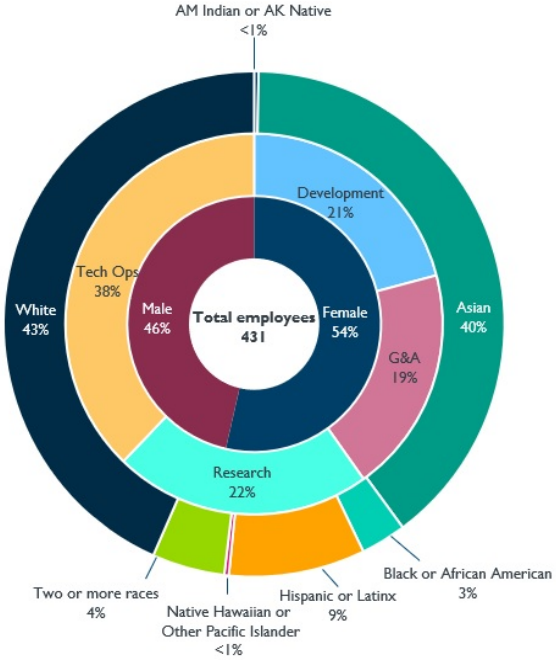
To manage our human resources, we track and report internally on key talent metrics including headcount by business unit and country, historical headcount growth, turnover, new hires and terminations, open roles and employee demographics including gender, race and ethnicity. Our senior executives use these metrics to assist with resource planning, recruitment and retention initiatives and the design of our compensation and benefits programs. We share these metrics quarterly with the Compensation Committee of our Board of Directors to assist it in fulfilling its duties to (a) establish our enterprise compensation philosophy, (b) administer our compensation and benefit plans, (c) evaluate the performance of our executive officers and key employees and (d) review and monitor management development and succession plans.

In 2021, we launched our first employee engagement survey. The results of this survey helped us better understand the culture, work dynamics and overall commitment of our employees and to also identify areas of focus that will increase overall employee engagement. We were happy with our participation rate of 79% and over 385 comments, and results demonstrating favorable levels of employee satisfaction.

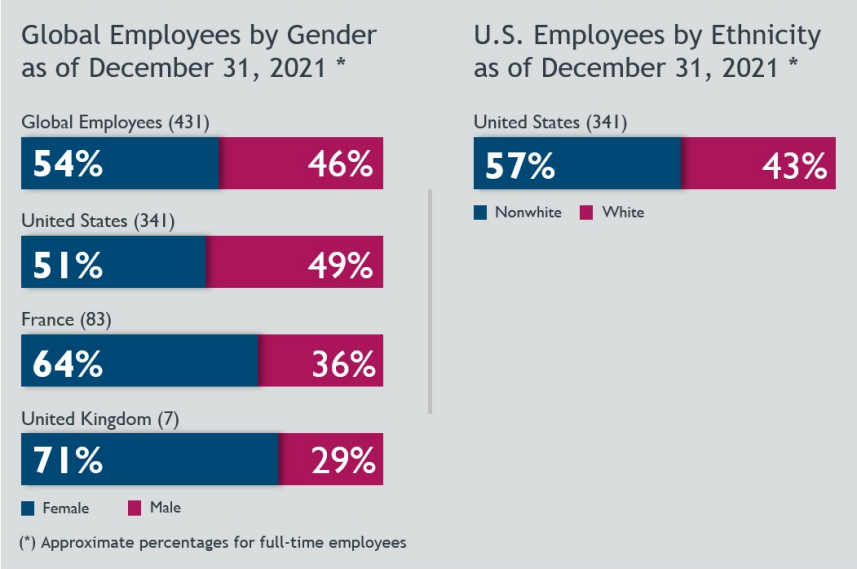
Our Commitment to Diversity, Equity and Inclusion

We strongly believe in a diverse workplace where all Sangamo employees can thrive in an inclusive environment free from discrimination, harassment, bias and prejudice. We aim to treat all individuals with respect and dignity and to provide all Sangamo employees with equal opportunity and fair treatment based on merit. By embracing diversity and inclusion, we create an organization committed to working together to develop innovative solutions in support of the Sangamo mission consistent with our values. At Sangamo, we cultivate a culture and environment where different backgrounds and perspectives are not only respected and heard, but embraced and celebrated. Not only is a diverse, equitable and inclusive mindset and culture critical to an engaged and committed workplace, but it is also imperative in delivering innovative solutions for our patients.

Sangamo employee demographics as of December 31, 2021:



Ethnicity data is for U.S. employees only



We have an active Diversity, Equity and Inclusion, or DEI, working group comprised of a diverse group of employees responsible for designing and implementing specific initiatives to promote greater diversity, equity and inclusion at Sangamo worldwide. In 2021, we launched six employee resource groups, or ERGs, that are led by employees in partnership with an executive sponsor, and we have dedicated budgets for each of these ERGs so that they can make a specific impact in the areas of building and reinforcing community, development and talent attraction. We are working on various partnerships with Life Science Cares, a non-profit organization with a mission of leveraging the resources of life science companies to help reduce the effects of poverty, and our Chief Operating Officer, D. Mark McClung, serves as a board member. We have also participated in the Bloomberg Gender Equality Index to better align our investments and initiatives with our employees.

Our Compensation and Benefits

Given the highly competitive nature of our industry and the importance of recruitment and retention to our success, we strive to provide our employees with what we believe is a very competitive and comprehensive total rewards package of compensation, benefits and services. This package includes at or above-market pay; healthcare benefits for employees and family members; a health savings account for eligible U.S. employees with above market employer contributions; generous paid time off benefits; family leave; bereavement leave; flexible work schedules; contributions to retirement and/or pension plans; a supplemental long term disability plan, mental health benefits and onsite gym access. In addition, we offer a monthly stipend for employees to spend on health and well-being. We also offer every full-time employee globally the benefit of equity ownership in Sangamo through stock option grants and/or restricted stock units. Our U.S. employees are also eligible to participate in an employee stock purchase plan, which offers the opportunity to purchase our common stock at a discount of at least 15%.

Our Efforts to Address the COVID-19 Pandemic

Employee safety and wellbeing is of paramount importance to us in any year and continued to be of particular focus in 2021 in light of the continuing and evolving COVID-19 pandemic. In response to the pandemic, we have supported our employees and government efforts to curb the COVID-19 pandemic through safety and communication efforts and investments, which include:

- Maintaining a COVID-19 task force responsible for establishing COVID-19 health and safety protocols as well as ongoing communication updates to employees;
- Aligning onsite policies to local government guidance and regulations;
- Decreasing density and increasing physical distancing in our facilities for employees working onsite using scheduling adjustments and flexibility;
- Weekly COVID-19 testing for all onsite employees in our U.S. facilities;
- Onsite Booster Clinics for all US employees and their family members;
- Robust cleaning protocols across all locations;
- Provision of masks to all onsite employees and masking requirements aligned to state and local guidelines;
- Rigorous procedures to address actual and suspected COVID-19 cases and potential exposure; and
- Limited domestic and international non-essential travel for all employees.

Environment

Sangamo is headquartered in Brisbane, California, with research facilities in Richmond, California and European facilities in Valbonne, France and the United Kingdom. In house manufacturing operations are located within the Brisbane and Valbonne facilities. Sangamo's headquarters in Brisbane is LEED certified, meaning it meets the requirements of a green building set by the U.S. Green Building Council.

Trademarks and Tradenames

SANGAMO®, Better Therapeutics By Design®, ZFP Therapeutic® and Engineering Genetic Cures® are our registered trademarks in the United States and Sangamo Therapeutics™ and Pioneering Genetic Cures™ are our trademarks. All other trademarks or trade names referred to in this Annual Report on Form 10-K are the property of their respective owners.

Available Information

Our website is located at *www.sangamo.com*. This Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available free of charge on our website as soon as reasonably practicable after we electronically file this

material with, or furnish it to, the Securities and Exchange Commission, or SEC. Information found on, or accessible through, our website is not a part of, and is not incorporated into, this Annual Report on Form 10-K. In addition, the SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

ITEM 1A – RISK FACTORS

Our business involves significant risks, some of which are described below. Before making investment decisions regarding our common stock, you should carefully consider these risks, as well as the other information in this Annual Report on Form 10-K, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations." The occurrence of any of the events or developments described below could have a material adverse effect on our business, results of operations, financial condition, prospects and stock price. In such event, the market price of our common stock could decline, and you could lose all or part of your investment. In addition, there are additional risks not described below that either are not presently known to us or that we currently deem immaterial, and these additional risks could also materially impair our business, operations or market price of our common stock.

Risks Relating to Research, Development, Regulatory Approval and Commercialization of Our Product Candidates and Technologies

Our success depends substantially on clinical trial results demonstrating safety and efficacy of our product candidates to the satisfaction of regulatory authorities. We may be unable to obtain positive clinical trial results and regulatory approvals for any of our product candidates.

We are a clinical-stage biotechnology company with no approved products and no product revenues. We have ongoing clinical trials evaluating product candidates that use our platform technologies in gene therapy and cell therapy and we anticipate initiating additional clinical trials in the future on other product candidates. We are substantially dependent on the results of these clinical trials, and there is no guarantee that final results of clinical trials conducted on our product candidates now or in the future will demonstrate the safety and efficacy of any of our product candidates. In addition, none of our product candidates have obtained regulatory approval. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may never occur for any of our product candidates. If we fail to obtain positive clinical trial results and regulatory approvals for our product candidates, our anticipated revenues from our product candidates and our prospects for profitability would be adversely affected, which would likely cause the market price of our common stock to significantly decline.

Conducting clinical trials and obtaining regulatory approvals is complex and exposes our business to numerous risks, including potential unexpected costs and delays.

We must conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates to the satisfaction of regulatory authorities in order to obtain regulatory approvals necessary for commercialization. We have limited experience in conducting later stage clinical trials and may not possess the necessary resources and expertise to complete such trials. Clinical trials are expensive, lengthy and unpredictable. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. A failure of one or more clinical trials can occur at any stage. Events that may delay or prevent successful or timely completion of clinical development and regulatory approval include, among others:

- delays in reaching a consensus with regulatory authorities on clinical trial design;
- delays in reaching agreement on acceptable terms with prospective clinical research organizations, or CROs, and clinical trial sites;
- delays in opening clinical trial sites or obtaining required institutional review board, or IRB, or independent ethics committee approval at each clinical trial site, such as the delays we have experienced opening the clinical trial sites in the United Kingdom for our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, due to the diversion of healthcare resources to address the ongoing COVID-19 pandemic;
- delays or interruptions in recruiting, screening and enrolling suitable patients to participate in our clinical trials and dosing enrolled patients, such as (i) the delays we have recently experienced and continue to experience in recruiting, screening, enrolling and dosing patients for our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec due to challenges related to Brexit as well as the COVID-19 pandemic, including due to patients testing positive for COVID-19, patients reconsidering their participation in the study and the limited number of screening sites, among other reasons and (ii) the pause in dosing of additional patients in the Phase 3 AFFINE trial of giroctocogene fitelparvovec implemented by Pfizer;

- the imposition of clinical holds by regulatory authorities on our clinical trials or those of our collaborators, such as the clinical hold imposed by the FDA on the Phase 3 AFFINE trial of giroctocogene fitelparvovec;
- delays in clinical trial activities due to the evolving COVID-19 global pandemic and the diversion of healthcare resources to fight the pandemic, including delays associated with certain patients deciding to take COVID-19 vaccines or testing positive for COVID-19 prior to enrollment or dosing in the study, which have previously impacted clinical trial timelines for our Fabry and TX200 programs;
- delays or difficulties we may experience in effecting the transition of our SAR445136 sickle cell disease program from Sanofi to us due to the termination by Sanofi of our collaboration agreement, and delays or difficulties we may experience in enrolling and dosing the final patients in the related Phase 1/2 PRECIZN-1 study;
- failure by us, any CROs we engage or any other third parties to adhere to clinical trial requirements;
- failure to perform in accordance with the Good Clinical Practice regulations of the FDA, or applicable regulatory guidelines in the EU and other countries;
- delays in the testing, validation, manufacturing and delivery of our product candidates to the clinical sites, including delays by third parties with whom we have contracted to perform certain of those functions, or as a result of manufacturing or formulation changes to our product candidates;
- delays in having patients complete participation in a trial or return for post-treatment follow-up;
- clinical trial sites or patients dropping out of a trial;
- selections of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- occurrences of serious adverse events or other safety concerns associated with product candidates that are viewed to outweigh their potential benefits, result in approval delays or other regulatory restrictions, or harm our reputation;
- occurrences of serious adverse events or other safety concerns in clinical trials of the same class of agents conducted by other sponsors;
- failures to demonstrate that product candidates are safe and effective for their proposed indication;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- unexpected costs and expenses and lack of sufficient funding to develop our product candidates; and
- losses of licenses to critical intellectual properties.

We have not yet reached agreement with regulatory authorities on the complete development pathway for certain product candidates, and such authorities have the ability to change decisions or guidance with respect to approvable endpoints, particularly as the technology continues to develop in these areas. For example, we are aware of another company developing a gene therapy to treat hemophilia A that the FDA recommended complete its Phase 3 study and submit two-year follow-up safety and efficacy data on all study participants notwithstanding the company's contention that it and the FDA had previously agreed on the extent of data necessary to support a biologics license application, or BLA. While we and Pfizer anticipate pivotal data readouts for our Phase 3 AFFINE trial evaluating giroctocogene fitelparvovec to be based on full analyses of all study participants, when the first 50 patients are twelve months past reaching a steady-state of FVIII expression, assuming Pfizer is able to resume dosing of additional patients in this trial, the FDA or other health authorities could determine that we need to treat more patients in this trial than expected or follow patients for longer than expected to generate the required data, or that we need to change the dose level used in the trial to date, any of which could negatively impact the projected timelines for conducting and completing the trial and seeking regulatory approvals for giroctocogene fitelparvovec, which could in turn materially and adversely affect its competitive position and commercial viability and therefore our business, prospects and market price of our stock. In any event, we cannot assure you when dosing of patients in the AFFINE trial will resume, if at all.

Due to the novelty of certain product candidates and their technologies, the endpoints needed to support regulatory approvals will likely be different from those originally anticipated. Any inability to successfully complete preclinical and clinical development of our product candidates, or complete such trials in the timeframes anticipated, could result in additional costs to us or impair our ability to generate revenues from product sales or achieve regulatory and commercialization milestones and royalties, or shorten any periods during which we may have exclusivity.

Even if a product candidate successfully obtains approval from the FDA and comparable foreign regulatory authorities, any approval might contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, or may be subject to burdensome post-approval study or risk management requirements. Also,

any regulatory approval of our product candidates, once obtained, may be withdrawn. If we are unable to obtain and maintain regulatory approvals for our product candidates in one or more jurisdictions, or if any approval contains significant limitations, we would not be able to generate anticipated revenues and may struggle to become profitable, which would have an adverse effect on our business operations and financial condition.

Success in research and preclinical studies or early clinical trial results may not be indicative of results obtained in later trials. Likewise, preliminary, initial or interim data from clinical trials may be materially different from final data.

Results from research and preclinical studies or early clinical trials are not necessarily predictive of future clinical trial results, and preliminary, initial and interim results of a clinical trial are not necessarily indicative of final results. Our product candidates may fail to show the desired safety and efficacy in clinical trials despite demonstrating positive results in preclinical studies or having successfully advanced through initial clinical trials or preliminary stages of clinical trials. From time to time, we have and may in the future publish or report preliminary, initial or interim data. Preliminary, initial or interim data from our clinical trials and those of our collaborators may not be indicative of the final results of the trial and are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and/or more patient data become available. In this regard, such data may show initial evidence of clinical benefit, but as patients continue to be followed and more patient data becomes available, there is a risk that any therapeutic effects will not be durable in patients and/or will decrease over time, or cease entirely. Preliminary, initial or interim data also remain subject to audit and verification procedures that may result in the final data being materially different from such preliminary, initial or interim data. As a result, preliminary, initial or interim data should be considered carefully and with caution until the final data are available. For example, there can be no assurance that the FVIII levels shown in the updated data announced in December 2021 by Pfizer and us from the Phase 1/2 Alta study of giroctocogene fitelparvovec will persist in future follow-up or any other data from the Alta study or the Phase 3 AFFINE trial. Mean FVIII levels shown in the Alta study, after an initial peak, have trended downward from the time of treatment through each week of follow up, and could continue to trend downward over time. For this reason and potentially other reasons, giroctocogene fitelparvovec may not ultimately demonstrate a durable, safe and effective clinical benefit to the satisfaction of regulatory authorities in the final results of the Alta study or the Phase 3 AFFINE clinical trial, and even if satisfactory to regulatory authorities, such benefit may not be sufficient to yield a commercially-viable product.

There is no guarantee that any of our pending clinical trials will be successful. Many of our product candidates currently use our ZFP technology platform, including ZF nuclease and ZPT-TF technologies, which has not yet yielded any approved therapeutic products. Moreover, many of our product candidates are preclinical and have never demonstrated any clinical benefit. In addition, our viral delivery systems continue to evolve and have not been used in any approved products. If our product candidates using our ZFP technology platform and viral delivery systems are not able to demonstrate the safe, effective and durable results we are hoping to see in clinical trials, we may be forced to suspend or terminate development of some or all of our product candidates or seek alternative technologies to develop or deliver product candidates.

In addition, there is a high failure rate for product candidates proceeding through clinical trials. Many companies in the biopharmaceutical industry have suffered significant setbacks in late-stage clinical trials even after achieving promising results in preclinical testing and earlier-stage clinical trials. Data obtained from preclinical and clinical activities are subject to varying interpretations, which may delay, limit or prevent regulatory approval. Any such setbacks could adversely affect our business, financial condition, results of operations and prospects.

Our product candidates are subject to a lengthy and unpredictable regulatory approval process in each jurisdiction where approval is sought.

A regulatory authority such as the FDA or the EMA must approve any human therapeutic product before it can be marketed in the jurisdiction it governs. The process for receiving regulatory approval is lengthy and unpredictable, and a product candidate may not withstand the rigors of testing under the process. Before commencing clinical trials in humans in the United States, we must submit an IND to the FDA. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the EU, for example, a clinical trial authorization, or CTA, must be submitted for each clinical protocol to each country's national health authority and an independent ethics committee. Only after an IND becomes effective and/or the applicable CTA has been accepted may clinical trials begin. See "Business—Government Regulation" for details regarding the regulatory approval processes applicable to our product candidates. While there is some overlap, the regulatory requirements to conduct clinical trials and seek marketing approval vary by jurisdiction. There is no guarantee that the safety studies and other data generated will be sufficient to permit us to conduct clinical trials in all jurisdictions where planned, or once generated, that such clinical trial data will be sufficient to obtain marketing approval in all jurisdictions in which we intend to seek such approval. If we are not able to obtain the necessary regulatory approvals to conduct our clinical trials and commercialize our product candidates, or if such approvals are delayed or suspended, our business, prospects and market price of our common stock would be adversely affected.

We may not be able to identify, qualify and enroll sufficient patients for our clinical trials or complete our clinical trials in a timely manner, which could delay or prevent us from proceeding with the development of our product candidates.

Identifying, qualifying and enrolling patients in clinical trials of our product candidates, and completing these clinical trials, is critical to our success. Patient enrollment and trial completion is affected by factors including:

- size of the patient population and process for identifying patients;
- design of the trial protocol;
- eligibility and exclusion criteria;
- perceived risks and benefits of the product candidate under study;
- perceived risks and benefits of genomic approaches to treatment of diseases;
- availability of competing therapies and clinical trials;
- potential additional delays related to the evolving COVID-19 global pandemic and the diversion of healthcare resources to fight the pandemic, including the decision of certain patients to take COVID-19 vaccines and certain patients testing positive for COVID-19 prior to enrolling or dosing in the study;
- delays or interruptions related to voluntary pauses of our clinical trials or those of our collaborators, such as the voluntary pause in enrolling and dosing additional patients in the Phase 3 AFFINE trial of giroctocogene fitelparvovec;
- the imposition of clinical holds by regulatory authorities on our clinical trials or those of our collaborators, such as the clinical hold imposed by the FDA on the Phase 3 AFFINE trial of giroctocogene fitelparvovec, and the potential inability of Sangamo and our collaborators to lift clinical holds imposed by regulatory authorities in a timely manner or on acceptable terms, or at all;
- the transition of our SAR445136 sickle cell disease program from Sanofi to us due to the termination by Sanofi of our collaboration agreement, and delays or difficulties we may experience in enrolling and dosing the final patients in the related Phase 1/2 PRECIZN-1 study;
- severity of the disease under investigation;
- availability of genetic testing for potential patients;
- proximity and availability of clinical trial sites for prospective patients;
- required and desired characteristics of patients;
- ability to obtain and maintain patient consent;
- risk that enrolled patients will drop out before completion of the trial;
- patient referral practices of physicians; and
- ability to monitor patients adequately during and after treatment.

The timing of our clinical trials depends on our ability to recruit patients to participate as well as completion of required follow-up periods. There are also a number of other product candidates in development by our competitors, who compete for the same limited patient populations. If we are not able to enroll the necessary number of patients in a timely manner, we may not be able to complete our clinical trials on our desired timelines or at all, which could negatively impact the competitive position and commercial viability of our product candidates or delay or reduce the product revenues, milestone payments or royalty payments we expect to earn from our product candidates. For example, we have experienced delays and challenges in recruiting, screening, enrolling and dosing patients for our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, due to challenges related to Brexit as well as the COVID-19 pandemic, patients testing positive for COVID-19, patients reconsidering their participation in the study and the limited number of screening sites, among other reasons. Our Phase 1/2 STEADFAST clinical study evaluating TX200 has experienced similar delays and challenges. In addition, we and Pfizer also announced that some of the patients treated in the Phase 3 AFFINE trial of giroctocogene fitelparvovec have experienced FVIII activity greater than 150% following treatment, and that Pfizer decided to voluntarily pause screening and dosing of additional patients in this trial to implement a proposed protocol amendment intended to provide guidelines for the clinical management of elevated FVIII levels. Subsequent to the voluntary pause, the FDA put this trial on clinical hold. While Pfizer has announced that it is in the process of submitting the protocol amendment and associated documents to health authorities in the countries where the trial is being conducted and preparing responses to the FDA clinical hold, and that it hopes to obtain agreements to resume the AFFINE trial and to begin to reopen trial sites in the first half of 2022, we cannot assure you that the proposed protocol amendments and associated documents will be accepted by the FDA and other health authorities or implemented in a timely

manner, or at all, or that the trial or dosing of new patients in the trial will resume promptly upon implementation of the proposed protocol amendments, or at all. Continued delays or additional pauses to the Phase 3 AFFINE trial, or the inability to otherwise cause the health authorities to permit the trial to resume on acceptable terms, or at all, could negatively impact the projected timelines for conducting and completing the trial and seeking regulatory approvals for giroctocogene fitelparvovec, which could in turn materially and adversely affect giroctocogene fitelparvovec's competitive position and commercial viability and therefore our business, prospects and market price of our common stock.

In addition, if fewer patients are willing to participate in our clinical trials because of negative publicity from adverse events related to genomic medicines, competitive clinical trials for similar patient populations or for other reasons, the timelines for conducting clinical trials of our product candidates may be delayed. These delays could result in increased costs, limitation or termination of clinical trials, and delays in product development timelines. If we are forced to expand to additional jurisdictions to address these challenges, it could impose additional costs, delays and risks. If we are not successful in conducting our clinical trials as planned, it would have an adverse effect on our business, financial condition, results of operations, prospects and market price of our common stock.

We may encounter difficulties in advancing product candidates from research programs to preclinical and clinical development.

We intend to advance our product candidates from research programs through preclinical development and to submit new INDs, CTAs and equivalent filings in other jurisdictions necessary to conduct human clinical trials evaluating our product candidates. The preparation and submission of applications to conduct clinical trials requires us to conduct rigorous and time-consuming preclinical testing and studies and prepare documentation relating to, among other things, the toxicity, safety, manufacturing, chemistry and clinical protocols of our product candidates. We may experience unforeseen difficulties that could delay or otherwise prevent us from executing this strategy successfully. For example, we may encounter problems in the manufacturing of a product candidates and may fail to demonstrate consistency in the formulation of a product candidate. Our preclinical tests may produce negative or inconclusive results, which may lead us to decide, or which may lead regulators to require us, to conduct additional preclinical testing. If we cannot obtain positive results in preclinical testing, we may decide to abandon a product candidate altogether. In addition, our ability to complete and submit such applications to conduct clinical trials may depend on the support of our collaborators and the timely performance of their obligations under relevant collaboration agreements. If our collaborators are not able to perform such obligations or if they choose to slow down or delay the development of a product candidate, we may not be able to submit the clinical trial applications on a timely basis or at all. Furthermore, the submission of applications to conduct clinical trials involves significant cost and labor, and we may not have sufficient resources and personnel to complete the filing of all intended applications, which may force us to scale back the number of applications or forego potential applications that we believe are promising. Any delay, suspension or reduction of our efforts to pursue our preclinical and clinical development strategy could have an adverse effect on our business and cause the market price of our common stock to decline.

Special regulatory designations, such as RMAT or orphan drug designations, may not be available for our product candidates or may not lead to a faster development or regulatory review or approval process.

We have received RMAT designation for our product candidate to treat severe hemophilia A. Additionally, some of our product candidates, including our product candidate to treat Fabry disease, have also been granted Orphan Drug Designation by the FDA, and some have also been designated Orphan Medicinal Products by the EMA. Regulatory authorities in some jurisdictions, including the United States and the EU, may designate drugs for relatively small patient populations as orphan drugs. For additional information regarding these special regulatory designations, see "Business—Government Regulation."

If we request such designations for our other current or future product candidates, there can be no assurances that the FDA or the EMA will grant any of our product candidates such designations. Additionally, such designations do not guarantee that any regulatory agency will accelerate regulatory review of, or ultimately approve, those product candidates, nor does it limit the ability of any regulatory agency to grant such designations to product candidates of other companies that treat the same indications as our product candidates prior to our product candidates receiving exclusive marketing approval. Such designations can also be revoked. RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges. Orphan drug exclusivity may be revoked if any regulatory agency determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of patients with the rare disease or condition.

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

During the conduct of clinical trials, patients report changes in their health, including illnesses, injuries and discomforts, to their study doctor. Often, it is not possible to determine whether or not the product candidate being studied

caused these conditions, particularly as many of the diseases we are studying have complex comorbidities. If clinical experience indicates that a product candidate has side effects or causes serious or life-threatening side effects, the development of the product candidate may fail or be delayed, or, if the product candidate has received regulatory approval, such approval may be revoked, which would severely harm our business, prospects, operating results and financial condition.

There have been several significant adverse side effects in gene therapy treatments in the past, including reported cases of leukemia and death seen in other trials using other genomic therapies. Gene therapy is still a relatively new approach to disease treatment and additional adverse side effects could develop. There also is the potential risk of significantly delayed adverse events following exposure to gene therapy products due to persistent biologic activity of the genetic material or other components of products used to carry the genetic material. Possible adverse side effects that could occur with treatment with gene therapy products include an immunologic reaction early after administration that, while not necessarily adverse to the patient's health, could substantially limit the effectiveness of the treatment.

Even if our product development efforts are successful and even if the requisite regulatory approvals are obtained, our products may not gain market acceptance among physicians, patients, healthcare payors and the medical community.

Even if we obtain regulatory approval for any of our product candidates that we may develop or acquire in the future, the approved product may not gain market acceptance among physicians, healthcare payors, patients or the medical community. Market acceptance of approved products depends on a number of factors, including:

- the efficacy and safety of the product as demonstrated in clinical trials;
- the clinical indications and patient populations for which the product is approved;
- acceptance by physicians, treatment centers and patients of the product as a safe and effective treatment;
- the adoption of novel genomic therapies by physicians, hospitals and third-party payors;
- the potential and perceived advantages of the product over alternative treatments;
- the safety of the product seen in a broader patient group, including its use outside the approved indications;
- any restrictions on product use together with other medications;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- the timing of market introduction of the product as well as competitive products;
- the development of manufacturing and distribution processes for the product;
- the cost of treatment in relation to alternative treatments;
- the availability of coverage and adequate reimbursement and the willingness of patients to pay out-of-pocket in the absence of coverage or inadequacy of reimbursement by third-party payors and government authorities;
- relative convenience and ease of administration; and
- the effectiveness of our sales and marketing efforts and those of our collaborators.

If any of our product candidates are approved but fail to achieve market acceptance among physicians, patients, healthcare payors or treatment centers, we will not be able to generate significant revenues from the approved product, which would compromise our ability to become profitable.

Even if we are able to commercialize any approved products, such products may not receive coverage and adequate reimbursement from third-party payors in the United States and in other countries in which we seek to commercialize them, which could harm our business.

Our ability to commercialize any product successfully will depend, in part, on the extent to which coverage and adequate reimbursement for these products and related treatments will be available. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, determine which medications they will cover and establish reimbursement levels, which can affect demand for, or the price of, any approved product. Given the nature of the product candidates that we are developing, some patients may require treatment only one-time (*e.g.*, single dose administration), and there is substantial uncertainty about the pricing structure for such products, and the level of coverage and reimbursement that will be available for a shift to single-dose treatment as compared to chronic therapy over a patient's lifetime. If other companies establish a new pricing structure or business model, including payment based on demonstration of long-term efficacy, our ability to price or obtain reimbursement for our products may be adversely affected. If such pricing structure or

business model do not adequately fund the costs of our research and development, manufacturing and commercialization efforts, our business may be adversely affected.

In addition to uncertainty about the potential pricing structure for certain of our product candidates, cost containment is a recurrent trend in the healthcare industry. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for certain medications. We cannot be sure that coverage and adequate reimbursement will be available for any product that we commercialize and, if reimbursement is available, what the level of reimbursement will be. If reimbursement is not available or is available only at limited levels, we may be unable to successfully commercialize any product candidate for which we obtain regulatory approval. Our inability to promptly obtain coverage and profitable reimbursement rates from both government-funded and private payors for any approved products that we develop could have an adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Recently enacted and future legislation, including potentially unfavorable pricing regulations or other healthcare reform initiatives, may increase the difficulty and cost for us to obtain regulatory approval of and commercialize our product candidates and affect the prices we may obtain.

The regulations that govern, among other things, regulatory approvals, coverage, pricing and reimbursement for new drug products vary widely from country to country. In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay regulatory approval of our product candidates, restrict or regulate post-approval activities and affect our ability to successfully sell any product candidates for which we obtain regulatory approval. Also, there has been heightened governmental scrutiny recently over biopharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent Presidential executive orders, 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 biopharmaceutical products. At the state level, legislatures have increasingly passed legislation and implemented 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, have been designed to encourage importation from other countries and bulk purchasing. For a discussion of health reform activity and the current pricing framework, see “Business—Government Regulation—Healthcare Reform” and “Business—Government Regulation—Pricing, Coverage and Reimbursement.”

The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for our product candidates, if we obtain regulatory approval;
- our ability to set a price that we believe is fair for our products;
- our ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

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

Even if we obtain regulatory approval in a jurisdiction, the regulatory authority may still impose significant restrictions on the indicated uses or marketing of our product candidates or impose ongoing requirements for potentially costly post-approval studies, post-market surveillance or patient or drug restrictions. For example, the FDA typically advises that patients treated with gene therapy undergo follow-up observations for potential adverse events for a 15-year period. Additionally, the holder of an approved BLA is required to comply with FDA rules and is subject to FDA review and periodic inspections, in addition to other potentially applicable federal and state laws, to ensure compliance with cGMP and adherence to commitments made in the BLA.

If we or a regulatory agency discovers previously unknown problems with a product such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions relative to that product or the manufacturing facility, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. Moreover, product labeling, advertising and promotion for any approved product will be subject to regulatory requirements and continuing regulatory review. Failure to comply with such requirements,

when and if applicable, could subject us to a number of actions ranging from warning letters to product seizures or significant fines, among other actions. See "Business—Government Regulation—U.S. Review and Approval Processes" for more information.

Any government investigation of alleged violations of laws or regulations could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and generate revenues.

Our employees or contractors may engage in misconduct or other improper activities, including noncompliance with research, development, manufacturing or regulatory standards and requirements, which could cause significant liability for us and harm our reputation.

We are exposed to the risk of fraud or other misconduct by our employees and contractors, including intentional failures to comply with FDA regulations or similar regulations of comparable foreign regulatory authorities, provide accurate information to the FDA or comparable foreign regulatory authorities, comply with manufacturing standards we have established, comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable foreign regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. Misconduct by our employees and contractors 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 such 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 significant impact on our business and results of operations, including the imposition of significant civil, criminal and administrative penalties, damages, fines, disgorgement, personal imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations.

We may use our financial and human resources to pursue a particular research program or product candidate and fail to capitalize on other programs or product candidates that may be more profitable or for which there is a greater likelihood of success.

We have limited resources and may forego or delay pursuit of certain research programs or 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 or pursue collaborations rather than retain sole responsibility for development. Our current and future research and development programs for product candidates may not yield any commercially viable products. The evaluation of the commercial potential or target market for a particular product candidate is forward-looking and based upon assumptions involving, for example and not limited to, market evolution, advances in disease standard of care, competition and reimbursement. This reliance on assumptions means that, if our assumptions prove to be inaccurate or incomplete, we may pursue opportunities that end up having a number of competitors that are more advanced than our product candidates, or we may relinquish valuable rights to a product candidate through strategic collaboration, licensing or other royalty arrangements in cases where it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. We may also allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a collaboration or that does not prove to have viable commercial opportunities. Any failure to use our financial and human resources efficiently could harm our business and operations.

ZFP technology is novel and has never been used to develop any approved, commercially viable therapeutic products.

Our ZFP technology is a novel technology which to date has not yielded any approved commercially viable therapeutic products, and there can be no guarantee that our product development efforts using ZFP technology will be fruitful. We have invested heavily in development of this technology, and our failure to develop approved, commercially viable products using ZFP technology would significantly limit our business and prospects and would adversely impact the market value of our common stock.

Risks Relating to Manufacturing

We recently completed the construction of several facilities for clinical trial supplies. We have limited experience manufacturing biopharmaceutical products, and there can be no assurance that we will be able to maintain compliant manufacturing facilities, build additional facilities and manufacture our product candidates as intended.

We expect to use both contract manufacturing organizations, or CMOs, and our own facilities to meet our projected needs for clinical trial supply. We operate an AAV manufacturing facility in Brisbane, California to manufacture Phase 1/2 clinical study supplies for our gene therapy product candidates, and in 2021 we completed construction of cell therapy manufacturing facilities in Brisbane, California and Valbonne, France to manufacture supplies for our cell therapy product candidates. Operationalizing these new facilities requires us to transition manufacturing processes and know-how of our product candidates from our CMOs to our own facilities. Transferring manufacturing processes and know-how is complex and involves review and incorporation of both documented and undocumented processes that may have evolved over time. In addition, transferring production to different facilities may require utilization of new or different processes to meet the specific requirements of a given facility. Additional studies may also need to be conducted to support the transfer of certain manufacturing processes and process improvements. We cannot be certain that all relevant know-how and data has been adequately incorporated into the manufacturing process until the completion of studies and evaluations intended to demonstrate the comparability of material previously produced by CMOs with that generated by our facilities. Although some of our employees have experience in the manufacturing of biopharmaceutical products from prior employment at other companies, we, as a company, have no prior experience in biopharmaceutical product manufacturing, and operating these facilities will require us to comply with complex regulations and to continue to hire and retain experienced scientific, quality control, quality assurance and manufacturing personnel. In addition, government approvals are required for us to operate manufacturing facilities and are time-consuming to obtain and maintain. As a manufacturer of biopharmaceutical products, we also will be required to demonstrate and maintain cGMP compliance. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. Furthermore, establishing manufacturing operations will require a reallocation of other resources, particularly the time and attention of our senior management. Even if we are able to establish our own manufacturing capabilities, we could encounter challenges in operating the manufacturing facilities in compliance with cGMP, regulatory or other applicable requirements, resulting in potential negative consequences, including regulatory actions, which could undermine our ability to use these facilities for our own manufacturing needs. Any failure or delay in the development of our manufacturing capabilities could adversely impact the development of our product candidates.

The manufacture, storage and transport of our product candidates is complex, expensive, highly regulated and risky, which could hamper their commercial viability.

There are significant risks associated with manufacturing, storing and transporting our product candidates including, among others, cGMP compliance, cost overruns, technical problems with process scale-up, specialized facilities, process reproducibility, stability issues, lot consistency, yields and timely availability of highly specific raw materials. Even though product batches released for use in clinical trials undergo sample testing, some defects may only be identified following release. In addition, process deviations or unanticipated effects of approved process changes may result in these intermediate products not complying with stability requirements or specifications. Also, our product candidates must be stored and transported at temperatures within a certain range. If these environmental conditions deviate, our product candidates' remaining shelf-lives could be impaired or their efficacy and safety could be adversely affected, making them no longer suitable for use. Moreover, product candidates that are biologics involve complex processes, including the development of cell lines or cell systems to produce the biologic, with the challenge of significant variability. There are difficulties in growing large quantities of such cells, consistently and sufficiently isolating certain types of cells and harvesting and purifying the biologic produced by them. The cost to manufacture biologics is generally far higher than traditional small molecule chemical compounds, and the manufacturing process can be difficult to reproduce.

Moreover, manufacturing, storing and transporting our product candidates is subject to strict regulatory standards, which adds additional production risk. Even if efficacy and safety data from our clinical trials would otherwise support regulatory approval of a product candidate, there is no assurance that we or our CMOs will be able to manufacture our product candidates to specifications at levels necessary to support or maintain regulatory approval by the FDA or other regulatory authorities.

Thus, there is no guarantee we will be successful in establishing a larger-scale commercial manufacturing process for our product candidates or obtaining the needed manufacturing capacity. Due to these manufacturing challenges, there is risk that some of our product candidates could be subject to inventory outages, reputational damage and product liability risks, and result in additional expense and delays to clinical trials and commercialization. Supply interruptions or shortages could result in potential negative impacts to our business, prospects and market price of our common stock.

If we use chemical, biological or hazardous materials in a manner that causes injury or violates laws, we may be liable for damages.

Our research and development activities involve the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals, and various radioactive compounds typically employed in the study of molecular and cellular biology. We routinely use cells in culture and gene delivery vectors, and we employ small amounts of radioisotopes in trace experiments. Although we maintain up-to-date licensing and training programs, we cannot completely eliminate the risk of accidental contamination or injury from the use, storage, handling, or disposal of these materials. In the event of contamination or injury, we could be held liable for damages that result, and any liability could exceed our resources. We currently carry insurance covering certain claims arising from our use of these materials. However, if we are unable to maintain our insurance coverage at a reasonable cost and with adequate coverage, our insurance may not cover any liability that may arise. We are subject to federal, state, and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. Failure to comply with these laws and regulations could result in fines, penalties and additional liabilities and restrictions on our operations.

We currently rely on third parties to conduct some or all aspects of manufacturing of our product candidates for preclinical and clinical development. If one of our third-party manufacturers fails to perform adequately or fulfill our needs, we may be required to incur significant costs and devote significant efforts to find new suppliers or manufacturers.

We currently have limited experience in clinical-scale manufacturing of our product candidates, and we rely in large part upon third-party CMOs to manufacture and supply drug product for our preclinical studies and clinical trials. Although we have in-house manufacturing facilities in Brisbane, California and Valbonne, France, these facilities will only manufacture limited quantities of our product candidates for our early-stage clinical trials. We intend to continue to rely on third parties for the manufacture of product candidates for later stage clinical trials, and for commercial-scale manufacturing for any approved product. The manufacture of biopharmaceutical products in compliance with the FDA's cGMP requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of biopharmaceutical products often encounter difficulties in production, including difficulties with production costs and yields, quality control, including stability of the product candidate and quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced cGMP requirements, other federal and state regulatory requirements and foreign regulations. If our manufacturers were to encounter any of these difficulties or otherwise fail to comply with their obligations to us or under applicable regulations, our ability to conduct later-stage clinical trials could be jeopardized. Any delay or interruption in the supply of clinical trial materials could delay the completion of our clinical trials, increase the costs associated with developing our product candidates and, depending upon the period of delay, require us to commence new clinical trials at significant additional expense or terminate the clinical trials completely.

We and our CMOs must comply with cGMP requirements enforced by the FDA through its facilities inspection program. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. We and our CMOs may be unable to comply with these cGMP requirements and with other FDA, state and foreign regulatory requirements. The FDA or similar foreign regulatory agencies may also implement new standards at any time or change their interpretation and enforcement of existing standards for manufacture, packaging or testing of products. We have limited control over our manufacturers' compliance with these regulations and standards. Failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall or withdrawal of product approval. If the safety of any product supplied is compromised due to our manufacturers' failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products and we may be held liable for any injuries sustained as a result. Any of these factors could cause a delay of clinical trials, regulatory submissions, approvals or commercialization of our product candidates, entail higher costs or impair our reputation.

Our current agreements with our CMOs do not provide for the entire supply of the drug product necessary for all anticipated clinical trials or for full scale commercialization. If we and our CMOs cannot agree to the terms and conditions for them to provide the drug product necessary for our clinical and commercial supply needs, we may not be able to manufacture the product candidate until a qualified alternative manufacturer is identified, which could also delay the development of, and impair our ability to commercialize our product candidates.

The number of third-party CMOs with the necessary manufacturing and regulatory expertise and facilities is limited, and it could be expensive and take a significant amount of time to arrange for alternative CMOs, which could have an adverse effect on our business. New manufacturers of any product candidate would be required to qualify under applicable regulatory requirements and would need to have sufficient rights under applicable intellectual property laws to the method of manufacturing the product candidate. Obtaining the necessary FDA approvals or other qualifications under applicable regulatory requirements and ensuring non-infringement of third-party intellectual property rights could result in a significant interruption of supply and could require the new manufacturer to bear significant additional costs which may be passed on to us.

We and third parties on which we rely may be adversely affected by natural disasters and catastrophic or other events outside of our control, and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster or event.

Natural disasters could severely disrupt our operations and our facilities, including our current manufacturing facilities in Brisbane, California and Valbonne, France and the manufacturing facilities of our CMOs, and any disruption would likely have a negative impact on our business, financial condition, results of operations and prospects. If a natural disaster, pandemic or epidemic, including the evolving COVID-19 pandemic, political crisis, power outage or any other event that is out of our control occurred that prevented us or third parties on which we rely from using all or a significant portion of our or their facilities, that damaged critical infrastructure or that otherwise disrupted our or their operations, it may be difficult or, in certain cases, impossible for us to continue our business and operations for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and may not prove adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which could have an adverse effect on our business, financial condition, results of operations and prospects. Such disasters or events occurring at facilities of third parties on which we rely could also negatively impact our business and operations.

Risks Relating to our Industry

Our product candidates are based on novel genomic medicine technologies, which makes it difficult to predict the timing and costs of development and of subsequently obtaining regulatory approval.

We have concentrated our research and development efforts on genomic medicine, consisting of gene therapy, gene-edited cell therapy and genome engineering. The regulatory approval process for novel product candidates such as ours is unclear and may be lengthier and more expensive than the process for other, better-known or more extensively studied product candidates.

Regulatory review committees and advisory groups, and any new guidelines they promulgate, may lengthen the regulatory review process, require us to perform additional preclinical studies or clinical trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our current or future product candidates or lead to significant post-approval limitations or restrictions. As we advance our product candidates, we will be required to consult with these regulatory and advisory groups and comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of our product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue, and our business, financial condition, results of operations and prospects would be harmed. Even if our product candidates are approved, we expect that the FDA will require us to submit follow-up data regarding our clinical trial patients for a number of years after any approval. If this follow-up data shows negative long-term safety or efficacy outcomes for these patients, the FDA may revoke its approval or change the label of our products in a manner that could have an adverse impact on our business.

In addition, adverse developments in clinical trials of genomic medicines conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of our product candidates. The FDA and EMA have only very recent and limited experience in the approval of *in vivo* gene therapy products. As a result, it is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates.

If we or our competitors develop, acquire, or market technologies or products that are more effective than ours, our financial condition and ability to successfully market or commercialize our product candidates or be profitable would be adversely affected.

The biopharmaceutical industry is highly competitive and subject to significant and rapid technological change. We are aware of several companies focused on other methods for editing cells, editing genes and regulating gene expression and a growing number of commercial and academic groups pursuing the development of genome engineering technology. The field of genomic medicine is highly competitive, and we expect competition to persist and intensify in the future from a number of different sources, including biopharmaceutical companies, academic and research institutions, and government agencies that will seek to develop competing products as well as technologies that will compete with our ZFP technology platform. For example, in genome engineering and gene therapy products, competing proprietary technologies with our product development focus include but are not limited to, recombinant proteins, other gene therapy/cDNAs, nuclease and base editing technologies, antisense therapeutics and RNA interference technologies, siRNA, RNAi and microRNA approaches, exon skipping, small molecule drugs, monoclonal antibodies, CRISPR/Cas technology and TALE proteins, meganucleases, and MegaTALs. A growing number of companies are also developing rival cell therapy technologies and product candidates. See “Business—Competition” for more information on the competition we may face.

Any products that we or our collaborators or strategic partners develop will enter into highly competitive markets. Even if we are able to generate products that are safe and effective for their intended use, competing technologies may prove to be more effective or less expensive, which, to the extent these competing technologies achieve market acceptance, will limit our revenue opportunities. In some cases, competing technologies have proven to be effective and less expensive. Competing technologies may include other methods of regulating gene expression or modifying genes. ZF nucleases and ZFP-TFs have broad application in the life sciences industry and compete with a broad array of new technologies and approaches being applied to genetic research by many companies.

In addition to possessing competing technologies, our competitors include biopharmaceutical companies with:

- substantially greater capital resources than ours;
- larger research and development staffs and facilities than ours; and
- greater experience in product development and in obtaining regulatory approvals and patent protection.

These organizations also compete with us to attract qualified personnel, attract parties for acquisitions, joint ventures or other collaborations and license the proprietary technologies of academic and research institutions that are competitive with our technology, which may preclude us from pursuing similar opportunities. Accordingly, our competitors may succeed in obtaining patent protection or commercializing products before us. Even if our product candidate is more effective, it may be disadvantaged if it is not first to market. In addition, any products that we develop may compete with existing products or services that are well established in the marketplace. Further, some of our product candidates in development are designed for use once. Any success in developing one-time use therapeutics could cause us to lose potential recurring revenues from therapeutics that are designed to be taken over a patient's lifetime.

The ongoing COVID-19 pandemic has adversely impacted and could continue to adversely impact our business and operations and the business and operations of our collaborators, manufacturers and other business partners.

We have experienced and continue to experience impacts from the ongoing and evolving COVID-19 pandemic on our business and operations and could continue to experience these or potentially more severe impacts as the pandemic evolves in the United States, France, the United Kingdom and locations of our clinical studies and trials. We continue to conduct business operations pursuant to a modified operating plan that includes enhanced workplace safety protocols and modified working schedules. These protocols and modifications have slowed our productivity and disrupted our business to a moderate degree and are likely to continue doing so through the remainder of 2022. For example, we have experienced periodic short-term disruptions to our onsite operations while addressing positive cases of COVID-19 by onsite workers and clinical trial patients, and our operations could experience longer term disruptions in the future in the event of a significant outbreak of COVID-19 among our onsite workers or clinical trial patients. Moreover, from time to time, we have been required to reorganize and prioritize our resources to mitigate moderate COVID-19 impacts arising from travel restrictions, density restrictions and supply constraints. If our programs encounter longer-term disruptions, it could impact our ability to support our biopharmaceutical partners as contemplated in our collaboration agreements and could result in adjustments to our timelines, although we do not believe that the short-term disruptions to date have resulted in any such impacts.

Additionally, our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec has experienced and continues to experience delays in its timeline due in part to COVID-19 impacts and the diversion of healthcare resources to fight the pandemic. For example, we estimate that the opening of the first clinical trial site in the United Kingdom for this study experienced a delay of approximately one year due to the significant prevalence of COVID-19 in the United Kingdom. Additionally, we have experienced delays in recruiting, enrolling and dosing patients for this study, due in part to the hesitation of patients to travel by plane to trial sites not within driving distance and to enter medical facilities during the pandemic and also due in part to trial sites prioritizing COVID-19 clinical care over research activities such as the STAAR study. The study has also experienced delays when certain patients have decided to take the COVID-19 vaccine or tested positive for COVID-19 prior to enrollment or dosing in the study. Moreover, we have experienced some short-term delays in sourcing the necessary raw materials to manufacture supplies for the STAAR study and transporting clinical trial materials due to COVID-19 impacts. We estimate that these challenges have set back our STAAR study timelines by approximately three to six months. Clinical timelines for this study could be revised again if COVID-19 impacts to our recruitment, screening, enrollment and dosing of patients and to our sourcing of raw materials for this study intensify because of vaccination delays, new COVID-19 variants or unexpected events.

In addition, our STEADFAST study evaluating TX200, our wholly-owned CAR-Treg cell therapy product candidate for the treatment of kidney transplant rejection, has experienced delays in its timeline due to COVID-19 impacts related to manufacturing and technology transfer challenges with our CMOs and due to patients and donors testing positive for COVID-19. We estimate that these challenges set back our clinical study timeline by approximately three months. While we have now enrolled the first patient in this study and expect to dose this patient soon, and expect to dose the second patient in this study by the middle of 2022, this timeline could be revised if COVID-19 impacts result in additional delays.

With respect to our partnered programs, the timelines for the studies and trials managed by our collaborators are also subject to potential delay in the future if these studies and trials experience similar challenges that we have experienced and continue to experience in our STAAR and STEADFAST studies.

Going forward, we will continue to monitor the impact of COVID-19 on our operations, research commitments and clinical trials and those of our collaborators, clinical trial sites and CMOs. The magnitude of these impacts will depend, in part, on the length and severity of the COVID-19 pandemic and related government orders and restrictions, and how the pandemic limits the ability of us and our business partners to operate business in the ordinary course. Disruptions to these operations, and possibly more severe disruptions in the future that could arise due to the extension of government orders or new government orders applicable in the places we operate or our industry generally or to us and our facilities specifically, could impede our ability to conduct research in a timely manner, comply with our research obligations to our collaborators and advance the development of our therapeutic programs. These delays and disruptions could result in adverse material impacts to our business, operating results and financial condition.

The extent to which the COVID-19 pandemic will impact our business, operations and financial condition, either directly or indirectly, will depend on future developments that remain highly uncertain at the present time. These developments include the ultimate duration and severity of the pandemic, the impacts of new COVID-19 variants, travel restrictions, public health restrictions in the United States, France, the United Kingdom and other countries, business closures or business disruptions and the effectiveness and timeliness of actions taken in the United States, France, the United Kingdom and other countries to contain and treat the disease, including the effectiveness of vaccination programs. The surge of new variants of the virus, including the recent Omicron variant, has resulted and may in the future result in the return of prior orders and restrictions or new quarantine and shelter-in-place orders or other restrictions. As our understanding of events evolves and additional information becomes available, we may materially change our guidance relating to our revenues, expenses and timelines for manufacturing, clinical trials and research and development.

While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, it could continue to result in significant disruption of global financial markets, impairing our ability to access capital, which could in the future negatively affect our liquidity. In addition, a recession or market correction resulting from the COVID-19 pandemic could materially affect our business and the value of our common stock.

In addition, to the extent the evolving COVID-19 pandemic continues to adversely affect our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described in this “Risk Factors” section.

Negative public opinion and increased regulatory scrutiny of genomic medicines may damage public perception of the safety of our product candidates and adversely affect our ability to conduct our business or obtain regulatory approvals for our product candidates.

Genetically modified products are currently subject to public debate and heightened regulatory scrutiny. Gene therapy remains a novel technology, with only two *in vivo* gene therapy products approved for a genetic disease to date in the United States and only a few *in vivo* gene therapy products for genetic diseases approved to date in the EU. Public perception may be influenced by claims that gene therapy is unsafe, and gene therapy may not gain the acceptance of the public or the medical community. For example, reports of serious adverse events in a retroviral gene transfer trial for infants with X-linked severe combined immunodeficiency (X-linked SCID) in France and subsequent FDA actions putting related trials on hold in the United States had a significant negative impact on the public perception and stock price of certain companies involved in gene therapy, whether or not the specific company was involved with retroviral gene transfer, or whether the specific company’s clinical trials were placed on hold in connection with these events. Other adverse events could occur in the field of genomic medicine that could result in increased regulatory scrutiny, potential regulatory delays or negative impact on public perception genomic medicines, which could cause our stock price to decline.

In particular, our success will depend upon physicians who specialize in the treatment of genetic diseases targeted by our product candidates, prescribing treatments that involve the use of our product candidates in lieu of, or in addition to, existing treatments with which they are familiar and for which greater clinical data may be available.

Even if the regulatory approval for genetically modified products developed using our technology is obtained, our success will also depend on public acceptance of the use of genetically modified products including medicines, plants and plant products. Claims that genetically modified products are unsafe for consumption or pose a danger to the environment may influence public attitudes. Our genetically modified products may not gain public acceptance. More restrictive government regulations or negative public opinion would have an adverse effect on our business, financial condition, results of operations and prospects and may delay or impair the development and commercialization of our product candidates or demand for any products we may develop. For example, earlier gene therapy trials led to several well-publicized adverse events, including cases of leukemia and death seen in other trials using other vectors. Serious adverse events in our clinical trials, or other clinical trials involving gene therapy products or our competitors’ products, even if not ultimately attributable to the relevant product

candidates, and the resulting publicity, could result in increased government regulation, unfavorable public perception, potential regulatory delays in the testing or approval of our product candidates, stricter labeling requirements for those product candidates that are approved and a decrease in demand for any such product candidates.

Our current and future relationships with healthcare providers, customers and third-party payors subject us to applicable anti-kickback, fraud and abuse, privacy, data security and other healthcare laws and regulations. If we fail to comply with such regulations, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.

Healthcare providers, including physicians, and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which we obtain regulatory approval. Arrangements with healthcare providers, third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we would market, sell and distribute our products. As a biotechnology company, even though we will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, federal and state healthcare laws and regulations pertaining to fraud and abuse, transparency, health privacy and security and patients' rights are and will be applicable to our business. For details regarding the restrictions under applicable federal and state healthcare laws and regulations that may affect our ability to operate see "Business—Government Regulation—Additional Regulation."

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Scrutiny has also increased, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Responding to investigations can be time-and resource-consuming and can divert management's attention from the business. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. If our operations or if any physicians or other healthcare providers or entities with whom we expect to do business are found to not be in compliance with applicable laws or applicable regulations, we and they could be subjected to significant civil, criminal and administrative enforcement actions, see "Business—Government Regulation—Additional Regulation."

Further, we are required to comply with domestic and international privacy and data security laws, such as the GDPR and the CCPA, and after January 1, 2023, the California Privacy Rights Act, which apply to the collection, use, disclosure, transfer, or other processing of personal data. Certain jurisdictions have enacted data localization and cross-border data transfer laws, which could make it more difficult to transfer information across jurisdictions. Existing mechanisms that may facilitate cross-border transfers of personal data may change or be invalidated. If we are unable to implement a legal mechanism to ensure that our transfers of personal data from Europe are lawful, we could face adverse consequences, including increased exposure to regulatory actions, substantial fines and injunctions against processing personal data, and could be required to increase our data processing capabilities in Europe or elsewhere at significant expense. Restrictions on our ability to transfer personal data from Europe or elsewhere could impact our clinical trial activities in Europe and limit our ability to collaborate with CROs and other third parties. For more information regarding these regulations, see "Business—Government Regulation—Privacy Regulation."

Our obligations related to privacy and data security are quickly changing and becoming increasingly stringent, creating some uncertainty as to the effective future legal framework. These obligations may be subject to differing applications and interpretations, which may be inconsistent or in conflict among jurisdictions. These obligations may also necessitate changes to our information technologies, systems and practices and those of third parties upon which we rely. Moreover, despite our efforts, our personnel or third parties upon which we rely may fail to comply with such obligations, which could negatively impact our business operations and compliance posture.

Any failure or alleged failure (including as a result of deficiencies in our policies, procedures or measures relating to privacy, data security, marketing or communications) by us to comply with laws, regulations, policies, legal or contractual obligations, industry standards or regulatory guidance relating to privacy or data security, may result in significant consequences. These consequences may include, but are not limited to, governmental investigations and enforcement actions, litigation (including class-related claims), additional reporting requirements and/or oversight, fines and penalties, bans on processing personal data, orders to destroy or not use personal data and adverse publicity. Any of these events could have a material adverse effect on our reputation, business or financial condition, including but not limited to interruptions or stoppages in business operations (including clinical trials), inability to process personal data or to operate in certain jurisdictions, limited ability to develop or commercialize our products, expenditure of time and resources to defend any claim or inquiry or revision or restructuring of our operations.

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

We face inherent risks of product liability exposure related to the testing of our product candidates in human clinical trials and will face even greater product liability risks if we commercially sell any approved products. Product liability claims may be brought against us by subjects enrolled in our clinical trials, patients, healthcare providers or others using, administering or selling our products. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- termination of clinical trial sites or entire trial programs;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards to clinical trial patients;
- loss of revenue;
- diversion of management and scientific resources from our business operations; and
- the inability to commercialize any products that we may develop.

We currently hold product liability insurance coverage at a level that we believe is customary for similarly situated companies and adequate to provide us with insurance coverage for foreseeable risks, but which may not be adequate to cover all liabilities that we may incur. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise. We intend to expand our insurance coverage for products to include the sale of commercial products if we obtain regulatory approval for our product candidates in development, but we may be unable to obtain commercially reasonable product liability insurance for any products that receive regulatory approval. Large judgments have been awarded in class action lawsuits based on drugs that had unanticipated side effects. A successful product liability claim or series of claims brought against us, particularly if judgments exceed our insurance coverage, could decrease our cash and adversely affect our business.

Risks Relating to our Finances

We have incurred significant operating losses since inception and anticipate that we will incur continued losses for the foreseeable future.

We have generated operating losses since we began operations in 1995. The extent of our future losses and the timing of profitability are uncertain, and we expect to incur losses for the foreseeable future. We have been engaged in developing our ZFP technology since inception, which has and will continue to require significant research and development expenditures. To date, we have generated our funding from issuance of equity securities, revenues derived from collaboration agreements, other strategic partnerships in non-therapeutic applications of our technology, federal government research grants and grants awarded by research foundations. We expect to continue to incur additional operating losses for the next several years as we continue to develop our product candidates. If the time required to generate significant product revenues and achieve profitability is longer than we currently anticipate or if we are unable to generate liquidity through equity financing or other sources of funding, we may be forced to curtail or suspend our operations.

We may be unable to raise additional capital on favorable terms, if at all, which would harm our ability to develop our technology and product candidates and could delay or terminate some or all of our programs. Future sales and issuances of equity securities could also result in substantial dilution to our stockholders.

We have incurred significant operating losses and negative operating cash flows since inception and have not achieved profitability. We expect capital outlays and operating expenditures to increase over the next several years as we expand our infrastructure and research and product development activities. While we believe our available cash, cash equivalents, and marketable securities as of December 31, 2021, when combined with additional capital raises and expected revenues from collaborations, strategic partners and research grants, will be adequate to fund our currently planned operations through at least the next 12 months from the date the financial statements in this Annual Report on Form 10-K are issued, we will need to raise substantial additional capital to fund the development, manufacturing and potential commercialization of our product candidates. We regularly consider fund raising opportunities and may decide, from time to time, to raise capital based on various factors, including market conditions and our plans of operation. In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek FDA approvals of our product candidates, a process that could cost in excess of

hundreds of millions of dollars per product. We may experience difficulties in accessing the capital markets due to external factors beyond our control, such as volatility in the equity markets for emerging biotechnology companies and general economic and market conditions both in the United States and abroad. For example, our ability to raise additional capital may be adversely impacted by global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide, which could be impacted by the evolving COVID-19 pandemic. We cannot be certain that we will be able to obtain financing on terms acceptable to us, or at all. Our failure to obtain adequate and timely funding will adversely affect our business and our ability to develop our technology and products candidates.

To the extent we raise additional capital by issuing equity securities, including sales pursuant to our at-the-market offering program with Jefferies LLC, our stockholders may experience substantial dilution. We may issue 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. New investors could gain rights superior to our existing stockholders.

Our ability to use net operating losses to offset future taxable income may be subject to limitations.

Although a certain amount of our federal net operating loss carryforwards carry forward indefinitely (but are subject to a percentage limitation), a significant amount of our federal and all of our state net operating loss carryforwards will begin to expire, if not utilized, beginning in 2024 and 2029, respectively. The net operating loss carryforwards subject to expiration could expire unused and be unavailable to offset future income tax liabilities. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as a greater than 50 percentage point change in its equity ownership value over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We have experienced an ownership change in the past and we may also experience additional ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations. In addition, at the state level, there may be periods during which the use of net operating loss carryforwards is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. For example, California has imposed limits on the usability of California state net operating losses to offset California taxable income in tax years beginning after 2019 and before 2023. As a result, if we earn net taxable income, we may be unable to use all or a material portion of our net operating loss carryforwards and other tax attributes, which could potentially result in increased future tax liability to us and adversely affect our future cash flows.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The market price of our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. In the event securities or industry analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

Risks Relating to our Reliance on Third Parties

If conflicts arise with our contractors, collaborators or other business partners, these conflicts may limit our ability to implement our strategies and may harm our business and prospects.

If conflicts arise with our contractors, collaborators or other business partners, the other party will likely act in its self-interest, which may limit our ability to implement our strategies. For example, some of our collaborators are conducting multiple product development efforts within each area that is the subject of their collaboration with us. Our collaborators may develop, either alone or with others, product candidates in related fields that are competitive with the product candidates that are the subject of their collaborations with us. Competing products, either developed by the collaborators or to which the collaborators or have rights, may result in the withdrawal of their support for our product candidates.

Some of our collaborators could also become our competitors in the future. Our collaborators could develop or invest in competing products, preclude us from entering into collaborations with their competitors, fail to obtain timely regulatory approvals, terminate or breach their agreements with us unexpectedly or prematurely, or fail to devote sufficient resources to the development and commercialization of product candidates covered by the collaboration.

In addition, conflicts could arise between us and our collaborators resulting from disputes regarding our or our collaborators' or strategic partners' performance under the applicable agreement, including disputes arising from alleged breaches of our agreements with our collaborators.

Any of these conflicts could harm our product development efforts and otherwise adversely affect our business and prospects.

Our collaborators control certain aspects of our product development efforts, including certain of our clinical trials, which could result in unanticipated delays and other obstacles in the commercialization of our product candidates.

We depend on collaborators to design and conduct certain of our clinical trials for some of our product candidates. As a result, these clinical trials may not be conducted in the manner or on the timeline we desire, which may negatively impact our product development efforts. For example, Pfizer is the trial sponsor of the Phase 3 AFFINE trial of giroctocogene fitelparvovec and we depend on the efforts of Pfizer to diligently seek to lift the clinical hold on the Phase 3 AFFINE trial and resume and complete the trial. However, Pfizer may be unable to cause the FDA to lift the clinical hold in a timely manner, or at all, or may be unwilling to resume the trial if the clinical hold is lifted, whether due to the FDA's potential imposition of additional changes to the trial protocol as part of any lift of the clinical hold or otherwise.

Our lack of control over aspects of product development in our agreements with Novartis, Biogen, Kite, Sanofi, Takeda and Pfizer could cause delays or other difficulties in the development and commercialization of our product candidates, which may prevent us from completing the intended IND filings in a timely fashion and receiving any milestone, royalty payments and other benefits under the agreement. In addition, under their respective agreements, our third-party collaborators have certain rights to terminate the agreements by providing us with advance notices, therefore, the actual milestone payments that we may receive under these agreements may be substantially lower than the full amounts provided for under these agreements.

Our collaborators licensing our ZFP technologies may decide to adopt alternative technologies or products or may be unable or unwilling to develop commercially viable products with our ZFP technologies, which would negatively impact our revenues and our strategy to develop product candidates using ZFP technologies.

Several of our collaborations leverage our ZFP technology platform. These collaborators may elect to adopt alternative technologies in the future, which could decrease the value of our ZFP technology platform and impede the development of product candidates using the platform. Additionally, because many of our collaborators are likely to be working on more than one development project, they could choose to shift their resources to projects other than those they are working on with us. If they do so, this would delay our ability to test and develop our ZFP technology platform and would delay or terminate the development of our product candidates using the platform. Further, our collaborators may elect not to develop product candidates arising out of our collaborations or not to devote sufficient resources to the development, manufacturing, marketing or sale of these product candidates. If they terminate the collaborations with us and we wish to continue developing the product candidates, we will be required to seek the support of other collaborators or develop the products ourselves. We may not be able to identify a suitable partner or negotiate a favorable collaboration agreement, and we may not have sufficient resources and expertise internally, to allow us to continue the development of these product candidates.

Commercialization of our technologies will depend, in part, on collaborations with other companies. If we are not able to find collaborators in the future or if our collaborators do not diligently pursue product development efforts, we may not be able to develop our technologies or product candidates, which could slow our growth and decrease the market value of our common stock.

We do not have financial resources ourselves to fully develop, obtain regulatory approval for and commercialize our product candidates. We rely significantly on our collaborations with other biopharmaceutical companies to provide funding for our research and development efforts, including preclinical studies and clinical tests, and expect to rely significantly on such collaborations to provide funding for the lengthy regulatory approval processes required to commercialize our product candidates.

For example, we have collaborations with Novartis to develop product candidates to treat certain neurodevelopment disorders, including autism and intellectual disability; with Biogen to develop product candidates to treat tauopathies including Alzheimer's disease, alpha-synuclein related diseases including Parkinson's disease and other neurological diseases; and with Kite to develop product candidates to treat cancer; with Pfizer to develop product candidates to treat hemophilia A and amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the C9ORF72 gene.

We are also party to a collaboration agreement with Sanofi for the development of therapeutics for hemoglobinopathies, including SCD. In December 2021, Sanofi notified us of its termination for convenience, effective in June 2022, of the collaboration agreement. As a result, as of the termination date, Sanofi will have no further obligations to develop or to fund the development of any research programs under such collaboration agreement. We cannot guarantee that we and Sanofi will be able to come to agreement on appropriate transition arrangements or otherwise execute an orderly transition under the collaboration agreement. Further, although we expect to complete the Phase 1/2 PRECIZIN-1 study of SAR445136, our product candidate to treat SCD developed with Sanofi, we cannot guarantee that we will be able to complete this study or continue developing SAR445136 beyond completion of this study. Although we are currently exploring options to advance the

development of SAR445136, including seeking a potential new partner or developing the program on a wholly-owned basis with our own current financial resources or by seeking new financial resources, we cannot guarantee that we will be able to successfully secure any such options. In such case, we may be unable to continue developing SAR445136 or could choose to stop developing SAR44136 and discontinue the program. Any delays to or discontinuance of this program could have an adverse impact on our business, results of operations, financial condition and prospects.

If we are unable to secure additional collaborations or if our collaborators are unable or unwilling to diligently advance the development, regulatory approval and commercialization of our product candidates, our growth may slow and adversely affect our ability to generate funding for development of our technologies and product candidates. In addition, our collaborators may sublicense or abandon development programs with little advance notice, or we may have disagreements or disputes with our collaborators, which would cause associated product development to slow or cease. In addition, the business or operations of our collaborators may change significantly through restructurings, acquisitions, other strategic transactions that may negatively impact their ability to advance our programs. The evolving COVID-19 pandemic could similarly impact our ability to realize the expected benefits of our collaborations due to the impacts of the pandemic on our collaborators and their business and operations.

Under typical collaborations, we expect to receive revenue for the research and development of our product candidates based on achievement of specific milestones, as well as royalties based on a percentage of sales of any commercialized products. Achieving these milestones will depend, in part, on the efforts of our collaborators as well as our own efforts. If we or any collaboration partner fails to meet specific milestones, then the collaboration agreement may be terminated, which could reduce our revenues. In addition, if sales of commercialized products fail to meet expectations, we could receive lower royalties than expected.

Risks Relating to our Intellectual Property

Because it is difficult, time consuming and costly to obtain, maintain and enforce patent protections for our technologies and product candidates, and because third parties may have made inventions that are similar to ours, we may not be able to secure optimal patent protections of our technologies and product candidates.

Our commercial success may depend in part on obtaining, maintaining and enforcing patent protection for our technologies and product candidates and successfully defending any of our patents that may be challenged. Obtaining, maintaining and enforcing biopharmaceutical patents is costly, time consuming and complex, and we may not be able to file and prosecute all necessary or desirable patent applications in all desired jurisdictions, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner or at all. 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. The patent positions of biopharmaceutical companies can be highly uncertain and can involve complex legal and factual questions. No consistent policy regarding the breadth of claims allowed in biotechnology patents has emerged to date. In addition, future patent laws, regulations, rules, and court decisions may affect the scope, validity, enforceability, and associated remedies of our current and future patent claims. Accordingly, we cannot predict the breadth of claims that may issue from any patent applications that we own or license, nor are we able to predict whether any third-party patents might issue with claims that are relevant to our product candidates or technologies. Even if patents do successfully issue and even if such patents cover our technologies and product candidates, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed, invalidated or deemed unenforceable. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, the existence of which could invalidate a patent or prevent a patent from issuing from a pending patent application. Furthermore, if third parties have made similar inventions, there are multiple ways they could impact the coverage of our own applications.

We are a party to various license agreements that grant us rights under specified patents and patent applications. We are also party to various license agreements by which we grant third parties rights under specified patents and patent applications. Our current licenses contain performance obligations. If we fail to meet those obligations, the licenses could be terminated. If we are unable to continue to license these technologies on commercially reasonable terms, or at all, we may be forced to delay or terminate aspects of our product development and research activities.

We are unable to exercise the same degree of control over intellectual property that we license from third parties as we exercise over our internally developed intellectual property. We do not control the prosecution of certain of the patent applications that we license from third parties; therefore, the patent applications may not be prosecuted as we desire or in a timely manner.

The degree of future protection for our proprietary rights is uncertain, and we cannot ensure that:

- we or our licensors were the first to conceive and/or reduce to practice the inventions covered by each of our pending patent applications;

- we or our licensors were the first to file patent applications for these inventions;
- the patents of others will not have an adverse effect on our ability to do business;
- others will not independently develop similar or alternative technologies or reverse engineer any of our products, processes or technologies;
- any of our pending patent applications will result in issued patents;
- any patents issued or licensed to us, our collaborators or strategic partners will provide a basis for commercially viable products or will provide us with any competitive advantages;
- any patents issued or licensed to us will not be challenged and invalidated by third parties;
- the laws, regulations, rules, or court decisions in the U.S. and foreign countries will not change or be interpreted in a way that modifies our patent rights or impacts our ability to enforce or maintain our patent rights; or
- we will develop additional products, processes or technologies that are patentable.

Others have filed and in the future are likely to file patent applications that are similar to ours. We are aware that there are academic groups and other companies that are attempting to develop technology that is based on the use of zinc finger, TALE, CRISPR/Cas and other DNA-binding proteins, and that these groups and companies have filed patent applications. Several patents with claims directed to this technology have issued, although we have no current plans to use the claimed inventions. If these or other patent applications issue as patents, it is possible that the holder of any patent or patents granted on these applications may bring an infringement action against us, our collaborators, or strategic partners claiming damages and seeking to enjoin research, development or commercial activities relating to the affected products and processes. The costs of litigating the claim could be substantial regardless of outcome. Moreover, we cannot predict whether we, our collaborators, or strategic partners would prevail in any actions. In addition, if the relevant patent claims were upheld as valid and enforceable and our products or processes were found to infringe a patent or patents, we or our collaborators may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, and we may be prevented from making, using, selling, offering to sell, or importing into the U.S. the relevant product or process unless we or our collaborators could obtain a license or were able to design around the patent claims. We can give no assurance that such a license would be available to us or our collaborators on commercially reasonable terms, or at all, or that we would be able to successfully design around the relevant patent claims. There may be significant litigation in the genomics or cell therapy industry regarding patent and other intellectual property rights, which could subject us to costly, lengthy and distracting litigation with unpredictable results.

We rely on trade secrets to protect technology where we believe patent protection is not appropriate or obtainable. Trade secrets, however, are difficult to protect. While we require employees, academic collaborators and consultants to enter into confidentiality agreements, we may not be able to adequately protect our trade secrets or other proprietary information or enforce these confidentiality agreements.

Our collaborators, strategic partners, and scientific advisors have rights to publish data and information in which we may have rights. If we cannot maintain the confidentiality of our technology and other confidential information in connection with our collaborations and strategic partnerships, then we may not be able to receive patent protection or protect our proprietary information.

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

Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date or from the filing date of the corresponding international application. Various means to extend this expected expiration date may be available. Regardless, 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 for a product, we may be open to competition from generic medications. 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.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be adversely affected, and our business would be harmed.

We rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors,

collaborators, partners and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures have been and may in the future be breached, and we may not have adequate remedies for any breach. See also the risk factor titled "If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, we could experience adverse consequences, including but not limited to regulatory investigations or actions, litigation, fines and penalties, disruptions of our business operations and reputational harm." In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

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

Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent material disclosure of the non-patented intellectual property related to our technologies to third parties, and there is no guarantee that we will have any such enforceable trade secret protection, we may not be able to establish or maintain a competitive advantage in our market, which could adversely affect our business, results of operations and financial condition.

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

Presently, we believe we have rights to the intellectual property, through licenses from third parties and under patents that we own, to develop our gene and cell therapy product candidates. Because our programs may involve additional product candidates, such as TX200 and potential future CAR-Treg therapies that may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, our product candidates may require specific formulations to work effectively and efficiently and these rights may be held by others. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify on commercially reasonable terms, if at all. The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property rights, including from other companies and academic institutions, that we may consider attractive. Other companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities. Once an intellectual property right that we desire is licensed to another company, we may be precluded from obtaining our own licensed to such rights.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment. If we are unable to successfully obtain rights to required third-party intellectual property rights, our business, financial condition and prospects for growth could suffer.

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

We are a party to a number of intellectual property license agreements that are important to our business and expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that future license agreements will impose, various diligence, milestone, royalty and other obligations on us. If we fail to comply with our obligations under these agreements, or we are subject to a bankruptcy, the licensor may have the right to terminate the license, in which event we would not be able to market products covered by the license.

We may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we have done so from time to time. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could harm our business significantly. We cannot provide any assurances that third-party patents do not exist

that might be enforced against our current product candidates or future products, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties.

In many cases, patent prosecution of our in-licensed technology is controlled solely by the licensor. If our licensors fail to obtain and maintain patent or other protection for the proprietary intellectual property we license from them, we could lose our rights to the intellectual property or our exclusivity with respect to those rights, and our competitors could market competing products using the intellectual property. In certain cases, we control the prosecution of patents resulting from licensed technology. In the event we breach any of our obligations related to such prosecution, we may incur significant liability to our licensing partners. Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry.

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 an adverse effect on our business, financial condition, results of operations and prospects. If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates, which could have an adverse effect on our business, financial condition, results of operations and prospects. As an example, Sangamo France has exclusively licensed the right to the CAR for use in TX200 from the University of British Columbia, or UBC. Should UBC terminate this license agreement, we may have to develop or acquire the appropriate CAR which would extend our anticipated development timeline and add expense, and which could result in our failure to realize the anticipated benefits of the acquisition of Sangamo France.

We may be involved in patent or intellectual property lawsuits or similar disputes involving patents under our control or patents of third parties claiming infringement, which lawsuits could be expensive, time-consuming and impair or prevent development and commercialization activities.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, declaratory judgment lawsuits, invalidity proceedings, interferences, oppositions, *ex parte* or *inter partes* reexaminations, post-grant reviews and *inter partes* review proceedings before the U.S. PTO, and corresponding foreign patent offices. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are pursuing development candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties.

Third parties may assert that we are employing their proprietary technology without authorization, and such parties may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. For example, we are aware of certain patents held by third parties related to certain vector and vector manufacturing methods that are related to certain of our product candidates. We have not yet finalized the commercial scale manufacturing process for any of our product candidates. If our commercial scale manufacturing process utilizes these vector manufacturing methods, and if these third-party patents are valid and in force at the time of commercialization, we may need to challenge these patents, use or develop non-infringing alternatives or seek a license to these patents. In any event, if any third-party patents were held by a court of competent jurisdiction to cover our product candidates, any molecules formed during the manufacturing process or any final product itself, the holders of any such patents may be able to block or hinder our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire. Similarly, if any third-party patents were held by a court of competent jurisdiction to cover aspects of our formulations or processes for manufacture or methods of use, the holders of any such patents may be able to block our ability to develop and commercialize the applicable product candidate unless we obtained a license, or until such patents expires. Moreover, because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe.

In some instances, third parties may allege that we are infringing their patents or other proprietary rights even if they are not competitors or have an associated business. Such litigants would bring such infringement actions or threats of action with the goal of obtaining settlement money from us instead of engaging in costly and time-consuming litigation.

Defense of these claims, regardless of their merit, would involve substantial litigation expense, could expose proprietary information and would be a substantial diversion of employee resources from our business. In the event of a

successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign our infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

Competitors may also infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid, is unenforceable, in whole or in part, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing. Moreover, if we or one of our licensing partners initiated legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate is invalid and/or unenforceable. Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover our product candidate. The outcome following legal assertions of invalidity and unenforceability 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 and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection could have an adverse impact on our business.

Interference or derivation proceedings provoked by third parties or brought by us or declared by the U.S. PTO may be necessary to determine the priority of inventions or other matters of inventorship with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could expose us to significant monetary damages, result in the loss of valuable intellectual property, require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms or at all, or if a non-exclusive license is offered and our competitors gain access to the same technology. Our defense of litigation, interference, derivation or other proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

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

We employ individuals who were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and independent contractors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of any of our employee's former employer or other third parties. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could adversely impact our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We may be unable to license gene transfer technologies that we may need to commercialize our ZFP technology and potential products, if approved.

In order to regulate or modify a gene in a cell, the ZFP must be efficiently delivered to the cell. We have licensed certain gene transfer technologies for our ZFP in research, including AAV and mRNA technology, and we are evaluating these systems and other technologies that may need to be used in the delivery of ZFP into cells for *in vitro* and *in vivo* applications. We have not developed our own gene transfer technologies, and we rely on our ability to enter into license agreements to provide us with rights to the necessary gene transfer technology. Our approach has been to license appropriate technology as required. For example, we are aware of certain patents held by a third party related to certain vector manufacturing methods that are currently being used in certain of our product candidates. We have not yet finalized the commercial scale manufacturing process for any of our product candidates. If our commercial scale manufacturing process utilizes these vector manufacturing methods, and if these third-party patents are in force at the time of commercialization, we may need to use or develop a non-infringing manufacturing method or seek a license to these patents. However, we may not be able to license the gene transfer technologies on reasonable terms, if at all, required to develop and commercialize our product candidates. The inability to obtain a license to use gene transfer technologies with entities that own such technology on reasonable commercial terms, if at all, could delay or prevent the preclinical evaluation, drug development collaborations, clinical testing and/or commercialization of our therapeutic product candidates.

Risks Relating to our Business Operations

If our information technology systems or data, or those of third parties upon which we rely, are or were compromised, we could experience adverse consequences, including but not limited to regulatory investigations or actions, litigation, fines and penalties, disruptions of our business operations and reputational harm.

We are increasingly dependent on information technology systems and infrastructure to operate our business, which are large and complex. In the ordinary course of our business, we collect, store, process and transmit large amounts of sensitive information, including intellectual property, proprietary business information, personal data (including personal health information) and other confidential information. It is critical that we do so in a secure manner to maintain the confidentiality, integrity and availability of such sensitive information. We have also outsourced elements of our operations (including elements of our information technology infrastructure) to third parties, and as a result, we manage a number of third-party vendors who may or could have access to our computer networks or our confidential information. Many of those third parties in turn subcontract or outsource some of their responsibilities to third parties.

While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the size, complexity, accessibility and distributed nature of our information technology systems, and the large amounts of sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity. Threats to information systems and data come from a variety of sources. In addition to traditional computer hackers, threat actors, personnel (such as through theft or misuse), sophisticated nation-states and nation-state-supported actors also engage in attacks. We and the third parties upon which we rely may be subject to a variety of evolving threats, including but not limited to social-engineering attacks (including through phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks (such as credential stuffing), personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, natural disasters (such as earthquakes, fires, floods), war or terrorism. Ransomware attacks are becoming increasingly prevalent and severe and can lead to significant interruptions in our operations, loss of data and income, reputational harm and diversions of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments. In addition, the effects of the COVID-19 pandemic have intensified our dependence on information technology systems as many of our critical business activities are currently being conducted remotely and our increased reliance on personnel working from home could increase our cybersecurity risk.

Significant disruptions of our, our third-party vendors' and/or business partners' information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive information, which could result in financial and reputational harm to us. For example, in April 2018, we announced a data security incident involving the compromise of a senior executive's company email account. Our investigation of the incident did not reveal any evidence that our systems were otherwise compromised in connection with the incident or that personal data about patients or other individuals besides the executive were accessed or disclosed. However, proprietary, confidential and other sensitive information of ours and that of other entities was accessed and may have been compromised as a result of the incident. Unforeseen developments related to this incident could occur, which could have a further adverse impact on us. Any litigation or regulatory review or investigation arising from this incident could result in significant legal exposure to us. A security incident or other interruption could also result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

While we are aware of the company email incident described above, there is no way of knowing with certainty whether we have experienced any other data security incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that they have been attacked. Any delay in the discovery of an attack may result in increased expense and may harm our reputation. Any security incident or interruption that we, or a third-party upon which we rely, experience (including the company email incident described above) could lead to adverse consequences, including government enforcement actions (for example, investigations, fines, penalties, audits and inspections), additional reporting requirements and/or oversight, restrictions on processing data (including personal data), litigation (including class claims), indemnification obligations, harm to our reputation, monetary fund diversions and financial loss. Applicable data privacy and security obligations may require us to notify relevant stakeholders of security incidents. Such disclosures are costly, and the disclosures or the failure to comply with such requirements could lead to adverse consequences. In addition, failure to maintain effective internal accounting controls related to security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and subject us to regulatory scrutiny. We may expend significant resources or modify our business activities in an effort to protect against security incidents or other interruptions. While we have

implemented security measures intended to protect our information technology infrastructure and data, there can be no assurance that such measures will successfully prevent service interruptions or further security incidents. Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages or claims related to our data privacy and security obligations. Additionally, we cannot be sure that our insurance coverage, if any, will be adequate or sufficient to protect us from or mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercially reasonable terms, or at all, or that such coverage will pay future claims.

We have business operations in France and the United Kingdom, which exposes us to additional costs and risks.

Our business operations in France and the United Kingdom subject us to certain additional costs and risks associated with doing business outside the United States, including:

- the increased complexity and costs inherent in managing international operations in geographically disparate locations;
- challenges of complying with diverse regulatory, financial and legal requirements, which are subject to change at any time;
- potentially adverse tax consequences, including changes in applicable tax laws and regulations;
- potentially costly trade laws, tariffs, export quotas, custom duties or other trade restrictions, and any changes to them;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- liabilities for activities of, or related to, our international operations;
- challenges inherent in efficiently managing employees in diverse geographies, including the need to adapt systems, policies, benefits and compliance programs to differing labor and other regulations;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of health epidemics, including the evolving COVID-19 pandemic, and the resulting global economic and social impacts;
- workforce uncertainty in countries where labor unrest is more common than in the United States; and
- differing laws and regulations relating to data security and the unauthorized use of, or access to, commercial and personal information.

In addition, our international operations in France and the United Kingdom expose us to fluctuations in currency exchange rates between the Euro and the U.S. dollar and between the Pound Sterling and the U.S. dollar. Given the volatility of currency exchange rates, there is no assurance that we will be able to effectively manage currency transaction and/or conversion risks. To date, we have not entered into derivative instruments to offset the impact of foreign exchange fluctuations, which fluctuations could have an adverse effect on our financial condition and results of operations. In any event, difficulties resulting from these and other risks related to our operations outside of the United States could expose us to increased expenses, impair our development efforts, adversely affect our financial condition and results of operations and harm our competitive position.

We are in the process of growing the size of our organization globally, and we have experienced and may continue to experience difficulties in hiring, integrating and retaining qualified skilled employees

We are in the process of growing the size of our organization globally, and we have experienced and may continue to experience difficulties in hiring, integrating and retaining qualified skilled employees.

The growth and stability of our organization is critical to our ability to successfully achieve our strategic objectives. We may not be able to hire, integrate and retain a sufficient number of qualified employees with the appropriate levels of experience and skills to accomplish our growth objectives.

There currently is a shortage of skilled individuals with substantial experience discovering, developing and manufacturing genomic medicines, which is likely to continue. As a result, competition for these individuals is intense and the turnover rate can be high. We may not be able to hire, integrate and retain employees with these skills on acceptable terms given the competition among numerous biopharmaceutical companies and academic institutions for individuals with these skills. In addition, any negative or unexpected results in our preclinical or clinical trials or applications for marketing approval would make it more challenging to hire and retain qualified skilled employees. Moreover, the evolving COVID-19 pandemic has further challenged our ability to hire skilled employees. If we do not achieve our growth objectives, the progress of our research, development, manufacturing and regulatory efforts will slow down, which will adversely impact our business, financial condition, results of operations and prospects.

We are dependent on certain key members of our executive team and certain of our scientific, clinical development and manufacturing personnel, the loss of whose services may impede the progress of our research, development, manufacturing and regulatory efforts. For example, in 2021, our former Chief Financial Officer and our former General Counsel, as well as several other senior finance and legal employees, resigned from Sangamo to pursue opportunities at various other biotechnology companies. We could experience resignations of other executives and employees in the future given the intensity of the competition for talent in the biotechnology industry, particularly in the San Francisco Bay Area. Additional resignations could result in more significant disruptions and threats to our growth and stability. While we have entered into employment agreements with each of our executive officers, any of them could leave our employment at any time, as all of our employees are "at will" employees. We do not have "key person" insurance on any of our employees.

We may not be successful in our efforts to discover, license or acquire new potential product candidates and may fail to capitalize on product candidates with a greater commercial opportunity or for which there is a greater likelihood of success.

If our existing product candidates do not receive regulatory approval or are not successfully commercialized, then the success of our business will depend on our ability to continue to expand our product pipeline through discovery, in-licensing or acquisitions. We may be unable to do so. If we do identify potential product candidates for licensing or acquisition, we may be unable to reach acceptable terms with the licensors or sellers. Further, there may be risks and liabilities associated with the product candidates which our due diligence efforts fail to discover, that are not disclosed to us, that we inadequately assess, or that we are unable to manage effectively. Additionally, we may not realize the anticipated benefits of such licenses or acquisitions for a variety of reasons, including the possibility that the product candidates prove not to be safe or effective in clinical trials, that we are unable to successfully integrate the product candidate into our operations, or that the anticipated benefits will not otherwise be realized within the expected timeframe.

Additionally, because we have limited resources, we may forego or delay pursuit of opportunities with certain product candidates or indications that later prove to have greater commercial potential. Our spending on current and future research and development programs may not yield any commercially viable products. If we do not accurately evaluate the commercial potential for a particular product candidate, we may relinquish valuable rights to that product candidate through strategic collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. Alternatively, we may allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a collaboration arrangement.

Risks Relating to our Common Stock and Corporate Organization

Our stock price has been volatile and will likely continue to be volatile, which could result in substantial losses for investors, and could be influenced by public perception of genomic medicines and the biotechnology sector.

Our stock price has been volatile and may continue to be volatile, which could cause stockholders to incur substantial losses. An active public market for our common stock may not be sustained, and the market price of our common stock may continue to be volatile. The market price of our common stock has fluctuated significantly in response to various factors, some of which are beyond our control, including but not limited to the following:

- announcements by us or collaborators providing updates on the progress or development status of product candidates or data from clinical trials;
- initiation or termination of clinical trials;
- changes in market valuations of similar companies;
- overall market and economic conditions, including the equity markets for emerging biotechnology companies;
- deviations in our results of operations from the guidance given by us;
- announcements by us or our competitors of new or enhanced products or technologies or significant contracts, acquisitions, strategic relationships, joint ventures or capital commitments;
- announcement of changes in business and operations by our collaborators, or changes to our existing collaboration agreements;
- changes in public opinions of genomic medicines;
- regulatory developments, including increased regulatory scrutiny of genomic medicines;
- changes, by one or more of our securities analysts, in recommendations, ratings or coverage of our stock;
- additions or departures of key personnel; and

- sales of our common stock or other securities by us, officers or directors, liquidation of institutional funds that comprised large holdings of our stock and decreases in our cash balances.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, including in connection with the ongoing and evolving COVID-19 pandemic, which has resulted in decreased stock prices for many companies notwithstanding the lack of a fundamental change in their underlying business models or prospects. These fluctuations have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors, including potentially worsening economic conditions and other adverse effects or developments relating to the evolving COVID-19 pandemic, and political, regulatory and other market conditions, may negatively affect the market price of shares of our common stock, regardless of our actual operating performance.

Actual or potential sales of significant amounts of shares of our common stock into the market could cause the market price of our common stock to fall or prevent it from increasing for numerous reasons.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. Our outstanding shares of common stock generally may be freely sold in the public market at any time to the extent permitted by Rules 144 and 701 under the Securities Act of 1933, as amended, or the Securities Act, or to the extent the issuance of such shares has already been registered under the Securities Act and are held by non-affiliates of ours. While Biogen agreed not to sell any of the shares that we issued to Biogen in April 2020 until the first anniversary of the effectiveness of the Biogen collaboration, and to limit resales through the second anniversary, such restrictions are only temporary. Further, we also agreed, subject to certain limitations, to register for resale under the Securities Act any of the shares we issued to Biogen. We have also filed registration statements registering all shares of common stock that we may issue under our equity compensation plans. Such shares can be freely sold in the public market upon issuance, subject to volume limitations and black-out periods applicable to affiliates. Additionally, we are party to a sales agreement with Jefferies LLC which permits us from time to time at our discretion to sell up to $150.0 million of shares of our common stock in the public markets at prevailing market prices. As of February 22, 2022, we have sold 2,007,932 shares of our common stock under the sales agreement for net proceeds of approximately $27.1 million.

In addition, in accordance with the guidelines specified under Rule 10b5-1 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and our policies regarding stock transactions, certain of our employees, executive officers and directors have adopted, and may continue to adopt, stock trading plans pursuant to which they have arranged to sell shares of our common stock from time to time in the future. Generally, sales under such plans by our executive officers and directors require public filings. Our employees, executive officers, directors and affiliated stockholders also may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material, nonpublic information. Actual or potential sales of our common stock by such persons could be viewed negatively by other investors and could cause the price of our common stock to fall or prevent it from increasing.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividends on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock.

Anti-takeover provisions in our certificate of incorporation, Delaware law and our bylaws could make an acquisition of our company more difficult and could prevent attempts by our stockholders to remove or replace current management.

Anti-takeover provisions of Delaware law and in our certificate of incorporation and our bylaws may discourage, delay or prevent a change in control of our company, even if a change in control would be beneficial to our stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. In particular, under our certificate of incorporation our board of directors may issue up to 5,000,000 shares of preferred stock with rights and privileges that might be senior to our common stock, without the consent of the holders of the common stock. Moreover, without any further vote or action on the part of the stockholders, the board of directors would have the authority to determine the price, rights, preferences, privileges, and restrictions of the preferred stock. This preferred stock, if it is ever issued, may have preference over, and harm the rights of, the holders of common stock. Although the issuance of this preferred stock would provide us with flexibility in connection with possible acquisitions and other corporate purposes, this issuance may make it more difficult for a third party to acquire a majority of our outstanding voting stock.

Similarly, our authorized but unissued common stock is available for future issuance without stockholder approval. Our certificate of incorporation further provides that stockholders may not take action by written consent.

In addition, our amended and restated bylaws:

- establish advance notice requirements for nominations for election to the board of directors or proposing matters that can be acted upon at stockholders' meetings; and
- prohibit stockholders from calling a special meeting of stockholders.

We are also subject to Section 203 of the General Corporation Law of the State of Delaware, which provides, subject to certain exceptions, that if a person acquires 15% of our voting stock, the person is an "interested stockholder" and may not engage in "business combinations" with us for a period of three years from the time the person acquired 15% or more or our voting stock. The application of Section 203 may, in some circumstances, deter or prevent a change in control of our company even when such change may be beneficial to our stockholders.

Our amended and restated bylaws designate exclusive forums for the adjudication of certain disputes, which could limit our stockholders' ability to bring claims in a judicial forum it finds favorable for disputes with us or our directors, officers, or employees.

Our amended and restated bylaws provide that a state or federal court located within the State of Delaware is the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee or stockholder of Sangamo to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the General Corporation Law of the State of Delaware, our charter or our bylaws, as to which the General Corporation Law of the State of Delaware confers jurisdiction on the Court of Chancery of the State of Delaware; and
- any action asserting a claim governed by the internal affairs doctrine.

Our amended and restated bylaws further provide that a federal district court of the United State is the sole and exclusive forum for any complaint asserting a cause of action arising under the Securities Act of 1933, as amended. These provisions further provide that any person or entity that acquires any interest in shares of our capital stock will be deemed to have notice of and consented to these provisions.

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

ITEM 1B – UNRESOLVED STAFF COMMENTS

None.

ITEM 2 – PROPERTIES

Our corporate headquarters occupies approximately 87,700 square feet of office and research and development laboratory facilities in Brisbane, California, pursuant to a lease that expires in May 2029. We also lease approximately 59,485 square feet of research and office space, pursuant to a lease that expires in August 2031, and approximately 7,700 of office space, pursuant to a lease that expires in August 2026, in Richmond, California. We also lease approximately 25,600 square feet of office and research and development space in Valbonne, France, subject to leases that expire beginning in June 2025 through January 2030. We believe that our facilities are currently adequate to meet our needs. As we continue to expand our operations, we may need to lease or purchase additional facilities.

ITEM 3 – LEGAL PROCEEDINGS

We are not a party to any material pending legal proceeding. From time to time, we may be involved in legal proceedings arising in the ordinary course of business.

ITEM 4 – MINE SAFETY DISCLOSURES

Not Applicable.

PART II

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

Market Information

Our common stock trades on the Nasdaq Global Select Market under the symbol "SGMO."

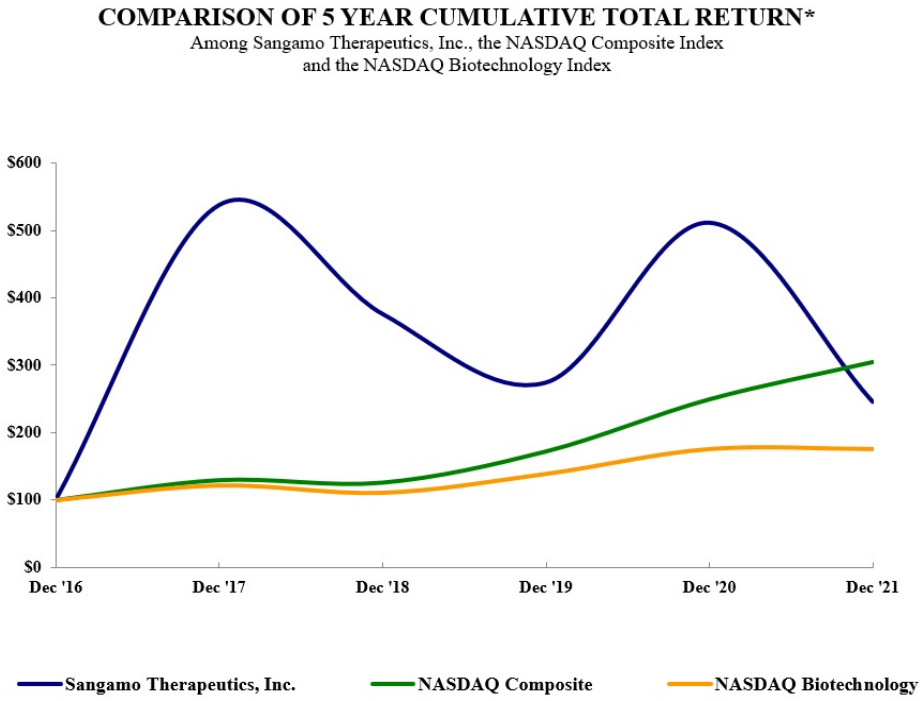
Holders

As of February 22, 2022, there were 59 holders of record of our common stock. This number does not include "street name," or beneficial holders, whose shares are held of record by banks, brokers, financial institutions and other nominees.

Dividends

We have not paid dividends on our common stock, and currently do not plan to pay any cash dividends in the foreseeable future.

Stock Performance Graph



*$100 invested on December 31, 2016 in stock or index, including reinvestment of dividends.
Fiscal year ending December 31.

The above Stock Performance Graph and related information shall not be deemed "soliciting material" or to be "filed" with the SEC nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, each as amended, except to the extent that we specifically incorporate it by reference into such filing.

ITEM 6 – [RESERVED]

Data responsive to Item 6 have not been presented in accordance with amendments to Item 301 of Regulation S-K contained in SEC Release No. 33-10890.

ITEM 7 – MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The discussion in "Management's Discussion and Analysis of Financial Condition and Results of Operations" contains trend analysis, estimates and other forward-looking statements within the meaning of Section 27A of the Securities Act, as amended, and Section 21E of the Exchange Act, as amended. These forward-looking statements include, without limitation, statements containing the words "anticipates," "believes," "continues," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should," "will," and other words of similar import or the negative of those terms or expressions. Such forward-looking statements are subject to known and unknown risks, uncertainties, estimates and other factors that may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Actual results could differ materially from those set forth in such forward-looking statements as a result of, but not limited to, the "Risk Factors" described in Part I, Item 1A of this Annual Report on Form 10-K. You should read the following discussion and analysis along with the Consolidated Financial Statements and notes attached to those statements included elsewhere in this report.

In addition, the section of this "Management's Discussion and Analysis of Financial Condition and Results of Operations" generally discusses 2021 and 2020 items and year-to-year comparisons between 2021 and 2020. Discussions of 2019 items and year-to-year comparisons between 2020 and 2019 are not included in this Annual Report on Form 10-K and can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed with the SEC on February 24, 2021.

Overview

We are a clinical-stage genomic medicine company committed to translating ground-breaking science into medicines that transform the lives of patients and families afflicted with serious diseases. We plan to deliver on this mission through development of our clinical and preclinical product candidates leveraging our novel science and our in-house manufacturing capabilities.

Our current clinical-stage product candidates are:

- Isaralgagene civaparvovec, also known as ST-920, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, is currently being evaluated in our Phase 1/2 STAAR clinical study, and we have initiated plans for a Phase 3 clinical trial;
- SAR445136, our zinc finger nuclease, or ZF nuclease, gene-edited cell therapy product candidate for the treatment of sickle cell disease, or SCD, is currently being evaluated in our Phase 1/2 PRECIZN-1 clinical study. We are developing SAR445136 with our collaborator Sanofi S.A., or Sanofi, through June 28, 2022, at which time SAR445136 will become a product candidate wholly-owned by Sangamo;
- TX200, our wholly-owned Chimeric Antigen Receptor, or CAR, engineered regulatory T cell, or CAR-Treg, cell therapy product candidate for the prevention of immune-mediated rejection in HLA-A2 mismatched kidney transplantation, is currently being evaluated in our Phase 1/2 STEADFAST clinical study; and
- Giroctocogene fitelparvovec, also known as SB-525, is a gene therapy product candidate for the treatment of moderately severe to severe hemophilia A and is the subject of the registrational Phase 3 AFFINE clinical trial. We are developing giroctocogene fitelparvovec with our collaborator Pfizer Inc., or Pfizer.

Our preclinical development is focused in two innovative priority areas: (i) CAR-Treg cell therapies for autoimmune disorders and (ii) genome engineering for neurological diseases. Indications for our preclinical programs include neurodevelopmental disorders, cancer, inflammatory bowel disease, or IBD, tauopathies and neurodegenerative diseases such as amyotrophic lateral sclerosis, or ALS, multiple sclerosis, or MS, and Huntington's disease, some of which we are developing with our collaborators Biogen MA, Inc. and Biogen International GmbH, which we refer to together as Biogen, Novartis Institutes for BioMedical Research, Inc., or Novartis, Pfizer, and Takeda Pharmaceutical Company Limited, or Takeda.

Our multiple collaborations with biopharmaceutical companies bring us important financial and strategic benefits and reinforce the potential of our research and development efforts and our ZF technology platform. They leverage our collaborators' therapeutic and clinical expertise and commercial resources with the goal to bring our medicines more rapidly to patients. We believe these collaborations reflect the value of our ZF technology platform and will potentially expand the addressable markets of our product candidates. To date, we have received approximately $815.0 million in upfront licensing fees, milestone payments and proceeds from sales of our common stock to collaborators and have the right to earn up to $6.7 billion in future milestone payments from our collaborations, in addition to potential product royalties.

We believe that our in-house manufacturing capacity provides us a competitive advantage. We currently operate an adeno-associated virus, or AAV, manufacturing facility in our Brisbane, California headquarters and cell therapy manufacturing facilities in Brisbane, California and Valbonne, France. Our manufacturing strategy is to provide greater flexibility, quality and control by building a balanced and necessary capacity achieved through our in-house manufacturing and contract manufacturing organization, or CMO, partnerships, investing in manufacturing processes and analytics and developing a strong supply chain.

For additional information regarding our business, see "Business" in Part I, Item 1 of this Annual Report on Form 10-K.

Recent Business Highlights

Fabry Disease

- In February 2022, we presented updated preliminary clinical data from the Phase 1/2 STAAR study evaluating isaralgagene civaparvovec, or ST-920, our wholly-owned gene therapy product candidate for the treatment of Fabry disease at the 18th Annual WORLD*Symposium*. As of the November 9, 2021 cutoff date:
  - The four patients in Cohorts 1 and 2 all exhibited above normal α-Gal A activity, ranging from 3-fold to 15-fold above mean normal at last measurement.
  - The two patients in Cohort 1 maintained elevated α-Gal A activity for one year and are now in the long-term follow-up study.
  - The first patient in Cohort 3 exhibited α-Gal A activity within mean normal range by week 2.
  - Lyso-Gb3 levels remained significantly reduced in the patient who exhibited the highest baseline levels of this biomarker.
  - The gene therapy candidate continued to be generally well tolerated in the five treated patients.
- The sixth patient in the STAAR study, who is the second patient in Cohort 3, was dosed after the cutoff date. We expect to provide updated data in the second half of 2022.
- Based on the Phase 1/2 data, we have initiated Phase 3 planning.

Sickle Cell Disease

- In December 2021, we presented updated preliminary proof-of-concept clinical data from the Phase 1/2 PRECIZN-1 study of SAR445136, a ZF nuclease gene-edited cell therapy candidate in development with Sanofi, at the 63rd American Society for Hematology Annual Meeting and Exposition 2021, or ASH. As of the September 22, 2021 cutoff date:
  - No adverse events related to SAR445136 were reported.
  - All four treated patients experienced increases in total hemoglobin, fetal hemoglobin and percent F cells.
  - None of the patients required blood transfusions post engraftment.
- We expect that the next four patients treated in the study will be dosed with a product candidate manufactured using improved methods, which have been shown in internal experiments to increase long-term progenitor cells. We expect to complete dosing of these patients in the third quarter of 2022.
- We and Sanofi are collaborating on planning an orderly transition of Sanofi's rights and obligations under the program to Sangamo on June 28, 2022, while we explore options to advance the program, including seeking a potential new partner.

Hemophilia A

- In December 2021, with our collaborator Pfizer, we presented updated follow-up data from the Phase 1/2 Alta study of giroctocogene fitelparvovec, an investigational gene therapy for patients with moderately severe to severe hemophilia A, at ASH. As of the October 1, 2021 cutoff date:
  - At 104 weeks, the five patients in the highest dose 3e13 vg/kg cohort had mean factor VIII (FVIII) activity of 25.4% via chromogenic clotting assay.
  - In this cohort, mean annualized bleeding rate was 0.0 in the first year post-infusion and was 1.4 throughout the total duration of follow-up. All bleeding events occurred after week 69 post-infusion. Two patients experienced bleeding events necessitating treatment with exogenous FVIII. No participants in the highest dose cohort had resumed prophylaxis.
  - Giroctocogene fitelparvovec continued to be generally well-tolerated.
- In February 2022, Pfizer announced that it hopes to obtain agreements from health authorities to resume the AFFINE trial of giroctocogene fitelparvovec and to begin to reopen trial sites in the first half of 2022. This trial was previously paused when some of the patients treated in this trial experienced FVIII activity greater than 150% following treatment. Pfizer has announced that it currently is in the process of submitting a protocol amendment to health authorities in the countries where this trial is being conducted and preparing responses to the U.S. FDA clinical hold. Over 50% of the patients have been enrolled in the Phase 3 AFFINE trial.

Renal Transplant Rejection

- In November 2021, the first patient was enrolled and is expected to be dosed soon in our Phase 1/2 STEADFAST study evaluating TX200, our wholly-owned autologous HLA-A2 CAR Treg cell therapy product candidate treating patients receiving an HLA-A2 mismatched kidney from a living donor. We expect the second patient in this study to be dosed by the middle of 2022. We continue to open study sites and screen patients.

Manufacturing

- In 2021, we completed and brought online our in-house cell therapy manufacturing facilities in our Brisbane, California headquarters and in our Valbonne, France facilities. We now have these facilities in addition to the in-house AAV manufacturing facilities we brought online in Brisbane in 2020.

Impacts of the Ongoing COVID-19 Pandemic

We have experienced and continue to experience impacts from the ongoing and evolving COVID-19 pandemic on our business and operations and could continue to experience these or potentially more severe impacts as the pandemic evolves in the United States, France, the United Kingdom and locations of our clinical studies and trials. We continue to conduct business operations pursuant to a modified operating plan that includes enhanced workplace safety protocols and modified working schedules. These protocols and modifications have slowed our productivity and disrupted our business to a moderate degree and are likely to continue doing so through the remainder 2022. For example, we have experienced periodic short-term disruptions to our onsite operations while addressing positive cases of COVID-19 by onsite workers and clinical trial patients, and our operations could experience longer term disruptions in the future in the event of a significant outbreak of COVID-19 among our onsite workers or clinical trial patients. Moreover, from time to time, we have been required to reorganize and prioritize our resources to mitigate moderate COVID-19 impacts arising from travel restrictions, density restrictions and supply constraints. If our programs encounter longer-term disruptions, it could impact our ability to support our biopharmaceutical partners as contemplated in our collaboration agreements and could result in adjustments to our timelines, although we do not believe that the short-term disruptions to date have resulted in any such impacts.

Additionally, our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec has experienced and continues to experience delays in its timeline due in part to COVID-19 impacts and the diversion of healthcare resources to fight the pandemic. For example, we estimate that the opening of the first clinical trial site in the United Kingdom for this study experienced a delay of approximately one year due to the significant prevalence of COVID-19 in the United Kingdom. Additionally, we have experienced delays in recruiting, enrolling and dosing patients for this study, due in part to the hesitation of patients to travel by plane to trial sites not within driving distance and to enter medical facilities during the pandemic and also due in part to trial sites prioritizing COVID-19 clinical care over research activities such as the STAAR study. The study has also experienced delays when certain patients have decided to take the COVID-19 vaccine or tested positive for COVID-19 prior to enrollment or dosing in the study. Moreover, we have experienced some short-term delays in sourcing the necessary raw materials to manufacture supplies for the STAAR study and in transporting clinical trial materials due to COVID-19 impacts. We estimate that these challenges have set back our STAAR study timelines by approximately three to six months. Clinical timelines for this study could be revised again if COVID-19 impacts to our recruitment, screening, enrollment and

dosing of patients and to our sourcing of raw materials for this study intensify because of vaccination delays, new COVID-19 variants or unexpected events.

In addition, our STEADFAST study evaluating TX200, our wholly-owned CAR-Treg cell therapy product candidate for the treatment of kidney transplant rejection, has experienced delays in its timeline due to COVID-19 impacts related to manufacturing and technology transfer challenges with our CMOs and due to patients and donors testing positive for COVID-19. We estimate that these challenges set back our clinical study timeline by approximately three months. While we have now enrolled the first patient in this study and expect to dose this patient soon, and expect to dose the second patient in this study by the middle of 2022, this timeline could be revised if COVID-19 impacts result in additional delays.

With respect to our partnered programs, the timelines for the studies and trials managed by our collaborators are also subject to potential delay in the future if these studies and trials experience similar challenges that we have experienced and continue to experience in our STAAR and STEADFAST studies.

Going forward, we will continue to monitor the impact of COVID-19 on our operations, research commitments and clinical trials and those of our collaborators, clinical trial sites and CMOs. The magnitude of these impacts will depend, in part, on the length and severity of the COVID-19 pandemic and related government orders and restrictions, and how the pandemic limits the ability of us and our business partners to operate business in the ordinary course. Disruptions to these operations, and possibly more severe disruptions in the future that could arise due to the extension of government orders or new government orders applicable in the places we operate or our industry generally or to us and our facilities specifically, could impede our ability to conduct research in a timely manner, comply with our research obligations to our collaborators and advance the development of our therapeutic programs. These delays and disruptions could result in adverse material impacts to our business, operating results and financial condition.

We do not anticipate any material negative impact on our financial condition in 2022 as a result of the COVID-19 pandemic. We believe we are well positioned financially in the near term to execute on our wholly-owned and partnered research and clinical programs. As of December 31, 2021, we had $464.7 million in cash, cash equivalents, and marketable securities. Although we believe we are well-capitalized currently, the effects of the evolving pandemic could result in disruption of global financial markets, impairing our ability to access capital, which could negatively affect our liquidity in the future. We do not currently anticipate any material impairments to the valuation of the financial assets or goodwill on our balance sheet as a result of the COVID-19 pandemic. We do not believe that the remote workplace arrangements we have implemented for our office-based employees have affected our financial reporting or control systems.

The extent to which the COVID-19 pandemic will impact our business, operations and financial condition, either directly or indirectly, will depend on future developments that remain highly uncertain at the present time. These developments include the ultimate duration and severity of the pandemic, the impacts of new COVID-19 variants, travel restrictions, new public health restrictions in the United States, France, the United Kingdom and other countries, business closures or business disruptions and the effectiveness and timeliness of actions taken in the United States, France, the United Kingdom and other countries to contain and treat the disease, including the effectiveness and timing of vaccination programs. The surge of new variants of the virus, including the recent Omicron variant, has resulted and may in the future result in the return of prior orders and restrictions or new quarantine and shelter-in-place orders or other restrictions. As our understanding of events evolves and additional information becomes available, we may materially change our guidance relating to our revenues, expenses and timelines for manufacturing, clinical trials and research and development.

See the section titled “Risk Factors” included in Part I, Item 1A of this Annual Report on Form 10-K for additional information on risks and uncertainties related to the evolving COVID-19 pandemic.

Certain Components of Results of Operations

Our revenues have consisted primarily of revenues from upfront licensing fees, reimbursements for research services, milestone achievements and research grant funding. We expect revenues to continue to fluctuate from period to period and there can be no assurance that new collaborations or partner reimbursements will continue beyond their initial terms or that we are able to meet the milestones specified in these agreements.

We have incurred net losses since inception and expect to incur losses for at least the next several years as we continue our research and development activities. To date, we have funded our operations primarily through the issuance of equity securities and revenues from collaborations and research grants.

We expect to continue to devote substantial resources to research and development in the future and expect research and development expenses to increase in the next several years if we are successful in advancing our product candidates from research stage through clinical trials. Pursuant to the terms of our agreements with Biogen, Kite Pharma, Inc., or Kite, Novartis and Sanofi, certain expenses related to research and development activities will be reimbursed to us. The reimbursement funds

to be received from Biogen, Kite, Novartis, Pfizer and Sanofi will be recognized as revenue as the related costs are incurred and collection is reasonably assured.

General and administrative expenses consist primarily of salaries and personnel related expenses for executive, finance and administrative personnel, stock-based compensation expenses, professional fees, allocated facilities expenses, patent prosecution expenses and other general corporate expenses. As we continue to advance our product candidates into and through the clinic, we expect the growth of our business to require increased general and administrative expenses.

Critical Accounting Policies and Estimates

Our Consolidated Financial Statements and the related disclosures have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these Consolidated Financial Statements requires us to make estimates, assumptions and judgments that affect the reported amounts in our Consolidated Financial Statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe the following policies to be the most critical to an understanding of our financial condition and results of operations because they require us to make estimates, assumptions and judgments about matters that are inherently uncertain.

We believe our critical accounting policies and estimates relating to revenue recognition and valuation of long-lived assets including goodwill and intangible assets are the most significant estimates and assumptions used in the preparation of our Consolidated Financial Statements.

For a complete description of our significant accounting policies, see Note 1 – *Organization, Basis of Presentation and Summary of Significant Accounting Policies* in the accompanying notes to the Consolidated Financial Statements included in Part II, Item 8, "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

Revenue Recognition

We recognize revenues from research services generally as services are provided while revenues from non-refundable upfront fees are recognized over time either by measuring progress towards satisfaction of the relevant performance obligation using the input method (i.e., cumulative actual costs incurred relative to total estimated costs) or on a straight-line basis when a performance obligation is expected to be satisfied evenly over a period of time (when there is a stand-ready obligation).

The estimation of measure of progress is complex, involves significant judgment, and is affected by our estimates of the total costs required to complete the performance obligations including the total internal personnel costs and external costs to be incurred as well as, in certain cases, the estimated stand-ready obligation period. Changes in these estimates can have a material effect on our revenue recognition.

For a further description of our revenue recognition, see Note 4 – *Major Customers, Partnerships and Strategic Alliances* in the accompanying notes to the Consolidated Financial Statements included in Part II, Item 8, "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

Valuation of Long-lived Assets including Goodwill and Intangible Assets

We review goodwill and indefinite-lived intangible assets for impairment at least annually or more frequently if events or changes in circumstances would more likely than not reduce the fair value these assets below their carrying values. As of December 31, 2021, no impairment of goodwill or indefinite-lived intangible assets was identified.

Long-lived assets, including property and equipment and finite-lived intangible assets, are reviewed for possible impairment whenever events or circumstances indicate that the carrying amount of such assets may not be recoverable. The evaluation is performed at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. Recoverability of these assets is measured by a comparison of the carrying amounts to the future undiscounted cash flows the assets are expected to generate from the use and eventual disposition. If such review indicates that the carrying amount of property and equipment and intangible assets is not recoverable, the carrying amount of such assets is reduced to fair value. We have not recorded any significant impairment charges during the years presented.

Results of Operations

Years Ended December 31, 2021, 2020 and 2019

Revenues

	Year Ended December 31, (in thousands, except percentage values)							
	2021	2020	Change	%	2020	2019	Change	%
Revenues	$ 110,701	$ 118,192	$ (7,491)	(6)%	$ 118,192	$ 102,428	$ 15,764	15 %

Total revenues consisted of revenues from collaboration agreements and research grants. We anticipate revenues over the next several years will be derived primarily from our collaboration agreements with Biogen, Novartis, Kite, and Pfizer as we continue to recognize upfront and milestone payments received under such agreements over time.

The decrease of $7.5 million in revenues in 2021 compared to 2020 was primarily attributed to a decrease of $47.4 million of milestone fees and recognition of upfront license fees related to our giroctocogene fitelparvovec and *C9ORF72* collaboration agreements with Pfizer driven by completion of activities under these collaborations in the fourth quarter of 2020, a decrease of $3.2 million in revenue related to our collaboration agreement with Kite, a decrease of $2.8 million in revenue from sublicense fees related to our agreement with Dow AgroSciences LLC, and a decrease of $2.2 million in revenue related to our collaboration agreement with Sanofi, primarily due to a change in estimate regarding project scope and related project costs.

These decreases were partially offset by increases of $32.7 million and $14.4 million related to the recognition of upfront license fee and research revenue under our collaboration agreements with Novartis and Biogen, respectively.

Operating Expenses

	Year Ended December 31, (in thousands, except percentage values)							
	2021	2020	Change	%	2020	2019	Change	%
Operating expenses:								
Research and development	$ 230,819	$ 180,647	$ 50,172	28 %	$ 180,647	$ 145,922	$ 34,725	24 %
General and administrative	63,219	67,097	(3,878)	(6)%	67,097	61,686	5,411	9 %
Total operating expenses	$ 294,038	$ 247,744	$ 46,294	19 %	$ 247,744	$ 207,608	$ 40,136	19 %

Research and Development Expenses

Research and development expenses consisted primarily of compensation related expenses, including stock-based compensation, laboratory supplies, preclinical and clinical studies, manufacturing clinical supply, contracted research, and allocated facilities and information technology expenses.

The increase of $50.2 million in research and development expenses in 2021 compared to 2020 was primarily driven by a $22.2 million increase in preclinical, clinical and lab supply expenses due to the timing of our trials and increased activity primarily attributable to our Biogen and Novartis collaborations, an $18.9 million increase in compensation expense as a result of increased headcount to support our programs, clinical trials and manufacturing operations, and a $15.0 million increase in manufacturing and overhead costs as we ramped up our internal manufacturing operations. These increases were partially offset by a reduction of research and development expenses by $5.2 million related to dissolution of the repayment obligation of a grant from the California Institute for Regenerative Medicine, or CIRM, associated with the development of the ST-400 program, which was discontinued in the third quarter of 2021. Stock-based compensation expense included in research and development expenses was $19.5 million and $13.5 million for the years ended December 31, 2021 and 2020, respectively.

The table below shows research and development expenses related to our clinical and preclinical programs. As shown in the table below, preclinical and research programs contributed $58.8 million of the increase in our research and development expenses primarily due to advancement of our technical platform and our wholly-owned preclinical programs, offset by a decrease of $8.6 million in our clinical programs in 2021 as compared to 2020, primarily driven by completion of activities for our giroctocogene fitelparvovec and *C9ORF72* programs with Pfizer.

	Year Ended December 31, (in thousands)		
Programs	**2021**	**2020**	**2019**
Clinical Programs:			
Inherited metabolic disorders clinical programs	$ 63,800	$ 59,030	$ 61,845
Beta thalassemia clinical program	1,205	8,672	13,634
Adjustment of CIRM award liability related to the termination of the grant (*)	(5,150)	—	—
HIV clinical programs	3,935	3,289	1,762
Hemophilia clinical programs	1,688	3,108	12,805
Subtotal	65,478	74,099	90,046
Preclinical and Research Programs:			
Wholly-owned programs and early research activities	116,991	78,540	36,480
CNS partner programs	47,418	21,726	7,001
Oncology programs	894	6,214	12,281
Other	38	68	114
Subtotal	165,341	106,548	55,876
Total research and development expenses	$ 230,819	$ 180,647	$ 145,922

(*) The amount is related to dissolution of the repayment obligation of the grant from CIRM associated with the ST-400 clinical program which was discontinued in 2021. See Note 4 – *Major Customers, Partnerships and Strategic Alliances* in the accompanying notes to the Consolidated Financial Statements included in Part II, Item 8, "Financial Statements and Supplementary Data" of this Annual Report on Form 10-K.

We expect to continue to devote substantial resources to research and development in the future and expect research and development expenses to increase in the next several years if we are successful in advancing our clinical programs and if we are able to progress our earlier stage product candidates into clinical trials.

The length of time required to complete our development programs and our development costs for those programs may be impacted by the scope and timing of enrollment in clinical trials for our product candidates, our decisions to pursue development programs in other therapeutic areas, and whether we pursue development of our product candidates with a partner or collaborator or independently. For example, our product candidates are being developed in multiple therapeutic areas, and we do not yet know how many of those therapeutic areas we will continue to pursue. Furthermore, the scope and number of clinical trials required to obtain regulatory approval for each pursued therapeutic area is subject to the input of the applicable regulatory authorities, and we have not yet sought such input for all potential therapeutic areas that we may elect to pursue, and even after having given such input, applicable regulatory authorities may subsequently require additional clinical studies prior to granting regulatory approval based on new data generated by us or other companies, or for other reasons outside of our control. As a condition to any regulatory approval, we may also be subject to post-marketing development commitments, including additional clinical trial requirements. As a result of the uncertainties discussed above, we are unable to determine the duration of or complete costs associated with our development programs.

Our potential therapeutic products are subject to a lengthy and uncertain regulatory process that may not result in our receipt of any necessary regulatory approvals. Failure to receive the necessary regulatory approvals would prevent us from commercializing the product candidates affected. In addition, clinical trials of our product candidates may fail to demonstrate safety and efficacy, which could prevent or significantly delay regulatory approval. The full extent of the impact of the COVID-19 pandemic on our business, operations and financial results will depend on numerous evolving factors that we may not be able to accurately predict. A discussion of the risks and uncertainties with respect to our research and development activities, including completing the development of our product candidates, and the consequences to our business, financial position and growth prospects can be found in “Risk Factors” in Part I, Item 1A of this Annual Report on Form 10-K.

General and Administrative Expenses

General and administrative expenses consist primarily of compensation related expenses including stock-based compensation for executive, legal, finance and administrative personnel, professional fees, allocated facilities and information technology expenses, and other general corporate expenses.

The decrease of $3.9 million in general and administrative expenses in 2021 compared to 2020 was primarily due to a $3.5 million decrease in legal and professional fees. Stock-based compensation expense included in general and administrative expenses was $13.4 million and $12.2 million for the years ended December 31, 2021 and 2020, respectively.

Interest and other income, net

The decrease of $3.4 million in interest and other income, net in 2021 compared to 2020 was due to a decrease of $3.5 million in interest income primarily due to lower portfolio yields as a result of a decrease in interest rates, and a decrease of $3.4 million as a result of fluctuations in foreign exchange rates, partially offset by a reversal of accrued interest amounting to $1.2 million related to the grant from CIRM upon cancellation of the repayment obligation, and an increase of $1.4 million in research tax credits earned by Sangamo France.

Income tax expense

Provision for income taxes was $0.3 million, $0.3 million, and zero for 2021, 2020 and 2019, respectively. The income tax expense for 2021 was primarily due to an increase in the long-term liability associated with uncertain tax positions and foreign income taxes. The income tax expense for 2020 was primarily related to the increase in the long-term liability associated with uncertain tax positions, foreign income taxes and state income taxes. In both years, the expense was partially offset by a foreign deferred tax benefit.

As of December 31, 2021, we had net operating loss carryforwards for federal and state income tax purposes of approximately $605.6 million and $253.9 million, respectively. The federal net operating loss generated before 2018 will begin to expire in 2022 and will keep expiring through 2037, if not utilized. Federal net operating losses generated from 2018 will carry forward indefinitely. If not utilized, the state net operating loss carryforwards will begin to expire in 2029. We also have federal and state research tax credit carryforwards of $28.2 million and $22.1 million, respectively. The federal research credits will begin to expire in 2022, while the state research credits have no expiration date. Utilization of our net operating loss carryforwards and research tax credit carryforwards may be subject to substantial annual limitations due to the ownership change limitations provided by the Internal Revenue Code and similar state provisions. The annual limitation could result in the expiration of the net operating loss carryforwards and research tax credit carryforwards before use. Due to the carryforwards related to the net operating losses and research and development tax credits, we do not expect to pay any U.S. federal taxes related to income in the near future.

Liquidity and Capital Resources

Liquidity

Since inception, we have incurred significant net losses, and we have funded our operations primarily through the issuance of equity securities, payments from corporate collaborators and strategic partners and research grants.

As of December 31, 2021, we had cash, cash equivalents, and marketable securities totaling $464.7 million compared to $692.0 million as of December 31, 2020. Our most significant use of capital was for employee compensation and external research and development expenses, such as manufacturing, clinical trials and preclinical activity related to our therapeutic programs. Our cash and investment balances are held in a variety of interest-bearing instruments, including U.S. government-sponsored entity debt securities, commercial paper securities, money market funds, corporate debt securities, asset-backed securities and certificates of deposit. Cash in excess of immediate requirements is invested in accordance with our investment policy with a view toward capital preservation and liquidity.

In August 2020, we entered into an Open Market Sale Agreement℠, or the sales agreement, with Jefferies LLC, providing for the sale of up to $150.0 million of our common stock from time to time in ‘at-the-market’ offerings under an existing shelf registration statement. During the year ended December 31, 2021, we sold 2,007,932 shares of our common stock under the sales agreement for net proceeds of approximately $27.1 million.

While we expect our rate of cash usage to increase in the future, in particular to support our product development endeavors, we currently believe that our available cash, cash equivalents, and marketable securities and expected revenues from collaborations, strategic partnerships and research grants, will be adequate to fund our currently planned operations through at least the next 12 months from the date the Consolidated Financial Statements are issued. We may elect to raise additional capital through additional collaborative agreements or the sale of additional equity to fund our future needs beyond the next 12

months. During this period of uncertainty and volatility related to the COVID-19 pandemic, we will continue to monitor our liquidity.

Cash Flows

Operating activities

Net cash used in operating activities was $233.3 million in 2021, primarily reflecting our net loss of $178.3 million, a decrease in deferred revenues of $84.2 million, a decrease in accounts payable and other accrued liabilities of $7.7 million, an increase in prepaid expenses and other assets of $7.2 million, a decrease for adjustment of CIRM award liability related to termination of the grant of $6.4 million, and a decrease in long-term portion of lease liabilities by $4.3 million. These decreases were partially offset by $53.4 million of non-cash expenses related to stock-based compensation, depreciation and amortization, amortization of operating lease right-of-use assets, and net amortization of premium (discount) on marketable securities, and an increase in non-current liabilities by $1.2 million.

Net cash provided by operating activities was $169.9 million in 2020, primarily reflecting an increase in deferred revenues of $216.5 million due to cash received in connection with the Biogen collaboration agreement and the Novartis collaboration agreement, an increase in accounts payable and other accrued liabilities of $10.7 million, a decrease in accounts receivable of $31.7 million, and $39.1 million of non-cash expenses related to stock-based compensation, other changes in operating lease right-of-use assets, and depreciation and amortization. These increases were partially offset by our net loss of $121.1 million, and an increase in prepaid expenses and other assets by $10.4 million.

Investing activities

Net cash provided by investing activities was $248.2 million in 2021, mostly related to net maturities, sales and purchases of marketable securities, partially offset by $23.3 million purchases of property and equipment. Net cash used in investing activities was $271.6 million in 2020, mostly related to net maturities and purchases of marketable securities, and purchases of property and equipment.

Financing activities

Net cash provided by financing activities was $32.9 million in 2021, related to $27.9 million of proceeds from the at-the-market offering, net of offering expenses of $0.8 million, an increase of $5.6 million related to proceeds from the exercise of stock options, and an increase of $3.4 million related to proceeds from the issuance of common stock under our employee stock purchase plan, offset by a decrease of $3.3 million for taxes paid related to net share settlement of equity awards. Net cash provided by financing activities in 2020 was $153.1 million, primarily reflecting the $145.4 million estimated fair value of the shares issued to Biogen offset by $2.9 million of associated issuance costs, and an increase of $11.3 million related to proceeds from the exercise of stock options and purchases under the employee stock purchase plan.

Operating Capital and Capital Expenditure Requirements

We anticipate continuing to incur operating losses for at least the next several years. Although we believe we are well capitalized currently, the effects of the ongoing COVID-19 pandemic could result in significant disruption of global financial markets, impairing our ability to access capital, which could in the future negatively affect our liquidity. Future capital requirements beyond the next 12 months will be substantial, and we will need to raise substantial additional capital to fund the development, manufacturing and potential commercialization of our product candidates through equity or debt financing. In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek FDA approvals of our product candidates, a process that could cost in excess of hundreds of millions of dollars per product. We regularly consider fund-raising opportunities and may decide, from time to time, to raise capital based on various factors, including market conditions and our plans of operation. Additional capital may not be available on terms acceptable to us, or at all. If adequate funds are not available, or if the terms of potential funding sources are unfavorable, our business and our ability to advance our product candidate pipeline would be harmed. Furthermore, any sales of additional equity securities, including sales pursuant to our at-the-market offering program, may result in dilution to our stockholders, and any debt financing may include covenants that restrict our business.

Our future capital requirements will depend on many forward-looking factors, including the following:

- the initiation, progress, timing and completion of clinical trials for our product candidates and potential product candidates;
- the outcome, timing and cost of regulatory approvals;
- the success of our collaboration agreements;
- delays that may be caused by changing regulatory requirements;

- the number of product candidates that we pursue;
- the costs involved in filing and prosecuting patent applications and enforcing and defending patent claims;
- the timing and terms of future in-licensing and out-licensing transactions;
- the cost and timing of establishing sales, marketing, manufacturing and distribution capabilities;
- the cost of procuring clinical and commercial supplies of our product candidates;
- the extent to which we acquire or invest in businesses, products or technologies, including the costs associated with such acquisitions and investments; and
- the costs of potential disputes and litigation.

Contractual Obligations

As of December 31, 2021, we had contractual obligations and commercial commitments as follows (in thousands):

	Payments Due by Period		
Contractual Obligations	**Total**	**Short-term**	**Long-term**
Operating leases	$ 59,842	$ 6,605	$ 53,237
License obligations	760	146	614
Manufacturing obligations	10,994	10,994	—
Total contractual obligations	$ 71,596	$ 17,745	$ 53,851

Operating leases consist of base rents for facilities we occupy in Brisbane, California; Richmond, California; and Valbonne, France.

License obligations includes an ongoing license maintenance fee associated with cancellable in-licensed patent agreements.

Manufacturing obligations include the following non-cancelable material contractual commitments under manufacturing-related supplier arrangements as of December 31, 2021 (in thousands):

Party	**Total**	**Expiry date**
Brammer Bio MA - a Thermo Fisher Scientific Inc. subsidiary	$ 3,727	December 2022
Lonza Netherlands, B.V.	7,267	December 2022
Total manufacturing obligations	$ 10,994	

ITEM 7A – QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our exposure to market risk relates to our cash, cash equivalents, and marketable securities. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and capturing a market rate of return based on our investment policy parameters and market conditions. We select investments that maximize interest income to the extent possible within these guidelines. To achieve our goals, we maintain a portfolio of cash equivalents and investments in securities of high credit quality and with varying maturities to match projected cash needs.

The securities in our investment portfolio are not leveraged and are classified as available-for-sale. The majority of these available-for-sale securities are short-term in nature and subject to minimal interest rate risk. Our investments currently consist of U.S. government-sponsored entity debt securities, commercial paper securities, corporate debt securities, asset-backed securities and certificates of deposit. Our investment policy, approved by our Board of Directors, limits the amount we may invest in any one type of investment issuer, thereby reducing credit risk concentrations. All investments are carried at market value, which approximates cost. We do not use derivative financial instruments in our investment portfolio. If market interest rates were to increase or decrease by one hundred basis points, the fair value of our investment portfolio would increase or decrease by an immaterial amount.

Foreign Currency Exchange Risk

We have operations in the United States as well as in Europe. The functional currency of each foreign subsidiary is the local currency. We are exposed to foreign currency risk, primarily through operations of our subsidiaries in Europe which conduct business primarily in Euros. We record gains and losses within our stockholders' equity due to the translation of our subsidiaries' financial statements into U.S. dollars.

A 10% strengthening/(weakening) in the rates used to translate the results of our foreign subsidiaries would have increased/(decreased) net loss for the year ended December 31, 2021 by approximately $3.1 million and would not have materially impacted our operating loss.

Additionally, we incur foreign currency transaction gains and losses related to the level of activity between the United States and Europe. In 2021, we incurred foreign currency transaction losses of $1.2 million. A 10% unfavorable change in the Euro and U.S. dollar exchange rate on December 31, 2021 would have had an immaterial impact on foreign currency transaction losses for 2021.

As of December 31, 2021 and 2020, we maintained cash balances of approximately $6.9 million and $16.8 million, respectively, denominated in a foreign currency in the United States. A hypothetical 10% change in foreign exchange rates would have increased/(decreased) net loss for the year ended December 31, 2021 by approximately $0.7 million and would not have materially impacted our operating loss.

ITEM 8 – FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

SANGAMO THERAPEUTICS, INC.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Sangamo Therapeutics, Inc. (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 24, 2022 expressed an unqualified opinion thereon.

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

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Accounting for Revenue from Collaboration Agreement with Novartis

Description of the Matter

As of December 31, 2021, the Company had a collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis") for the research, development and commercialization of gene regulation therapies to treat three neurodevelopmental disorders. As discussed in Note 1 of the consolidated financial statements, the Company concluded that providing licensed technology to Novartis is not a discrete performance obligation that is separate from providing research services to Novartis because the licensed technology does not have stand-alone value to Novartis apart from the research services to be performed pursuant to the agreement. As a result, the Company recognizes revenue from the upfront payment for the licensed technology based on the proportional performance of the research services through the estimated research period.

Auditing the Company's estimated measure of progress at a point in time during the estimated research period was complex and involved significant judgment. In particular, the measure of revenues from upfront non-refundable fees for the licensed technology is affected by management's estimates of the total research services costs required to complete the performance obligations including the total internal personnel costs and external costs to be incurred. Changes in these estimates can have a material effect on revenue recognized.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's accounting for revenue from this collaboration agreement, including management's review controls to evaluate the transaction price, including the upfront licensed technology fee and the estimated variable consideration for the research services, and all constrained amounts.

Our audit procedures included, among others, gaining an understanding and testing the Company's estimates of total expected costs by project, and testing the completeness and accuracy of the underlying data used by the Company in its revenue recognition model. We performed inquiries of the research and development personnel responsible for the specific development projects to corroborate management's assumptions used in the Company's estimates of total expected costs by project, evaluated any changes in the development timeline and/or increases or decreases in the total expected costs by project, and examined evidence supporting key inputs of the revenue recognition model including assessing whether actual costs incurred were appropriate under the terms of the contract. We also compared the estimates of total expected costs by project to actual costs incurred to evaluate management's ability to forecast costs.

/s/ ERNST & YOUNG LLP

We have served as the Company's auditor since 1997.

Redwood City, California
February 24, 2022

SANGAMO THERAPEUTICS, INC.

CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share amounts)

	December 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 178,872	$ 131,329
Marketable securities	197,676	510,094
Interest receivable	349	1,035
Accounts receivable	6,013	5,224
Prepaid expenses and other current assets	15,859	11,986
Total current assets	398,769	659,668
Marketable securities, non-current	88,169	50,530
Property and equipment, net	51,523	41,324
Intangible assets	53,760	58,128
Goodwill	39,702	42,798
Operating lease right-of-use assets	73,181	71,045
Other non-current assets	15,319	13,557
Restricted cash	1,500	1,500
Total assets	$ 721,923	$ 938,550
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 9,759	$ 12,553
Other accrued liabilities	11,577	18,612
Accrued compensation and employee benefits	20,840	20,738
Deferred revenues	85,711	91,644
Total current liabilities	127,887	143,547
Deferred revenues, non-current	166,776	245,045
Long-term portion of lease liabilities	44,055	38,396
Deferred income tax	6,645	7,185
Other non-current liabilities	1,217	7,011
Total liabilities	346,580	441,184
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value, 5,000,000 shares authorized, and no shares issued or outstanding	—	—
Common stock, $0.01 par value; 320,000,000 shares authorized, 145,921,530 and 142,063,203 shares issued and outstanding at December 31, 2021 and 2020, respectively	1,459	1,421
Additional paid-in capital	1,334,138	1,269,375
Accumulated deficit	(956,267)	(777,981)
Accumulated other comprehensive (loss) income	(3,987)	5,419
Total Sangamo Therapeutics, Inc. stockholders' equity	375,343	498,234
Non-controlling interest	—	(868)
Total stockholders' equity	375,343	497,366
Total liabilities and stockholders' equity	$ 721,923	$ 938,550

See accompanying Notes to Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except per share amounts)

	Year Ended December 31,		
	2021	2020	2019
Revenues	$ 110,701	$ 118,192	$ 102,428
Operating expenses:			
Research and development	230,819	180,647	145,922
General and administrative	63,219	67,097	61,686
Total operating expenses	294,038	247,744	207,608
Loss from operations	(183,337)	(129,552)	(105,180)
Interest and other income, net	5,346	8,775	9,761
Loss before income taxes	(177,991)	(120,777)	(95,419)
Income tax expense	306	345	—
Net loss	(178,297)	(121,122)	(95,419)
Net loss attributable to non-controlling interest	(11)	(126)	(233)
Net loss attributable to Sangamo Therapeutics, Inc. stockholders	$ (178,286)	$ (120,996)	$ (95,186)
Basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	$ (1.23)	$ (0.90)	$ (0.85)
Shares used in computing basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	144,568	134,449	112,114

See accompanying Notes to Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(in thousands)

	Year Ended December 31,		
	2021	2020	2019
Net loss	$ (178,297)	$ (121,122)	$ (95,419)
Foreign currency translation adjustment	(8,351)	8,345	(1,573)
Net pension losses	(716)	(193)	(28)
Change in unrealized (loss) gain on marketable securities, net of tax	(339)	(284)	592
Comprehensive loss	(187,703)	(113,254)	(96,428)
Comprehensive loss attributable to non-controlling interest	(11)	(126)	(233)
Comprehensive loss attributable to Sangamo Therapeutics, Inc.	$ (187,692)	$ (113,128)	$ (96,195)

See accompanying Notes to Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(in thousands, except share amounts)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balances at December 31, 2018	102,187,471	$ 1,022	$ 929,632	$ (562,696)	$ (1,440)	$ 739	$ 367,257
Cumulative-effect adjustment of ASC Topic 842 on January 1, 2019	—	—	—	897	—	—	897
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	885,873	9	3,668	—	—	—	3,677
Issuance of common stock under employee stock purchase plan	249,364	2	2,042	—	—	—	2,044
Issuance of common stock under public offering, net of issuance costs	12,650,000	127	136,181	—	—	—	136,308
Stock-based compensation	—	—	19,330	—	—	—	19,330
Acquisition of additional shares of Sangamo France	—	—	—	—	—	(321)	(321)
Issuance costs related to Sangamo France acquisition	—	—	(25)	—	—	—	(25)
Foreign currency translation adjustment	—	—	—	—	(1,573)		(1,573)
Net pension losses	—	—	—	—	(28)	—	(28)
Net unrealized gain on marketable securities, net of tax	—	—	—	—	592	—	592
Net loss	—	—	—	(95,186)	—	(233)	(95,419)
Balances at December 31, 2019	115,972,708	1,160	1,090,828	(656,985)	(2,449)	185	432,739
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	1,395,956	14	8,545	—	—	—	8,559
Issuance of common stock under employee stock purchase plan	274,382	3	2,012	—	—	—	2,015
Issuance of common stock in connection with the Biogen collaboration agreement, net of issuance costs	24,420,157	244	142,282	—	—	—	142,526
Stock-based compensation	—	—	25,708	—	—	—	25,708
Acquisition of additional shares of Sangamo France	—	—	—	—	—	(927)	(927)
Foreign currency translation adjustment	—	—	—	—	8,345	—	8,345
Net pension losses	—	—	—	—	(193)	—	(193)
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(284)	—	(284)
Net loss	—	—	—	(120,996)	—	(126)	(121,122)
Balances at December 31, 2020	142,063,203	1,421	1,269,375	(777,981)	5,419	(868)	497,366
Issuance of common stock in connection with at-the-market offering, net of offering expenses	2,007,932	20	27,079	—	—	—	27,099
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	1,417,288	14	2,375	—	—	—	2,389
Issuance of common stock under employee stock purchase plan	433,107	4	3,366	—	—	—	3,370
Stock-based compensation	—	—	32,956	—	—	—	32,956
Acquisition of additional shares of Sangamo France	—	—	(70)	—	—	(64)	(134)
Foreign currency translation adjustment	—	—	—	—	(8,351)	—	(8,351)
Net pension losses	—	—	—	—	(716)	—	(716)
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(339)	—	(339)
Buy-out of non-controlling interest	—	—	(943)	—	—	943	—
Net loss	—	—	—	(178,286)	—	(11)	(178,297)
Balances at December 31, 2021	145,921,530	$ 1,459	$ 1,334,138	$ (956,267)	$ (3,987)	$ —	$ 375,343

See accompanying Notes to Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Operating Activities:			
Net loss	$ (178,297)	$ (121,122)	$ (95,419)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:			
Depreciation and amortization	9,439	5,682	3,930
Amortization of premium (discount) on marketable securities, net	2,844	(825)	(4,708)
Amortization and other changes in operating lease right-of-use assets	8,199	7,687	5,677
Gain on free shares	(18)	(63)	(488)
Net (gain) loss on disposal of property and equipment	(52)	222	68
Stock-based compensation	32,956	25,708	19,330
Adjustment of CIRM award liability related to the termination of the grant	(6,427)	—	—
Net loss on lease termination	—	—	218
Net changes in operating assets and liabilities:			
Interest receivable	686	(353)	(307)
Accounts receivable	(789)	31,685	(32,236)
Prepaid expenses and other assets	(7,175)	(10,411)	(6,660)
Accounts payable and other accrued liabilities	(7,664)	10,703	(4,192)
Accrued compensation and employee benefits	373	6,877	4,129
Deferred revenues	(84,202)	216,546	(35,693)
Long-term portion of lease liabilities	(4,340)	(3,761)	(1,800)
Other non-current liabilities	1,216	1,300	3,749
Net cash (used in) provided by operating activities	(233,251)	169,875	(144,402)
Investing Activities:			
Purchases of marketable securities	(338,159)	(570,779)	(443,711)
Maturities of marketable securities	602,885	314,570	404,847
Sales of marketable securities	6,870	—	—
Purchases of property and equipment	(23,278)	(14,714)	(20,675)
Purchase of additional Sangamo France shares	(119)	(704)	(262)
Net cash provided by (used in) investing activities	248,199	(271,627)	(59,801)
Financing Activities:			
Proceeds from at-the-market offering, net of offering expenses	27,099	—	—
Proceeds from public offering of common stock, net of issuance costs	—	—	136,308
Proceeds from issuance of common stock in connection with the Biogen collaboration agreement, net of issuance costs	—	142,526	—
Taxes paid related to net share settlement of equity awards	(3,258)	(765)	(422)
Proceeds from issuance of common stock under employee stock purchase plan	3,369	2,015	2,044
Proceeds from exercise of stock options and restricted stock units	5,648	9,324	4,099
Net cash provided by financing activities	32,858	153,100	142,029
Effect of exchange rate changes on cash and cash equivalents, and restricted cash	(263)	(447)	184
Net increase (decrease) in cash, cash equivalents, and restricted cash	47,543	50,901	(61,990)
Cash, cash equivalents, and restricted cash, beginning of period	132,829	81,928	143,918
Cash, cash equivalents, and restricted cash, end of period	$ 180,372	$ 132,829	$ 81,928
Supplemental cash flow disclosures:			
Property and equipment included in unpaid liabilities	$ 1,535	$ 4,569	$ 2,114
Buy-out of non-controlling interest	$ 943	$ —	$ —
Right-of-use assets obtained in exchange for lease obligations	$ 10,418	$ 1,333	$ 31,291

See accompanying Notes to Consolidated Financial Statements

SANGAMO THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 – ORGANIZATION, BASIS OF PRESENTATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization and Description of Business

Sangamo Therapeutics, Inc. ("Sangamo" or "the Company") was incorporated in the State of Delaware in June 1995 and changed its name from Sangamo Biosciences, Inc. in January 2017. Sangamo is a clinical-stage genomic medicine company committed to translating ground-breaking science into medicines that transform the lives of patients with serious diseases.

Basis of Presentation

The accompanying Consolidated Financial Statements have been prepared in conformity with generally accepted accounting principles in the United States of America ("U.S. GAAP") and include the accounts of the Company and its subsidiaries. All intercompany balances and transactions have been eliminated in the Consolidated Financial Statements. For consolidated entities where the Company owns or is exposed to less than 100% of the economics, the Company records net loss attributable to non-controlling interests on its Consolidated Statements of Operations equal to the percentage of the economic or ownership interest retained in such entities by the respective non-controlling parties.

Liquidity and Management's Plan

Sangamo is currently working on a number of long-term development projects that involve experimental technologies. The projects may require several years and substantial expenditures to complete and ultimately may be unsuccessful. The Company plans to finance operations with available cash resources, collaborations and strategic partnerships funds, research grants and from the issuance of equity or debt securities. Sangamo believes that its available cash, cash equivalents, and marketable securities as of December 31, 2021, and expected future milestones and research services revenue from collaborations, strategic partnerships and research grants, will be adequate to fund its currently planned operations through at least the next 12 months from the date these Consolidated Financial Statements are issued. Sangamo will require substantial additional financial resources to complete the development and commercialization of its product candidates. Additional capital may not be available on terms acceptable to the Company, if at all. If adequate funds are not available, or if the terms of potential funding sources are unfavorable, the Company's business and ability to develop its technology and therapeutic products would be harmed. Furthermore, any sales of additional equity securities may result in dilution to the Company's stockholders, and any debt financing may include covenants that restrict the Company's business.

Summary of Significant Accounting Policies

Use of Estimates

The preparation of the accompanying Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and the accompanying notes. On an ongoing basis, management evaluates its estimates including critical accounting policies or estimates related to revenue recognition, clinical trial accruals, income taxes, fair value of assets and liabilities, including from acquisitions, and stock-based compensation. Estimates are based on historical experience and on various other market specific and other relevant assumptions that the Company believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could differ from those estimates.

During the year ended December 31, 2021, the Company recorded adjustments to revenue related to changes in estimates in connection with the collaboration agreement with Sanofi S.A. ("Sanofi"). These changes in estimates were driven by a change in project scope and related project costs in September 2021 and subsequent notification of termination of the collaboration agreement, effective June 28, 2022, which resulted in changes to the measure of proportional cumulative performance. These adjustments decreased revenue by $1.6 million, increased net loss by $1.6 million and increased the Company's basic and diluted net loss per share by $0.01 for the year ended December 31, 2021.

During the year ended December 31, 2020, the Company recorded adjustments to revenue related to changes in estimates in connection with the collaboration agreements with Sanofi and Pfizer Inc. ("Pfizer"). These changes in estimates were driven by changes in project scope and related project costs which resulted in changes to the measure of proportional cumulative performance. These adjustments increased revenue by $8.9 million, decreased net loss by $8.9 million and decreased the Company's basic and diluted net loss per share by $0.06 for the year ended December 31, 2020.

During the year ended December 31, 2019, the Company recorded adjustments to revenue related to a change in estimate in connection with the giroctocogene fitelparvovec collaboration agreement with Pfizer. This change in estimate was driven by changes in project scope and related project costs which resulted in changes to the measure of proportional cumulative performance. These adjustments increased revenue by $5.7 million, decreased net loss by $5.7 million and decreased the Company's basic net loss per share by $0.05 for the year ended December 31, 2019.

Revenue Recognition

The Company accounts for its revenues pursuant to the provisions of Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("ASC Topic 606"). The Company's contract revenues are derived from collaboration agreements including licensing arrangements and research activity grants. Research and licensing agreements typically include upfront signing or license fees, cost reimbursements for research services, minimum sublicense fees, milestone payments and royalties on future licensee's product sales. The Company has agreements with both fixed and variable consideration. Non-refundable upfront fees and funding of research and development activities are considered fixed, while milestone payments are generally identified as variable consideration. Sangamo's research grants are typically multi-year agreements and provide for the reimbursement of qualified expenses for research and development as defined under the terms of the grant agreement. Revenues under research grant agreements are generally recognized when the related qualified research expenses are incurred. Deferred revenue primarily represents the portion of research or license payments received but not earned.

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

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account in ASC Topic 606. The Company's performance obligations include license rights, development services and services associated with regulatory submission and approval processes. Revenues from research services earned under collaboration agreements are generally recognized as revenue as the related services are provided. Revenues from non-refundable upfront fees are recognized over time either by measuring progress towards satisfaction of the relevant performance obligation, using the input method (i.e., cumulative actual costs incurred relative to total estimated costs) or on a straight-line basis when a performance obligation is expected to be satisfied evenly over a period of time (or when the entity has a stand-ready obligation). Significant management judgment is required to determine the level of effort required under an arrangement, and the period over which the Company expects to complete its performance obligations under the arrangement, which may include total internal personnel costs and external costs to be incurred as well as, in certain cases, the estimated stand-ready obligation period. Changes in these estimates can have a material effect on revenue recognized. If the Company cannot reasonably estimate when its performance obligations either are completed or become inconsequential, then revenue recognition is deferred until the Company can reasonably make such estimates. The Company includes the unconstrained amount of estimated variable consideration in the transaction price. The amount included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint and, if necessary, adjusts its estimate of the overall transaction price. Revenue is then recognized over the remaining estimated period of performance using the cumulative catch-up method. The estimated period of performance and project costs, such as personnel and manufacturing cost, are reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables.

As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the stand-alone selling price of each performance obligation identified in the contract. The Company uses key assumptions to determine the stand-alone selling price, which may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success. Related costs and expenses under these arrangements have historically approximated the revenues recognized.

Revenues from major collaboration agreements and research activity grants as a percentage of total revenues were as follows:

	Year Ended December 31,					
	2021		2020		2019	
Biogen MA, Inc.	38	%	24	%	—	
Novartis Institutes for BioMedical Research, Inc.	34	%	4	%	—	
Kite Pharma, Inc.	23	%	24	%	34	%
Sanofi S.A.	3	%	5	%	22	%
Pfizer Inc.	—	%	40	%	40	%

Funds received from the Company's collaboration partners are generally not refundable and are recorded as revenue as the Company fulfills its performance obligations, which are satisfied over time (i.e., stand-ready obligations) or by using the input method (i.e., cumulative actual costs incurred relative to total estimated costs). Revenue is also recognized when the Company has incurred qualified research and development costs that are reimbursable from its collaboration partners and when there is reasonable assurance that such costs will be reimbursed. Any payments received from a collaboration partner in advance of the completion of the relevant performance obligation are recorded as deferred revenue.

Accounts Receivable

Accounts receivable consists of amounts billed to the Company's collaboration partners for cost reimbursements for research services. Receivables from collaborations are typically unsecured and are concentrated in the biopharmaceutical industry. Accordingly, the Company may be exposed to credit risk generally associated with biopharmaceutical companies or specific to its collaboration agreements. The Company records trade receivables net of allowances for credit losses. The Company applies an aging method to estimate credit losses and considers its historical loss information, adjusted to account for current conditions, and reasonable and supportable forecasts of future economic conditions affecting its customers. As of December 31, 2021, the Company had not incurred any losses related to these receivables. As of December 31, 2021 and 2020, the percentage of accounts receivable by collaboration partners who individually accounted for 10% or more of accounts receivable were as follows:

	As of December 31,	
	2021	2020
Biogen MA, Inc.	46 %	52 %
Novartis Institutes for BioMedical Research, Inc.	32 %	21 %
Sanofi S.A.	11 %	19 %

Goodwill and Intangible Assets

Goodwill represents the excess of consideration transferred over the fair values of assets acquired and liabilities assumed in a business combination. Intangible assets with indefinite useful lives are related to purchased in-process research and development ("IPR&D") projects and are measured at their respective fair values as of the acquisition date. Goodwill and intangible assets with indefinite useful lives are not amortized. Intangible assets related to IPR&D projects are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time. The Company tests goodwill and indefinite-lived intangible assets for impairment on an annual basis and between annual tests if the Company becomes aware of any events occurring or changes in circumstances that would indicate the fair values of the assets are below their respective carrying amounts. As of December 31, 2021, no impairment of goodwill or indefinite-lived intangible assets was identified.

Valuation of Long-lived Assets

Long-lived assets, including property and equipment and finite-lived intangible assets, are reviewed for impairment whenever facts or circumstances either internally or externally may suggest that the carrying value of an asset may not be recoverable. Recoverability of these assets is measured by comparison of the carrying amount of each asset to the future undiscounted cash flows expected to result from the use of the asset and its eventual disposition. If the asset is considered to be impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. As of December 31, 2021, no impairment of long-lived assets was identified.

Fair Value Measurements

The carrying amounts for financial instruments consisting of cash and cash equivalents, accounts receivable, accounts payable and other accrued liabilities approximate fair value due to their short-term maturities. Marketable securities are stated at their estimated fair values. The free shares asset is measured using a binomial-lattice pricing model and is reviewed each reporting period and adjusted as needed to approximate fair value.

Cash, Cash Equivalents, and Restricted Cash

Sangamo considers all highly-liquid investments purchased with original maturities of three months or less at the purchase date to be cash equivalents. Cash and cash equivalents consist of cash and deposits in demand money market accounts. Restricted cash consists of a letter of credit for $1.5 million, representing a deposit for the lease of the corporate headquarters in Brisbane, California.

A reconciliation of cash, cash equivalents, and restricted cash reported within the accompanying Consolidated Balance Sheets to the amounts reported within the accompanying Consolidated Statements of Cash Flows is as follows (in thousands):

	As of December 31,		
	2021	2020	2019
Cash and cash equivalents	$ 178,872	$ 131,329	$ 80,428
Non-current restricted cash	1,500	1,500	1,500
Cash, cash equivalents, and restricted cash as reported within the Consolidated Statements of Cash Flows	$ 180,372	$ 132,829	$ 81,928

Marketable Securities

Sangamo classifies its marketable securities as available-for-sale and records its investments at estimated fair value based on quoted market prices or observable market inputs of almost identical assets, with the unrealized holding gains and losses included in accumulated other comprehensive income (loss) (“AOCI”). The Company classifies those investments that are not required for use in current operations and that mature in more than 12 months as non-current marketable securities in the accompanying Consolidated Balance Sheets.

The Company’s investments are subject to a periodic impairment review. The Company considers various factors in determining whether to recognize an impairment charge, including the length of time and extent to which the fair value has been less than the Company’s cost basis, the financial condition and near-term prospects of the investee and the Company’s intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in the market value. Realized gains and losses on marketable securities are included in interest and other income, net, which are determined using the specific identification method. Credit losses related to the marketable securities are recorded in interest and other income (expense), net in the Consolidated Statements of Operations through an allowance for credit losses rather than as a reduction in the amortized cost basis of the securities.

Concentrations of Credit Risk and Other Risks

Cash, 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 fair value recorded in the Consolidated Balance Sheets. The Company invests cash that is not required for immediate operating needs primarily in highly liquid instruments that bear minimal risk. The Company has established policies relating to the quality, diversification, and maturities of securities to enable the Company to manage its credit risk. The Company is exposed to credit risk in the event of a default by the financial institutions or issuers of investments holding its cash, cash equivalents, and investments to the extent recorded on the Consolidated Balance Sheets.

Certain materials and key components that the Company utilizes in its operations are obtained through single suppliers. Since the suppliers of key components and materials must be named in an investigational new drug application (“IND”) filed with the U.S. Food and Drug Administration for a product, significant delays can occur if the qualification of a new supplier is required. If delivery of material from the Company’s suppliers were interrupted for any reason, the Company may be unable to supply any of its product candidates for clinical trials.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation and amortization. Depreciation is calculated using the straight-line method based on the estimated useful lives of the related assets which is generally three to five years. For leasehold improvements, amortization is calculated using the straight-line method based on the shorter of the useful life or the lease term. The Company reviews its property and equipment for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable.

Research and Development Expenses

Research and development expenses consist primarily of personnel costs, including salaries, benefits and stock-based compensation, clinical studies performed by contract research organizations, materials and supplies and overhead allocations consisting of various support and facility-related costs. Research and development costs are expensed as incurred.

General and Administrative Expenses

General and administrative expenses consist of finance, human resources, legal and other administrative activities. These expenses consist primarily of personnel costs, including salaries, benefits and stock-based compensation, facilities and overhead costs, legal expenses, and other general and administrative costs.

Stock-based Compensation

The Company measures and recognizes compensation expense for all stock-based payment awards made to Sangamo employees and directors, including employee share options, restricted stock units ("RSUs") and employee stock purchases related to the Employee Stock Purchase Plan ("ESPP") based on estimated fair values at the award grant date. The fair value of stock-based awards is amortized over the vesting period of the award using a straight-line method.

To estimate the fair value of an award, the Company uses the Black-Scholes option pricing model. This model requires inputs such as expected life, expected volatility, expected dividends and risk-free interest rate. These inputs are subjective and generally require significant analysis and judgment to develop. While estimates of expected life and volatility are derived primarily from the Company's historical data, the risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant commensurate with the expected life assumption. The Company accounts for forfeitures in the period they occur.

Income Taxes

Income tax expense has been calculated using the liability method. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities as measured by the enacted tax rates that will be in effect when these differences reverse. The Company provides a valuation allowance against net deferred tax assets if, based upon the available evidence, it is not more likely than not that the deferred tax assets will be realized.

The Company recognizes a tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the Company's Consolidated Financial Statements from such positions are measured based on the largest benefit that has a greater than 50% likelihood of being realized. The Company recognizes interest and penalties associated with tax matters as part of the income tax provision and includes accrued interest and penalties with the related income tax liability within other accrued liabilities on its Consolidated Balance Sheets. The Company evaluates uncertain tax positions on a regular basis and makes adjustments to these accruals when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate.

Leases

The Company determines if an arrangement is or contains a lease at inception by assessing whether the arrangement contains an identified asset and whether it has the right to control the identified asset. Right-of-use ("ROU") assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Lease liabilities are recognized at the lease commencement date based on the present value of future lease payments over the lease term. ROU assets are based on the measurement of the lease liability and also include any lease payments made prior to or on lease commencement and exclude lease incentives and initial direct costs incurred, as applicable.

As the implicit rate in the Company's leases is generally unknown, the Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the present value of remaining lease payments. The incremental borrowing rate represents an estimate of the interest rate the Company would incur at lease commencement to borrow an amount equal to the lease payments on a collateralized basis over the term of a lease in a similar economic environment. The Company considers its credit risk, term of the lease, and total lease payments and adjusts for the impacts of collateral, as necessary, when calculating its incremental borrowing rates. The lease terms may include options to extend or terminate the lease when it is reasonably certain the Company will exercise any such options. Rent expense for the Company's operating leases is recognized on a straight-line basis over the lease term.

The Company has elected not to separate lease and non-lease components for its real estate and copier leases and, as a result, accounts for any lease and non-lease components as a single lease component. The Company has also elected not to apply the recognition requirement to any leases with a term of 12 months or less and does not include an option to purchase the underlying asset that the Company is reasonably certain to exercise.

Foreign Currency Translation

The functional currency of the Company's foreign subsidiaries is primarily the Euro. Assets and liabilities denominated in foreign currencies are translated to U.S. dollars using the exchange rates at the balance sheet date. Foreign currency translation adjustments are recorded as a component of AOCI within stockholders' equity. Revenues and expenses from the Company's foreign subsidiaries are translated using the monthly average exchange rates in effect during the period in which the transactions occur. Foreign currency transaction gains and losses are recorded in interest and other income, net, on the Company's Consolidated Statements of Operations.

Net Loss Per Share

Basic net loss per share attributable to Sangamo Therapeutics, Inc. stockholders has been computed by dividing net loss attributable to Sangamo Therapeutics, Inc. stockholders by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders is calculated by dividing net loss attributable to Sangamo Therapeutics, Inc. stockholders by the weighted-average number of shares of common stock plus potentially dilutive securities outstanding during the period.

The total number of shares subject to stock options and RSUs outstanding and the ESPP shares reserved for issuance, which are all anti-dilutive, were excluded from consideration in the calculation of diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders. Stock options and RSUs outstanding and ESPP shares reserved for issuance as of December 31, 2021, 2020 and 2019 were 15,159,908, 14,237,871, and 10,750,550, respectively.

Segments

The Company operates in one segment. Management uses one measure of profitability and does not segregate its business for internal reporting. As of December 31, 2021 and 2020, majority of the Company's assets were maintained in the United States. For the years ended December 31, 2021, 2020 and 2019, all of the Company's revenues and majority of the operating expenses were generated and incurred in the United States.

Recent Accounting Pronouncements

None.

NOTE 2 – FAIR VALUE MEASUREMENTS

The Company measures certain financial assets and liabilities at fair value on a recurring basis, including cash equivalents, marketable securities, and the free shares asset. Fair value is determined based on a three-tier hierarchy under the authoritative guidance for fair value measurements and disclosures that prioritizes the inputs used in measuring fair value as follows:

Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2: Quoted prices in markets that are not active or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability; and

Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurements and unobservable (*i.e.*, supported by little or no market activity).

The fair value measurements of the Company's cash equivalents, marketable securities, and the free shares asset are identified at the following levels within the fair value hierarchy (in thousands):

	December 31, 2021			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 119,919	$ 119,919	$ —	$ —
Total	119,919	119,919	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	30,614	—	30,614	—
Commercial paper securities	105,757	—	105,757	—
Corporate debt securities	33,682	—	33,682	—
Certificates of deposit	45,091	—	45,091	—
Asset-backed securities	70,701	—	70,701	—
Total	285,845	—	285,845	—
Total cash equivalents and marketable securities	$ 405,764	$ 119,919	$ 285,845	$ —

	December 31, 2020			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 53,165	$ 53,165	$ —	$ —
Total	53,165	53,165	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	257,298	—	257,298	—
Commercial paper securities	213,533	—	213,533	—
Corporate debt securities	59,574	—	59,574	—
Certificates of deposits	12,311	—	12,311	—
Asset-backed securities	17,908	—	17,908	—
Total	560,624	—	560,624	—
Total cash equivalents and marketable securities	$ 613,789	$ 53,165	$ 560,624	$ —
Free shares asset	$ 70	$ —	$ —	$ 70

Cash Equivalents and Marketable Securities

The Company generally classifies its marketable securities as Level 2. Instruments are classified as Level 2 when observable market prices for identical securities that are traded in less active markets are used. When observable market prices for identical securities are not available, such instruments are priced using benchmark curves, benchmarking of like securities, sector groupings, matrix pricing and valuation models. These valuation models are proprietary to the pricing providers or brokers and incorporate a number of inputs, including in approximate order of priority: benchmark yields, reported trades, broker/dealer quotes, issuer spreads, two-sided markets, benchmark securities, bids, offers and reference data including market research publications. For certain security types, additional inputs may be used, or some of the standard inputs may not be applicable. Evaluators may prioritize inputs differently on any given day for any security based on market conditions, and not all inputs listed are available for use in the evaluation process for each security evaluation on any given day.

Free Shares Asset

As a result of the July 20, 2018 Share Purchase Agreement ("Sangamo France SPA") to acquire Sangamo France (see Note 5 — Acquisition of Sangamo France), the Company entered into arrangements with the holders of approximately 477,000

“free shares” of Sangamo France pursuant to which the Company had the right to purchase such shares from the holders (a call option) and such holders had the right to sell to the Company such shares from time to time through mid-2021 (a put option). As of December 31, 2021, the Company had purchased all of the 477,000 free shares for an aggregate cash payment of approximately $1.1 million, upon exercise of the put options. As of December 31, 2021, there were no free shares outstanding subject to purchase by the Company. The fair value of the free shares’ asset was $0.1 million at December 31, 2020.

Free Shares valuation assumptions:		December 31, 2020
Sangamo stock price (USD)	$	15.61
Sangamo France stock price (EUR)	€	3.85
EUR/ USD exchange rate		0.82
Estimated correlation between Sangamo and Sangamo France stock prices		100.0 %
Sangamo stock price (USD) volatility estimate		88.9 %
Sangamo France stock price (EUR) volatility estimate		88.9 %
EUR/ USD exchange rate volatility estimate		6.3 %
Risk free rate and cost of debt by expected exercise date		Varies

NOTE 3 – CASH EQUIVALENTS AND MARKETABLE SECURITIES

The table below summarizes the Company's cash equivalents and marketable securities (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
December 31, 2021				
Assets				
Cash equivalents:				
Money market funds	$ 119,919	$ —	$ —	$ 119,919
Total	119,919	—	—	119,919
Marketable securities:				
U.S. government-sponsored entity debt securities	30,700	1	(87)	30,614
Commercial paper securities	105,792	7	(42)	105,757
Corporate debt securities	33,723	1	(42)	33,682
Certificates of deposit	45,116	1	(26)	45,091
Asset-backed securities	70,807	1	(107)	70,701
Total	286,138	11	(304)	285,845
Total cash equivalents and marketable securities	$ 406,057	$ 11	$ (304)	$ 405,764
December 31, 2020				
Assets				
Cash equivalents:				
Money market funds	$ 53,165	$ —	$ —	$ 53,165
Total	53,165	—	—	53,165
Marketable securities:				
U.S. government-sponsored entity debt securities	257,284	19	(5)	257,298
Commercial paper securities	213,500	41	(8)	213,533
Corporate debt securities	59,575	16	(17)	59,574
Certificates of deposit	12,311	—	—	12,311
Asset-backed securities	17,905	10	(7)	17,908
Total	560,575	86	(37)	560,624
Total cash equivalents and marketable securities	$ 613,740	$ 86	$ (37)	$ 613,789

The fair value of marketable securities by contractual maturity were as follows (in thousands):

	December 31, 2021	December 31, 2020
Maturing in one year or less	$ 197,676	$ 510,094
Maturing after one year through five years	88,169	50,530
Total	$ 285,845	$ 560,624

Realized gains and losses on the sales of investments were insignificant during the years ended December 31, 2021, 2020 and 2019.

The Company manages credit risk associated with its investment portfolio through its investment policy, which limits purchases to high-quality issuers and also limits the amount of its portfolio that can be invested in a single issuer. The Company did not record an allowance for credit losses or other impairment charges related to its marketable securities for the years ended December 31, 2021, 2020, or 2019.

The Company had unrealized losses related to its marketable securities for the years ended December 31, 2021, 2020 and 2019. The Company had no material unrealized losses, individually and in the aggregate, for marketable securities that are in a continuous unrealized loss position for greater than 12 months as of December 31, 2021 and 2020. Based on the scheduled maturities of its investments, the Company determined that it was more likely than not that it will hold these investments for a

period of time sufficient for a recovery of its cost basis. Total unrealized gains for securities with net gains in AOCI were not material for fiscal 2021. These unrealized losses were not attributed to credit risk and were associated with changes in market conditions. The Company periodically reviews its marketable securities for indications of credit losses. The Company considers factors such as the duration, the magnitude and the reason for the decline in value, the potential recovery period, creditworthiness of the issuers of the securities and its intent to sell. For marketable securities, it also considers whether (i) it is more likely than not that the Company will be required to sell the debt securities before recovery of their amortized cost basis, and (ii) the amortized cost basis cannot be recovered as a result of credit losses. No significant facts or circumstances have arisen to indicate that there has been any significant deterioration in the creditworthiness of the issuers of the securities held by the Company. Based on the Company's review of these securities, including the assessment of the duration and severity of the unrealized losses and the Company's ability and intent to hold the investments until maturity, the Company determined that no allowance for credit losses related to its marketable securities was required at either December 31, 2021 or 2020.

NOTE 4 – MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

Novartis Institutes for BioMedical Research, Inc.

On July 27, 2020, the Company entered into a collaboration and license agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis") for the research, development and commercialization of gene regulation therapies to treat three neurodevelopmental disorders. Under the agreement, which was effective upon execution, the Company granted Novartis an exclusive, royalty bearing and worldwide license, under its relevant patents and know-how, to develop, manufacture and commercialize certain of its zinc finger protein ("ZFP") transcription factors ("ZFP-TFs") targeted to three undisclosed genes that are associated with certain neurodevelopmental disorders, including autism spectrum disorder and intellectual disability. The Company is performing early research activities over the collaboration period for each gene target and manufacture the ZPF-TFs required for such research, costs of which is funded by Novartis. Novartis is responsible for additional research activities, IND-enabling studies, clinical development, regulatory approvals, manufacturing of preclinical, clinical and approved products, and global commercialization. Subject to certain exceptions set forth in the agreement, the Company is prohibited from developing, manufacturing or commercializing any therapeutic product targeting any of the three genes that are the subject of the collaboration. Novartis also has the option to license certain of the Company's proprietary adeno-associated viruses ("AAVs") for the sole purpose of developing, manufacturing and commercializing licensed products arising from the collaboration.

Under the agreement, Novartis paid the Company a $75.0 million upfront license fee in August 2020. In addition to this fee and the cost reimbursements for early research activities, the Company is eligible to earn from Novartis up to $420.0 million in development milestones and up to $300.0 million in commercial milestones. The Company is also eligible to earn from Novartis tiered high single-digit to sub-teen double-digit royalties on potential net commercial sales of licensed products arising from the collaboration. These royalty payments will be subject to reduction due to patent expiration, loss of market exclusivity and payments made under certain licenses for third-party intellectual property. The agreement will continue, on a product-by-product and country-by-country basis, until the expiration of the applicable royalty term. Novartis has the right to terminate the agreement, in its entirety or on a target-by-target basis, for any reason after a specified notice period. Each party also has the right to terminate the agreement on account of the other party's bankruptcy or material, uncured breach.

All payments received under the agreement, when earned, are non-refundable and non-creditable. The transaction price of $95.1 million includes the upfront license fee of $75.0 million and estimated research costs of $20.1 million to be provided over the estimated research period. All clinical or regulatory milestone amounts were considered fully constrained at inception of the agreement. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

The Company assessed the agreement with Novartis in accordance with ASC Topic 606 and concluded that Novartis is a customer. The Company has identified a single performance obligation within this arrangement as a license to the technology and ongoing research services. The Company concluded that the license is not discrete as it does not have stand-alone value to Novartis apart from the research services to be performed pursuant to the agreement. As a result, the Company recognizes revenue from the upfront payment based on proportional performance of the ongoing research services through the estimated research period. The estimation of progress towards the satisfaction of performance obligation and project cost is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its performance obligation. As of December 31, 2021 and 2020, the Company had a receivable of $1.9 million and $1.1 million, respectively, and deferred revenue of $40.9 million and $70.9 million, respectively, related to this agreement.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Novartis agreement:			
Recognition of upfront license fee	$ 29,945	$ 4,143	$ —
Research services	7,999	1,109	—
Total	$ 37,944	$ 5,252	$ —

The Company paid $1.5 million for financial advisory fees during the year ended December 31, 2020, equal to 2% of $75.0 million received for the upfront license fee related to the collaboration and license agreement with Novartis. The Company recognized $1.5 million as a contract asset as such amount represents a cost of obtaining the agreement. This balance is amortized and included in general and administrative expenses on a systematic basis consistent with the transfer of the services to Novartis in accordance with ASC Topic 340, *Other Assets and Deferred* Costs ("ASC Topic 340"). The Company amortized $0.6 million and $0.1 million during the years ended December 31, 2021 and 2020, respectively.

Biogen MA, Inc.

In February 2020, the Company entered into a collaboration and license agreement with Biogen MA, Inc. ("BIMA") and Biogen International GmbH (together with BIMA, "Biogen") for the research, development and commercialization of gene regulation therapies for the treatment of neurological diseases. The companies plan to leverage the Company's proprietary ZFP technology delivered via AAV to modulate expression of key genes involved in neurological diseases. Concurrently with the execution of the collaboration agreement, the Company entered into a stock purchase agreement with BIMA, pursuant to which BIMA agreed to purchase 24,420,157 shares of the Company's common stock (the "Biogen Shares"), at a price per share of $9.2137, for an aggregate purchase price of approximately $225.0 million.

The collaboration agreement became effective in April 2020 following the termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and satisfaction of other customary closing conditions, including the payment of $225.0 million for the purchase of the Biogen Shares.

Under the collaboration agreement, Biogen paid the Company an upfront license fee of $125.0 million in May 2020. The Company is also eligible to receive research, development, regulatory and commercial milestone payments that could total up to approximately $2.4 billion if Biogen selects all of the targets allowed under the agreement and all the specified milestones set forth in the agreement are achieved, which includes up to $925.0 million in pre-approval milestone payments and up to $1.5 billion in first commercial sale and other sales-based milestone payments. In addition, the Company is eligible to receive tiered high single-digit to sub-teen royalties on potential net commercial sales of licensed products arising from the collaboration. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

Under the collaboration agreement, the Company granted to Biogen an exclusive, royalty bearing and worldwide license, under its relevant patents and know-how, to develop, manufacture and commercialize certain ZFP and/or AAV-based products directed to up to twelve neurological disease gene targets selected by Biogen. Biogen has already selected four of these: ST-501 to treat tauopathies, ST-502 to treat synucleinopathies including Parkinson's disease, a third product candidate targeting DM1, a neuromuscular disease, and a fourth undisclosed neurological disease gene target. Biogen has exclusive rights to nominate up to eight additional targets over a target selection period of five years. For each gene target selected by Biogen, the Company performs early research activities, costs of which are shared by the companies, aimed at the development of the combination of proprietary central nervous system delivery vectors and ZFP-TFs (or potential other ZFP products) targeting therapeutically relevant genes. Biogen has assumed responsibility and costs for the IND-enabling studies, clinical development, related regulatory interactions, and global commercialization. The Company is responsible for manufacturing activities for the initial clinical trials for the first three products of the collaboration and plans to leverage its in-house manufacturing capacity, where appropriate, which is currently in development. Biogen is responsible for manufacturing activities beyond the first clinical trial for each of the first three products. The Company's research activities for any targets will be performed over the period not to exceed seven years from the effective date of the agreement (i.e., through April 2027). Subject to certain exceptions set forth in the collaboration agreement, the Company is prohibited from developing, manufacturing or commercializing any therapeutic product directed to the targets selected by Biogen.

The collaboration agreement continues on a product-by-product and country-by-country basis until the expiration of all applicable royalty terms. Biogen has the right to terminate the collaboration agreement, in its entirety or on a target-by-target basis, for any reason after a specified notice period, and also has the right to replace up to ten targets. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach. In addition, the Company may terminate the collaboration agreement if Biogen challenges any patents licensed by the Company to Biogen.

Pursuant to the terms of the stock purchase agreement, Biogen has agreed not to, without the Company's prior written consent and subject to specified conditions and exceptions, directly or indirectly acquire shares of the Company's outstanding common stock, seek or propose a tender or exchange offer or merger between the parties, solicit proxies or consents with respect to any matter, or undertake other specified actions related to the potential acquisition of additional equity interests in the Company. Such standstill restrictions expire on the earlier of the three-year anniversary of the effectiveness of the collaboration agreement and the date that Biogen beneficially owns less than 5% of the Company's common stock.

The stock purchase agreement also provides that from the first anniversary of the effectiveness of the collaboration agreement, through the second anniversary, Biogen will hold and not sell at least 50% of the Biogen Shares, in addition to being subject to certain volume limitations. The stock purchase agreement further provides that, subject to certain limitations, until such time as all remaining Biogen Shares may be sold pursuant to Rule 144 promulgated under the Securities Exchange Act of 1933, as amended, within a 90-day period, Biogen may request the Company to register for resale any of the Biogen Shares on a registration statement to be filed with the Securities and Exchange Commission.

In addition, Biogen has agreed that, excluding specified extraordinary matters, it will vote the Biogen Shares in accordance with the Company's recommendation and has granted the Company an irrevocable proxy with respect to the foregoing. Such voting provisions expire on the earlier of (i) the two-year anniversary of the effectiveness of the collaboration agreement, (ii) the date that Biogen beneficially owns less than 5% of the Company's common stock and (iii) the date the collaboration agreement is terminated; provided, however, that in no event shall such expiration date be prior to the one-year anniversary of the effectiveness of the collaboration agreement.

The Company assessed the collaboration agreement with Biogen in accordance with ASC Topic 606 and concluded that Biogen is a customer. The transaction price of $204.6 million includes the upfront license fee of $125.0 million and the excess consideration from the stock purchase of $79.6 million, which represents the difference between the $225.0 million received for the purchase of the Biogen Shares and the $145.4 million estimated fair value of the equity issued. The equity issued to Biogen was valued using an option pricing model to reflect certain holding period restrictions. None of the target selection fees and clinical or regulatory milestones have been included in the transaction price, as all such amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that nomination of additional targets and achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price as uncertain events are resolved or other changes in circumstances occur.

The Company has identified a single performance obligation within the Biogen collaboration agreement, which is a stand-ready obligation consisting of a series of distinct days of research services, during which Biogen obtains access to the Company's license and research resources. Revenue from the upfront license fee relates to access to the license and Company's obligation to stand-ready to perform such research services corresponding to the targets selected by Biogen. As a result of this obligation to perform research services when and if requested throughout the duration of the contract, the upfront license fee and the excess consideration from the stock purchase will be recognized over time on a straight-line basis consistent with the resources expected to be dedicated to providing the research services through April 2027, the estimated period of the obligation. The estimated period of performance is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverable. Revenue from the reimbursement by Biogen of shared costs of early research activities performed by Sangamo is recognized as the research services are performed. As of December 31, 2021 and 2020, the Company had a receivable of $2.8 million and $2.7 million, respectively, and deferred revenue of $154.0 million and $183.2 million, respectively, related to this agreement.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Biogen agreement:			
Recognition of license and stand-ready fee	$ 29,224	$ 21,356	$ —
Research services	13,076	6,545	—
Total	$ 42,300	$ 27,901	$ —

The Company paid $7.0 million for financial advisory fees during the year ended December 31, 2020, equal to 2% of $225.0 million received for the sale of shares and 2% of $125.0 million received for the upfront fee. The fees incurred related to both the collaboration agreement with Biogen and to the stock purchase agreement for the sale of shares. The Company believes that the allocation of fees on a relative fair value basis between the two agreements is reasonable. The Company recognized $4.1 million, which represents 2% of the transaction price of $204.6 million, as a contract asset. This balance is amortized and included in general and administrative expenses on a systematic basis consistent with the transfer of the services to Biogen in accordance with ASC Topic 340. The Company amortized $0.6 million and $0.4 million during the years ended

December 31, 2021 and 2020, respectively. The Company recognized $2.9 million, which represented 2% of the $145.4 million estimated fair value of the equity issued, as a share issuance cost and recorded this amount in equity as a reduction in net proceeds.

Kite Pharma, Inc.

In February 2018, the Company entered into a global collaboration and license agreement with Kite Pharma, Inc. ("Kite"), a Gilead Sciences, Inc. company, which became effective in April 2018, and was amended and restated in September 2019, for the research, development, and commercialization of potential engineered cell therapies for cancer. In this collaboration, Sangamo is working together with Kite on a research program under which the companies are designing zinc finger nucleases ("ZFNs") and viral vectors to disrupt and insert certain genes in T cells and natural killer cells ("NK-cells") including the insertion of genes that encode chimeric antigen receptors ("CARs"), T cell receptors ("TCRs"), and NK-cell receptors ("NKRs") directed to mutually agreed targets. Kite is responsible for all clinical development, manufacturing and commercialization of any resulting products.

Subject to the terms of this agreement, the Company granted Kite an exclusive, royalty-bearing, worldwide sublicensable license under the Company's relevant patents and know-how to develop, manufacture and commercialize, for the purpose of treating cancer, specific cell therapy products that may result from the research program and that are engineered *ex vivo* using selected ZFNs and viral vectors developed under the research program to express CARs, TCRs or NKRs directed to candidate targets.

During the research program term and subject to certain exceptions, except pursuant to this agreement, the Company is prohibited from researching, developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of *ex vivo* genome editing, expresses a CAR, TCR or NKR that is directed to a target expressed on or in a human cancer cell. After the research program term concludes and subject to certain exceptions, except pursuant to this agreement, the Company will be prohibited from developing, manufacturing and commercializing, for the purpose of treating cancer, any cell therapy product that, as a result of *ex vivo* genome editing, expresses a CAR, TCR or NKR that is directed to a candidate target.

Following the effective date, the Company received a $150.0 million upfront payment from Kite. In addition, Kite also reimburses the Company's direct costs to conduct the joint research program. Sangamo is also eligible to receive contingent development- and sales-based milestone payments that could total up to $3.0 billion if all of the specified milestones set forth in this agreement are achieved. Of this amount, approximately $1.3 billion relates to the achievement of specified research, clinical development, regulatory and first commercial sale milestones, and approximately $1.8 billion relates to the achievement of specified sales-based milestones if annual worldwide net sales of licensed products reach specified levels. Each development- and sales-based milestone payment is payable (i) only once for each licensed product, regardless of the number of times that the associated milestone event is achieved by such licensed product and, (ii) only for the first 10 times that the associated milestone event is achieved regardless of the number of licensed products that may achieve such milestone event. In addition, the Company is entitled to receive escalating, tiered royalty payments with a percentage in the single digits based on future annual worldwide net sales of licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

The initial research term in the agreement is six years. Kite has an option to extend the research term for up to two additional one-year periods for a separate upfront fee of $10.0 million per year. All contingent payments under the agreement, when earned, will be non-refundable and non-creditable. In connection with the amendment and restatement of the agreement in September 2019, the Company entered into a new research plan with Kite, with estimated reimbursable service cost of approximately $3.4 million, which is included in the total transaction price. The Company concluded the total transaction price under this agreement is $189.3 million and includes the upfront license fee of $150.0 million and $39.3 million estimated reimbursable service costs for identified research projects over the estimated performance period. Further, the Company concluded the estimated fees for the presumed exercise of the research term extension options and all milestone amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future events which are uncertain at this time. The Company will re-evaluate the transaction price including the estimated variable consideration included in the transaction price and all constrained amounts in each reporting period and as uncertain events are resolved or other changes in circumstances occur. None of the development and sales-based milestone payments have been included in the transaction price.

The Company assessed the agreement with Kite in accordance with ASC Topic 606 and concluded that Kite is a customer. Kite has the right to terminate this agreement in its entirety or on a per licensed product or per candidate target basis for any reason after a specified notice period. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach.

The Company has identified the primary performance obligations within the Kite agreement as: (1) a license to the technology along with the stand-ready obligation to perform research services, and (2) the ongoing research services. Revenue from the upfront license fee relates to access to the license and Company's obligation to stand-ready to perform such research services as additional targets are selected by Kite. As a result of this obligation to perform research services when and if requested throughout the duration of the contract, the fee for the license and the stand-ready obligation will be recognized over time on a straight-line basis through April 2024, the estimated period of the stand-ready obligation. Revenue from the reimbursable costs related to the integrated service deliverable is recognized as the research services are performed. Related costs and expenses under these arrangements have historically approximated the revenues recognized. The estimated period of performance and project cost is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables. As of December 31, 2021, and 2020 the Company had a receivable of $0.1 million and $0.4 million, respectively, and deferred revenue of $56.5 million and $81.4 million, respectively, related to this agreement.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Kite agreement:			
Recognition of license and stand-ready fee	$ 24,977	$ 25,046	$ 24,977
Research services	476	3,562	9,373
Total	$ 25,453	$ 28,608	$ 34,350

Pfizer Inc.

Giroctocogene Fitelparvovec Global Collaboration and License Agreement

In May 2017, the Company entered into an exclusive global collaboration and license agreement with Pfizer, pursuant to which it established a collaboration for the research, development, and commercialization of giroctocogene fitelparvovec, its gene therapy product candidate for hemophilia A, and closely related products.

Under this agreement, the Company is responsible for conducting the Phase 1/2 clinical trial and for certain manufacturing activities for giroctocogene fitelparvovec, while Pfizer is responsible for subsequent worldwide development, manufacturing, marketing and commercialization of giroctocogene fitelparvovec. Sangamo may also collaborate in the research and development of additional AAV-based gene therapy products for hemophilia A.

Subject to the terms of the agreement, the Company granted Pfizer an exclusive worldwide royalty-bearing license, with the right to grant sublicenses, to use certain technology controlled by the Company for the purpose of developing, manufacturing and commercializing giroctocogene fitelparvovec and related products. Pfizer granted the Company a non-exclusive, worldwide, royalty-free, fully paid license, with the right to grant sublicenses, to use certain manufacturing technology developed under the agreement and controlled by Pfizer to manufacture the Company's products that utilize the AAV delivery system. During a specified period, neither the Company nor Pfizer is permitted to clinically develop or commercialize, outside of the collaboration, certain AAV-based gene therapy products for hemophilia A.

Unless earlier terminated, the agreement has a term that continues on a per product and per country basis until the later of (i) the expiration of patent claims that cover the product in a country, (ii) the expiration of regulatory exclusivity for a product in a country, and (iii) fifteen years after the first commercial sale of a product in a country. Pfizer has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. Upon termination for any reason, the license granted by the Company to Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec and related products will automatically terminate. Upon termination by the Company for cause or by Pfizer in any country or countries, Pfizer will automatically grant the Company an exclusive, royalty-bearing license under certain technology controlled by Pfizer to develop, manufacture and commercialize giroctocogene fitelparvovec in the terminated country or countries.

Upon execution of the agreement, the Company received an upfront fee of $70.0 million and is eligible to receive up to $208.5 million in payments upon the achievement of specified clinical development, intellectual property and regulatory milestones and up to $266.5 million in payments upon first commercial sale milestones for giroctocogene fitelparvovec and potentially other products. The total amount of potential clinical development, intellectual property, regulatory and first commercial sale milestone payments, assuming the achievement of all specified milestones in the agreement, is up to $475.0 million, which includes up to $300.0 million for giroctocogene fitelparvovec and up to $175.0 million for other products that may be developed under the agreement, subject to reduction on account of payments made under certain licenses for third-party intellectual property. In addition, Pfizer agreed to pay the Company royalties for each potential licensed product developed under the agreement that are an escalating tiered, double-digit percentage of the annual net sales of such product and

are subject to reduction due to patent expiration, entry of biosimilar products to the market and payment made under certain licenses for third-party intellectual property. To date, two milestones of $55.0 million in aggregate have been achieved and paid, however no products have been approved and therefore no royalty fees have been earned under the agreement.

The Company assessed the agreement with Pfizer in accordance with ASC Topic 606 and concluded that Pfizer is a customer. The total transaction price under this agreement is $134.0 million, which represents the upfront fee and research services fees of $79.0 million and fees related to two achieved milestones in an aggregate amount of $55.0 million. Sangamo is responsible for internal and external research costs as part of the upfront fee and has the ability to request additional reimbursement from Pfizer if certain conditions are met. None of the constrained clinical or regulatory milestones have been included in the transaction price. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including its estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

The Company has identified the performance obligations within the agreement as a license to the technology and ongoing research services. The Company concluded that the license is not discrete as it does not have stand-alone value to Pfizer apart from the research services to be performed by the Company pursuant to the agreement. As a result, the Company recognized revenue from the upfront payment based on proportional performance of the ongoing research services through 2020, the period the Company performed research services. The estimation of progress towards the satisfaction of its performance obligation and project cost was reviewed quarterly and adjusted, as needed, to reflect the Company's assumptions regarding the timing of its deliverables. In December 2020, the Company satisfied the deliverables and research services responsibilities within the arrangement. As a result, the Company recognized the remaining deferred revenue from the upfront payment in December 2020 and no revenue has been recognized during the year ended December 31, 2021.

In December 2019, the Company entered into an amendment to the collaboration agreement, pursuant to which the Company transferred the IND for giroctocogene fitelparvovec to Pfizer. Upon this transfer the Company achieved a $25.0 million milestone as the conditions for achieving the milestone were met. The cumulative revenue recognized in connection with this milestone was $25.0 million as of December 31, 2020 and included $1.3 million recognized during the year ended December 31, 2020.

In September 2020, the Company determined that there was a high probability of achievement of a $30.0 million milestone with Pfizer for giroctocogene fitelparvovec. The milestone was subsequently achieved upon dosing of the first subject in a Phase 3 clinical trial in early October 2020. The cumulative revenue recognized in connection with this milestone was $30.0 million during the year ended December 31, 2020.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Pfizer giroctocogene fitelparvovec agreement:			
Recognition of upfront fee and research services	$ —	$ 3,111	$ 15,697
Milestone achievement	—	31,338	23,662
Total	$ —	$ 34,449	$ 39,359

In March 2019, the Company updated its estimated project cost and related revenues under this program. This adjustment was a direct result of the increase in project scope during the first quarter of 2019 and the corresponding costs, which resulted in a decrease in the measure of proportional performance. In December 2019, the Company updated its estimated project cost and related revenues upon transfer of the IND for giroctocogene fitelparvovec to Pfizer. This adjustment was a direct result of the decrease in project scope during the fourth quarter of 2019 and the corresponding costs, which resulted in an increase in the measure of proportional performance. During the year ended December 31, 2019, the Company recognized $15.7 million in revenues related to the Pfizer giroctocogene fitelparvovec agreement, which included approximately $8.7 million acceleration in revenues recorded in the three months ended December 31, 2019 related to the updated estimated project cost, offset by approximately $3.0 million reduction in revenues recorded in the three months ended March 31, 2019 related to the updated estimated project cost.

In March 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the giroctocogene fitelparvovec collaboration agreement with Pfizer. This adjustment was a direct result of the decision to decrease the project scope and the corresponding costs, after the successful IND transfer of the giroctocogene fitelparvovec product candidate to Pfizer, both of which resulted in an increase in the measure of proportional cumulative performance. This

adjustment increased revenue by $2.4 million, decreased net loss by $2.4 million and decreased the Company's basic net loss per share by $0.02 for year ended December 31, 2020.

C9ORF72 Research Collaboration and License Agreement

In December 2017, the Company entered into a separate exclusive, global collaboration and license agreement with Pfizer for the development and commercialization of potential gene therapy products that use ZFP-TFs to treat amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the *C9ORF72* gene. Pursuant to this agreement, the Company agreed to work with Pfizer on a research program to identify, characterize and preclinically develop ZFP-TFs that bind to and specifically reduce expression of the mutant form of the *C9ORF72* gene.

Subject to the terms of this agreement, the Company granted Pfizer an exclusive, royalty-bearing, worldwide license under the Company's relevant patents and know-how to develop, manufacture and commercialize gene therapy products that use resulting ZFP-TFs that satisfy pre-agreed criteria. During a specified period, neither the Company nor Pfizer will be permitted to research, develop, manufacture or commercialize outside of the collaboration any ZFPs that specifically bind to the *C9ORF72* gene.

Unless earlier terminated, the agreement has a term that continues on a per licensed product and per country basis until the later of (i) the expiration of patent claims that cover the licensed product in a country, (ii) the expiration of regulatory exclusivity for a licensed product in a country, and (iii) fifteen years after the first commercial sale of a licensed product in a major market country. Pfizer also has the right to terminate the agreement without cause in its entirety or on a per product or per country basis. The agreement may also be terminated by either party based on an uncured material breach by the other party or the bankruptcy of the other party. The agreement will also terminate if the Company is unable to identify any lead candidates for development within a specified period of time or if Pfizer elects not to advance a lead candidate beyond a certain development milestone within a specified period of time. Upon termination for any reason, the license granted by the Company to Pfizer to develop, manufacture and commercialize licensed products under the agreement will automatically terminate. Upon termination by the Company for cause or by Pfizer without cause for any licensed product or licensed products in any country or countries, the Company will have the right to negotiate with Pfizer to obtain a non-exclusive, royalty-bearing license under certain technology controlled by Pfizer to develop, manufacture and commercialize the licensed product or licensed products in the terminated country or countries.

Following termination by the Company for Pfizer's material breach, Pfizer will not be permitted to research, develop, manufacture or commercialize ZFPs that specifically bind to the *C9ORF72* gene for a period of time. Following termination by Pfizer for the Company's material breach, the Company will not be permitted to research, develop, manufacture or commercialize ZFPs that specifically bind to the *C9ORF72* gene for a period of time.

The Company received a $12.0 million upfront payment from Pfizer and is eligible to receive up to $60.0 million in development milestone payments from Pfizer contingent on the achievement of specified preclinical development, clinical development and first commercial sale milestones, and up to $90.0 million commercial milestone payments if annual worldwide net sales of the licensed products reach specified levels. In addition, Pfizer will pay the Company royalties based on an escalating tiered, mid to high single digit percentage of the annual worldwide net sales of the licensed products. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property. Each party will be responsible for the cost of its performance of the research program. Pfizer will be operationally and financially responsible for subsequent development, manufacturing and commercialization of the licensed products. To date, a milestone of $5.0 million has been achieved and paid, however no products have been approved and therefore no royalty fees have been earned under the *C9ORF72* Pfizer agreement.

The Company assessed the agreement with Pfizer in accordance with ASC Topic 606 and concluded that Pfizer is a customer. The Company concluded the total transaction price under this agreement is $17.0 million, which represents the upfront fees of $12.0 million and fees related to achievement of one milestone in the amount of $5.0 million. None of the constrained clinical or regulatory milestones have been included in the transaction price. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including its estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

The Company has identified the performance obligations within this agreement as a license to the technology and ongoing research services. The Company concluded that the license is not discrete as it does not have stand-alone value to Pfizer apart from the services to be performed by the Company pursuant to the agreement. As a result, the Company recognized revenue from the upfront payment based on proportional performance of the ongoing research services through 2020, the period the Company performed research services. The estimation of progress towards the satisfaction of its performance obligation and

project cost was reviewed quarterly and adjusted, as needed, to reflect the Company's assumptions regarding the timing of its deliverables. The Company satisfied the deliverables and research services responsibilities within the arrangement in September 2020, and as a result, recognized the remaining deferred revenue from the upfront payment in September 2020.

In September 2020, the Company earned a $5.0 million milestone associated with the completion of the Company's research activities in its collaboration with Pfizer to develop genome regulation therapies using ZFP-TFs for the treatment of *C9ORF72*-related ALS and frontotemporal lobar degeneration. This milestone was achieved upon Pfizer's notification to the Company of its election to pay the first development milestone payment under the collaboration agreement. This milestone payment is non-refundable, and the Company recognized on a cumulative basis $5.0 million for the year ended December 31, 2020.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Pfizer *C9ORF72* agreement:			
Recognition of upfront fee	$ —	$ 7,985	$ 1,827
Milestone achievement	—	5,000	—
Total	$ —	$ 12,985	$ 1,827

During the year ended December 31, 2020, the Company recorded adjustments to revenue related to changes in estimate in connection with the *C9ORF72* collaboration agreement with Pfizer. These adjustments were a direct result of the decision to decrease the project scope and the corresponding costs due to advancement of the program, which resulted in an increase in the measure of proportional cumulative performance. These adjustments increased revenue by $8.8 million, decreased net loss by $8.8 million and decreased the Company's basic net loss per share by $0.06 for the year ended December 31, 2020.

Sanofi S.A.

In January 2014, the Company entered into an exclusive worldwide collaboration and license agreement to develop therapeutics for hemoglobinopathies, focused on beta thalassemia and sickle cell disease ("SCD"). The agreement was originally signed with BIMA, who subsequently assigned it to Bioverativ Inc., which was later acquired by Sanofi. Under the agreement, the Company was originally jointly conducting two research programs: a beta thalassemia program, which was discontinued in the third quarter of 2021, and the SCD program, which resulted in the development of SAR445136, a ZF nuclease, gene-edited cell therapy product candidate for the treatment of SCD, which remains active.

In December 2021, Sanofi notified the Company of its termination for convenience, effective June 28, 2022 (the "Termination Date"), of the collaboration agreement. In its notice to the Company, Sanofi indicated that its termination relates to Sanofi's change in strategic direction to focus on allogeneic universal genomic medicine approaches rather than autologous personalized cell therapies. As of the Termination Date, the collaboration agreement will be terminated in its entirety and following the Termination Date, the Company will not be entitled to receive any further milestone payments or royalties from Sanofi. As of the Termination Date, Sanofi will have no further obligations to develop or to fund the development of any collaboration research programs under the collaboration agreement.

In the SCD program, the Company and Sanofi were jointly responsible for research and development activities prior to filing of an IND, but Sanofi is now responsible for subsequent worldwide clinical development, manufacturing and commercialization of licensed products developed under the agreement. Subject to the terms of the agreement, the Company had granted Sanofi an exclusive, royalty-bearing license, with the right to grant sublicenses, to use certain ZFP and other technology controlled by the Company for the purpose of researching, developing, manufacturing and commercializing licensed products developed under the agreement. The Company had also granted Sanofi a non-exclusive worldwide, royalty-free fully paid license with the right to grant sublicenses, under the Company's interest in certain other intellectual property developed pursuant to the agreement. During the term of the agreement, the Company is not permitted to research, develop, manufacture or commercialize, outside of the agreement, certain gene therapy products that target genes relevant to the licensed products.

Under the agreement, the Company received an upfront license fee of $20.0 million and was eligible to receive up to $115.8 million in payments upon the achievement of specified clinical development and regulatory milestones, as well as up to $160.5 million in payments upon the achievement of specified sales milestones. The total amount of potential regulatory, clinical development, and sales milestone payments, assuming the achievement of all specified milestones in the agreement, was up to $276.3 million. In addition, the Company was to receive royalty payments for each licensed product that are a tiered double-digit percentage of annual net sales of each product. Sanofi was to reimburse Sangamo for agreed upon costs incurred in connection with research and development activities conducted by Sangamo. To date, a $6.0 million milestone has been

achieved related to ST-400 for beta thalassemia and another $7.5 million milestone has been achieved related to SCD, however no products have been approved and therefore no royalty fees have been earned under the Sanofi agreement.

All contingent payments under the agreement, when earned, were non-refundable and non-creditable. The transaction price of $96.3 million includes the upfront license fee of $20.0 million, two unconstrained milestones in the amount of $13.5 million and estimated research costs of $62.8 million for identified research projects over the estimated performance period, as all unachieved milestone amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur. None of the constrained clinical or regulatory milestones have been included in the transaction price.

The Company assessed the agreement with Sanofi in accordance with ASC Topic 606 and concluded that Sanofi is a customer. The Company has identified the performance obligations within this arrangement as a license to the technology and ongoing research services activities. The Company concluded that the license is not discrete as it does not have stand-alone value to Sanofi apart from the research services to be performed pursuant to the agreement. As a result, the Company recognizes revenue from the upfront payment based on proportional performance of the ongoing research services through June 28, 2022, the estimated period the Company will perform research services. The estimation of progress towards the satisfaction of performance obligation and project cost is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables. Related costs and expenses under these arrangements have historically approximated the revenues recognized. As of December 31, 2021 and 2020, the Company had a receivable of $0.6 million and $1.0 million, respectively, and deferred revenue of $1.1 million and $1.2 million, respectively, related to this agreement.

In August 2019, the Company achieved a $6.0 million milestone with Sanofi upon dosing of the third subject in the ST-400 beta thalassemia Phase 1 clinical trial. The cumulative revenue recognized in connection with this milestone was approximately $5.9 million as of December 31, 2021 and included $0.1 million recognized during the year ended December 31, 2021.

In December 2019, the Company achieved a $7.5 million milestone with Sanofi upon dosing of the first subject in the SCD Phase 1 clinical trial. The cumulative revenue recognized in connection with this milestone was approximately $7.3 million as of December 31, 2021 and included $0.1 million recognized during the year ended December 31, 2021.

Revenues recognized under the agreement were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Revenue related to Sanofi agreement:			
Recognition of upfront fee	$ 34	$ 298	$ 3,494
Research services	3,057	4,823	6,367
Milestone achievement	23	201	12,819
Total	$ 3,114	$ 5,322	$ 22,680

During the year ended December 31, 2021, the Company recorded adjustments to revenue related to changes in estimates in connection with the collaboration agreement with Sanofi. These changes in estimates were driven by a change in project scope and related project costs in September 2021 and subsequent notification of termination of the collaboration agreement which resulted in changes to the measure of proportional cumulative performance. These adjustments decreased revenue by $1.6 million, increased net loss by $1.6 million and increased the Company's basic and diluted net loss per share by $0.01 for the year ended December 31, 2021.

During the year ended December 31, 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Sanofi. This adjustment was a direct result of the decision in March 2020 to increase the project scope and the corresponding costs, both of which resulted in a decrease in the measure of proportional cumulative performance. This adjustment decreased revenue by $2.2 million, increased net loss by $2.2 million and increased the Company's basic net loss per share by $0.02 for the year ended December 31, 2020.

California Institute for Regenerative Medicine

In May 2018, the California Institute for Regenerative Medicine ("CIRM") granted a Strategic Partnership Award for $8.0 million to fund the clinical studies of a potentially curative ZFP therapeutic for the treatment of beta thalassemia based on the application of Sangamo's ZFN genome editing technology. The grant provided matching funds to support ST-400, a gene-edited cell therapy candidate for people with transfusion-dependent beta thalassemia. Under the terms of the CIRM grant, the Company was obligated to pay royalties and licensing fees based on a low single digit royalty percentage on net sales of CIRM-funded product candidates or CIRM-funded technology. The Company had the option to decline any and all amounts awarded by CIRM and as an alternative to revenue sharing, the Company had the option to convert the award to a loan, however no such election had been made as of December 31, 2020. The Company had received $5.2 million under the award as of December 31, 2020. The Company had recorded $6.4 million, including accrued interest of $1.2 million, as a loan related to this award in other non-current liabilities on the Consolidated Balance Sheet as of December 31, 2020.

As a result of the November 2021 decision to discontinue the development of ST-400 in order to prioritize the development of other product candidates, the grant was terminated. In connection with the termination and discontinuation of the program, the Company elected not to convert the award to a loan and recognized the non-refundable award amount of $5.2 million as a reduction of research and development expenses, and $1.2 million of accrued interest on the award as interest and other income, net, on the Company's Consolidated Statements of Operations for the year ended December 31, 2021. No amounts related to this award were included on the Consolidated Balance Sheet as of December 31, 2021.

Agreement with Sigma-Aldrich Corporation

In 2007, Sangamo entered into a license agreement with Sigma-Aldrich Corporation ("Sigma") to provide Sigma with access to Sangamo's proprietary ZFP technology and the exclusive right to use the technology to develop and commercialize research reagent products and services in the research field, excluding certain agricultural research uses that Sangamo previously licensed to Dow AgroSciences LLC ("DAS"), a wholly-owned subsidiary of Dow Chemical Company. Sangamo developed laboratory research reagents using its ZFP technology over a three-year research services period. Sangamo has since transferred the ZFP manufacturing technology to Sigma.

In October 2009, Sangamo expanded its license agreement with Sigma. In addition to the original terms of the license agreement, Sigma received exclusive rights to develop and distribute ZFP-modified cell lines for commercial production of protein pharmaceuticals and certain ZFP-engineered transgenic animals for commercial applications. Under the terms of the agreement, Sigma made an upfront cash payment of $20.0 million consisting of a $4.9 million purchase of 636,133 shares of Sangamo common stock, valued at $4.9 million, and a $15.1 million upfront license fee. Sangamo is also eligible to receive commercial license fees of $5.0 million based upon a percentage of net sales and sublicensing revenue and thereafter a reduced royalty rate of 10.5% of net sales and sublicensing revenue. In addition, upon the achievement of certain cumulative commercial milestones, Sigma will make milestone payments to Sangamo up to an aggregate of $25.0 million. Sangamo does not have additional ongoing performance obligations under the agreement.

Revenues recognized under the agreement with Sigma for the years ended December 31, 2021, 2020 and 2019, were $1.1 million, $0.5 million and $0.6 million, respectively.

Agreement with DAS

In 2005, Sangamo entered into an exclusive commercial license with DAS, with an initial three-year research term. Under this agreement, Sangamo is providing DAS with access to its proprietary ZFP technology and the exclusive right to use the technology to modify the genomes or alter the nucleic acid or protein expression of plant cells, plants, or plant cell cultures. Sangamo has retained rights to use plants or plant-derived products to deliver ZFP-TFs or ZFNs into humans or animals for diagnostic, therapeutic or prophylactic purposes. In 2008, DAS exercised its option and obtained a commercial license to sell products incorporating or derived from plant cells generated using the Company's ZFP technology. The exercise of the option triggered a one-time commercial license fee of $6.0 million, payment of the remaining $2.3 million of the previously agreed upon $4.0 million in research milestones, development and commercialization milestone payments for each product, and royalties on sales of products. In December 2010, the Company amended its agreement with DAS to extend the period of reagent manufacturing services and research services through December 31, 2012.

The agreement with DAS provided that DAS has the right to enter into certain sublicenses with third parties to use ZFP products derived from Company's ZFP technology ("Licensing Program") and also provided for minimum annual payment obligations each year due to Sangamo every October, provided the Licensing Program is not terminated by DAS. Annual fees ranged from $0.3 million to $3.0 million and totaled $25.3 million over 11 years, with the last payment being in October 2020 in the amount of $3.0 million. The Company had identified the performance obligation within this arrangement as a license to the technology. In July 2021, DAS gave notice to the Company of termination of the Licensing Program, effective as of September 2021. However, Sangamo's sublicense to DAS remains in effect, as does the DAS agreement itself. In the event of any termination of the agreement, all rights to use the Company's ZFP technology will revert to Sangamo, and DAS

will no longer be permitted to practice Sangamo's ZFP technology or to develop or, except in limited circumstances, commercialize any products derived from the Company's ZFP technology.

Revenues under the agreement with DAS were $0.2 million, $3.0 million, and $3.0 million during 2021, 2020 and 2019, respectively.

NOTE 5 – ACQUISITION OF SANGAMO FRANCE

In 2018, Sangamo entered into various agreements with the goal of eventually acquiring 100% of Sangamo France's share capital, including arrangements with the holders of approximately 477,000 free shares of Sangamo France pursuant to which the Company had the right to purchase such shares from the holders (a call option), and such holders had the right to sell to the Company such shares from time to time through mid-2021 (a put option) (collectively the "Free Shares Options"). As of December 31, 2021, the Company acquired all of the 477,000 free shares, resulting in 100% ownership of Sangamo France.

On October 1, 2018 (the "Acquisition Date"), the fair value of the Free Shares Options was estimated to be a liability of $0.2 million. See Note 2 – *Fair Value Measurement – Free Shares Asset* for information regarding the valuation method. The fair value of the Free Shares Options varied based on changes in the Company's stock price during the option period. The fair value of the Free Shares Options was estimated to be an asset of $0.1 million as of December 31, 2020.

The acquisition of Sangamo France was accounted for as a business combination in accordance with ASC Topic 805, *Business Combinations*, in exchange for total consideration of approximately $45.9 million at the Acquisition Date. The operating results of Sangamo France after the Acquisition Date have been included in the Company's Consolidated Statements of Operations. There was no goodwill impairment during the years ended December 31, 2021, 2020 or 2019.

Non-controlling Interest

Prior to the acquisition of all the free shares, the fair value of the remaining non-controlling interest was determined based on the number of outstanding free shares comprising the non-controlling interest and the $2.99 acquisition price per share as of the Acquisition Date. The non-controlling interest was presented as a component of stockholders' equity on the Company's Consolidated Balance Sheet as of December 31, 2020. As of December 31, 2021, upon acquisition of 100% of ordinary shares of Sangamo France, the carrying amount of the non-controlling interest was recorded as additional paid-in capital on the Company's Consolidated Balance Sheet.

Non-controlling interest as of December 31, 2021 was as follows (in thousands):

	Total
Balance at beginning of year	$ (868)
Fair value of additional shares acquired	(64)
Loss attributable to non-controlling interest	(11)
Buy-out of non-controlling interest	$ 943
Balance at end of year	$ —

NOTE 6 – OTHER BALANCE SHEET DETAILS

Property and Equipment, Net

Property and equipment, net consist of the following (in thousands):

	December 31,	
	2021	2020
Laboratory equipment	$ 31,988	$ 24,737
Leasehold improvements	21,970	15,953
Furniture and fixtures	9,080	4,870
Manufacturing equipment	8,781	1,089
Construction in progress	4,729	12,091
	76,548	58,740
Less: accumulated depreciation and amortization	(25,025)	(17,416)
Property and equipment, net	$ 51,523	$ 41,324

Depreciation and amortization expense was $9.4 million in 2021, $5.7 million in 2020 and $3.9 million in 2019.

Intangible Assets

The changes in intangible assets were as follows (in thousands):

	December 31,	
	2021	2020
Balance at beginning of year	$ 58,128	$ 53,156
Foreign currency translation adjustment	(4,368)	4,972
Balance at end of year	$ 53,760	$ 58,128

Goodwill

The changes in goodwill were as follows (in thousands):

	December 31,	
	2021	2020
Balance at beginning of year	$ 42,798	$ 39,273
Foreign currency translation adjustment	(3,096)	3,525
Balance at end of year	$ 39,702	$ 42,798

Other Accrued Liabilities

Other accrued liabilities consist of the following (in thousands):

	December 31,	
	2021	2020
Accrued research and development expenses	$ 4,878	$ 4,257
Operating lease liabilities – current	4,026	3,690
Accrued professional fees	869	1,532
Customer advance	—	5,000
Other	1,804	4,133
Total other accrued liabilities	$ 11,577	$ 18,612

NOTE 7 – COMMITMENTS AND CONTINGENCIES

Leases

Sangamo occupies approximately 87,700 square feet of office and research and development laboratory facilities in Brisbane, California pursuant to a lease that expires in May 2029. Sangamo also occupies approximately 59,485 square feet of research and office space, subject to a lease that expires in August 2031, and approximately 7,700 of office space, subject to a lease that expires in August 2026, in Richmond, California. In addition, the Company leases approximately 25,600 square feet of office and research and development space in Valbonne, France, subject to leases that expire beginning in June 2025 through January 2030.

In May 2020, the Company entered into an amendment to an existing lease to acquire approximately 8,500 square feet of additional research and office space in Richmond, California. The amended lease was effective October 1, 2020, and the Company recorded a lease liability and corresponding right-of-use asset of $1.3 million upon inception of this amended lease.

In January 2021, the Company entered into an amendment to an existing lease to acquire approximately 5,000 square feet of research and office space in Richmond, California. With this amendment, the existing lease expires in August 2026. Total lease payments over the life of this amended lease are approximately $0.9 million. Variable lease payments include the Company's allocated share of costs incurred and expenditures made by the landlord in the operation and management of the building. On February 1, 2021, the lease commencement date, the Company recorded an operating lease right-of-use asset and a corresponding lease liability of $0.7 million.

In January 2021, the Company also entered into a new lease to acquire approximately 5,800 square feet of research and office space in Valbonne, France, which expires in January 2030. Total lease payments over the life of this amended lease are approximately $0.8 million. Variable lease payments include the Company's allocated share of costs incurred and expenditures made by the landlord in the operation and management of the building. On January 29, 2021, the lease commencement date, the Company recorded an operating lease right-of-use asset and a corresponding lease liability of $0.6 million.

In October 2021, the Company entered into an agreement to extend the lease of its research and office space in Richmond, California by five years until August 2031. The Company also leased an additional 7,997 square feet of office space at the same location from November 2021 through August 2031. The amended lease was effective October 1, 2021, and the Company recorded an adjustment to the lease liability and the corresponding right-of-use asset of $9.1 million upon inception of this amended lease. Pursuant to the terms of the amended lease, the landlord agreed to reimburse the Company up to $2.6 million, related to a tenant improvement allowance.

Certain of these leases include renewal options at the election of the Company to renew or extend the lease for an additional five to ten years. These optional periods have not been considered in the determination of the ROU assets or lease liabilities associated with these leases as the Company did not consider it reasonably certain it would exercise the options.

The Company performed evaluations of its contracts and determined each of its identified leases are operating leases. Components of operating leases were as follows (in thousands):

	December 31,	
	2021	2020
Operating lease cost	$ 10,839	$ 10,400
Variable lease cost	2,831	2,300
Total	$ 13,670	$ 12,700

Variable lease expenses were not included in the measurement of the Company's operating ROU assets and lease liabilities. This variable expense consists primarily of the Company's proportionate share of operating expenses, property taxes and insurance and is classified as lease expense, due to the Company's election to not separate lease and non-lease components.

Cash paid for amounts included in the measurement of operating lease liabilities for the year ended December 31, 2021 was $6.9 million and was included in net cash used in operating activities in the Company's Consolidated Statement of Cash Flows.

Rent expense related to lease agreements was $10.8 million, $10.4 million, and $7.9 million for the years ended December 31, 2021, 2020 and 2019, respectively. Future minimum payments under lease obligations at December 31, 2021 consist of the following (in thousands):

	Total
2022	$ 6,605
2023	7,332
2024	7,486
2025	7,566
2026	7,543
Thereafter	23,310
Total lease payments	59,842
Less:	
Imputed interest	(11,761)
Total	$ 48,081
Reported as of December 31, 2021:	
Short-term portion of lease liabilities (included in other accrued liabilities on the Consolidated Balance Sheet)	$ 4,026
Long-term portion of lease liabilities	44,055
Total	$ 48,081

As of December 31, 2021, the weighted-average remaining lease term is 8.0 years and the weighted-average incremental borrowing rate used to determine the operating lease liability was 5.6% for the Company's operating leases.

Contractual Commitments

The following table sets forth the non-cancelable material contractual commitments under manufacturing-related supplier arrangements as of December 31, 2021 (in thousands):

Party	Total commitments	Expiry date
Brammer Bio MA - a Thermo Fisher Scientific Inc. subsidiary	$ 3,727	December 2022
Lonza Netherlands, B.V.	7,267	December 2022
Total contractual commitments	$ 10,994	

The Company also had $0.8 million of license obligations related to its intellectual property as of December 31, 2021.

Contingencies

Sangamo is not party to any material pending legal proceeding. From time to time, Sangamo may be involved in legal proceedings arising in the ordinary course of business.

NOTE 8 – STOCKHOLDERS' EQUITY

Preferred Stock

The Company's Certificate of Incorporation authorizes the Company to issue up to 5,000,000 shares of preferred stock, which may be issued at the discretion of the Company's Board of Directors. As of December 31, 2021, no shares of the Company's preferred stock have been issued or are outstanding.

Common Stock

In June 2020, the Company's stockholders approved an amendment to the Company's Certificate of Incorporation to increase the total number of shares of the Company's common stock authorized for issuance from 160,000,000 shares to 320,000,000 shares. As of December 31, 2021, 145,921,530 shares of the Company's common stock are outstanding.

In connection with the collaboration agreement with BIMA described in Note 4 of these Consolidated Financial Statements, the Company entered into a stock purchase agreement with BIMA, pursuant to which BIMA agreed to purchase the Biogen Shares at a price per share of $9.2137, for an aggregate purchase price of $225.0 million. The Company closed the sale of the Biogen Shares in April 2020.

In April 2019, the Company completed an underwritten public offering of its common stock, in which the Company sold an aggregate of 12.7 million shares of its common stock at a public offering price of $11.50 per share. The net proceeds to the Company from the sale of shares in this offering, after deducting underwriting discounts and commissions and other offering expenses, were approximately $136.3 million.

At-the-Market Offering Agreement

In August 2020, the Company entered into an Open Market Sale Agreement℠ with Jefferies LLC ("Jefferies") with respect to an at-the-market offering program under which the Company may offer and sell, from time to time at its sole discretion, shares of the Company's common stock having an aggregate offering price of up to $150.0 million through Jefferies as the Company's sales agent or principal. The Company is not obligated to sell any shares under the sales agreement. As of December 31, 2021, the Company sold 2,007,932 shares of its common stock for net proceeds of approximately $27.1 million. As of December 31, 2020, no shares had been sold under the sales agreement.

2018 Equity Incentive Plan

In May 2020, the Company's stockholders approved an amendment and restatement of the 2018 Equity Incentive Plan (the "2018 Plan"), to, among other things, increase the aggregate number of shares of the Company's common stock reserved for issuance under the 2018 Plan by 9,900,000 shares.

The exercise price of a stock option granted under the 2018 Plan may not be less than 100% of the fair market value of the Company's common stock subject to the stock option on the date of grant, and the option term will not exceed 10 years. If the person to whom the stock option is granted is a 10% stockholder of the Company, and the stock option granted qualifies as an incentive stock option, then the exercise price per share will not be less than 110% of the fair market value of the Company's common stock on the date of grant, and the option term will not exceed five years. Generally, stock options granted under the 2018 Plan vest over four years at a rate of 25% on the one-year anniversary of the date of grant and 1/48 per month thereafter and expire 10 years after the date of grant, or earlier upon termination of employment or services to the Company.

The number of shares of common stock reserved for issuance under the 2018 Plan will be reduced: (i) on a 1-for-1 basis for each share of common stock subject to a stock option or stock appreciation right granted under the plan, (ii) by a fixed ratio of 1.33 shares of common stock for each share of common stock issued pursuant to a full-value award granted under the plan.

Shares subject to any outstanding stock options or other awards under the 2018 Plan that expire or otherwise terminate prior to the issuance of the shares subject to those stock options or awards will be available for subsequent issuance under the 2018 Plan. Any unvested shares issued under the 2018 Plan that the Company subsequently purchases, pursuant to repurchase rights under the 2018 Plan, will be added back to the number of shares reserved for issuance under the 2018 Plan on a 1-for-1 basis or a 1.33-for-1 basis (depending on the ratio at which the share reserve was debited for the original award) and will accordingly be available for subsequent issuance in accordance with the terms of the 2018 Plan.

As of December 31, 2021, there were 7,799,855 shares of the Company's common stock reserved for future awards under the Company's 2018 Plan.

2020 Employee Stock Purchase Plan

In May 2021, the Company's stockholders approved the Company's 2020 Employee Stock Purchase Plan ("the ESPP"). The ESPP provides for a total of 5.0 million shares of common stock reserved for issuance thereunder. Eligible employees may purchase common stock at 85% of the lesser of the fair market value of the Company's common stock on the first day of the applicable two-year offering period or the last day of the applicable six-month purchase period. As of December 31, 2021, there were 4,782,452 shares of the Company's common stock reserved for future issuance under the ESPP.

Stock Option Activity

A summary of the Company's stock option activity is as follows:

	Number of Shares	Weighted-Average Exercise per Share Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
			(in years)	(in thousands)
Options outstanding at December 31, 2020	11,478,698	$ 10.02		
Options granted	3,619,775	$ 11.13		
Options exercised	(725,058)	$ 7.79		
Options canceled	(2,410,138)	$ 10.67		
Options outstanding at December 31, 2021	11,963,277	$ 10.36	7.30	$ 4,603
Options exercisable at December 31, 2021	6,541,228	$ 10.51	6.14	$ 3,968

The intrinsic value of options exercised was $2.8 million, $5.4 million and $4.7 million during the years ended December 31, 2021, 2020 and 2019, respectively.

Restricted Stock Units

During the years ended December 31, 2021, 2020 and 2019, the Company awarded 2,140,785, 2,517,101, and 834,745 RSUs, respectively. The RSUs awarded in the years ended December 31, 2021, 2020 and 2019 had an average grant date fair value per award of $11.16, $8.06 and $9.49, respectively. These awards generally vest in a series of three successive equal annual installments. The aggregate fair value of RSUs vested during the years ended December 31, 2021, 2020 and 2019 was $9.0 million, $3.7 million and $2.0 million, respectively.

A summary of the Company's RSU activity is as follows:

	Number of Shares	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
		(in years)	(in thousands)
RSUs outstanding at December 31, 2020	2,671,528		
RSUs awarded	2,140,785		
RSUs released	(985,350)		
RSUs forfeited	(687,369)		
RSUs outstanding at December 31, 2021	3,139,594	1.02	$ 23,547

RSUs that vested in the years ended December 31, 2021, 2020 and 2019 were net-share settled such that the Company withheld shares with value equivalent to the employees' minimum statutory obligation for the applicable income and other

employment taxes and remitted the cash to the appropriate taxing authorities. The total shares withheld were approximately 293,120, 90,617, and 39,160 for the years ended December 31, 2021, 2020 and 2019, respectively, and were based on the value of the RSUs on their respective issuance dates as determined by the Company's closing stock price. Total payments for the employees' tax obligations to taxing authorities were $3.3 million, $0.8 million and $0.4 million in the years ended December 31, 2021, 2020 and 2019, respectively and are reflected as a financing activity within the accompanying Consolidated Statements of Cash Flows. These net-share settlements had the effect of share repurchases by the Company as they reduced and retired the number of shares that would have otherwise been issued as a result of the vesting and did not represent an expense to the Company.

NOTE 9 – STOCK-BASED COMPENSATION

The following table shows total stock-based compensation expense recognized in the accompanying Consolidated Statements of Operations (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Research and development	$ 19,534	$ 13,523	$ 10,135
General and administrative	13,422	12,185	9,195
Total stock-based compensation expense	$ 32,956	$ 25,708	$ 19,330

As of December 31, 2021, total stock-based compensation expense to be recognized in future periods related to unvested stock options was $31.6 million, which is expected to be expensed over a weighted-average period of 2.59 years. As of December 31, 2021, total stock-based compensation expense to be recognized in future periods related to unvested RSUs was $21.8 million, which is expected to be expensed over a weighted-average period of 1.76 years. There was no capitalized stock-based employee compensation expense as of December 31, 2021, 2020 or 2019.

Valuation Assumptions

Employee stock-based compensation expense was determined using the Black-Scholes option valuation model for stock options and employee share purchases under the ESPP. Option valuation models require the input of subjective assumptions and these assumptions can vary over time. The fair value of RSUs was based on the closing price of the underlying common stock on the date of grant.

The Company bases its determination of expected volatility through its assessment of the historical volatility of its common stock. The Company relied on its historical exercise and post-vested termination activity for estimating its expected term for use in determining the fair value of these options.

The weighted-average estimated fair value per share of options granted during the years ended December 31, 2021, 2020 and 2019 was $7.34, $5.25, and $6.37, respectively, based upon the assumptions used in the Black-Scholes valuation model. The assumptions used for estimating the fair value of the employee stock options were as follows:

	Year Ended December 31,		
	2021	2020	2019
Risk-free interest rate	0.95-1.22%	0.34-0.61%	1.68-2.25%
Expected term (in years)	5.46-5.52	5.51-5.57	5.50-5.62
Expected dividend yield of stock	—	—	—
Expected volatility	77.30-79.77%	77.61-80.32%	76.46-78.39%

Employees purchased 433,107, 274,382 and 249,364 shares of common stock through the ESPP at a weighted-average exercise price of $7.78, $7.34, and $8.53 per share during the years ended December 31, 2021, 2020 and 2019, respectively. The weighted-average estimated fair values of shares purchased under the Company's ESPP during the years ended December 31, 2021, 2020 and 2019 were $4.48, $8.02 and $4.70, respectively, based upon the assumptions used in the Black-Scholes valuation model.

The assumptions used for estimating the fair value of the ESPP purchase rights are as follows:

	Year Ended December 31,		
	2021	2020	2019
Risk-free interest rate	0.01-2.80%	1.53-2.80%	1.53-2.42%
Expected term (in years)	0.01-2.0	0.5-2.0	0.5-2.0
Expected dividend yield of stock	—	—	—
Expected volatility	32.54-97.88%	51.02-91.96%	51.02-91.96%

NOTE 10 – EMPLOYEE BENEFIT PLAN

The Company sponsors a defined-contribution savings plan under Section 401(k) of the Internal Revenue Code covering all full-time employees (“Sangamo 401(k) Plan”). The Sangamo 401(k) Plan is intended to qualify under Section 401 of the Internal Revenue Code.

The Company matched employee contributions equal to 100% in 2021 and 50% for the first 8% in 2020 and 2019, up to a limit of $4,000 in 2021, 2020 and 2019. Matching funds are fully vested when contributed. Contributions to the Sangamo 401(k) Plan by the Company were $1.5 million, $1.2 million, and $0.9 million for the years ended December 31, 2021, 2020 and 2019, respectively.

NOTE 11 – INCOME TAXES

The domestic and foreign components of loss before income taxes were as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Domestic	$ (185,216)	$ (126,624)	$ (77,354)
Foreign	7,225	5,847	(18,065)
Loss before income taxes	$ (177,991)	$ (120,777)	$ (95,419)

Income tax expense consisted of the following (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Income tax expense:			
Current:			
Federal	$ —	$ —	$ —
State	—	133	—
Foreign	886	686	—
Subtotal	886	819	—
Deferred:			
Federal	—	—	—
State	—	—	—
Foreign	(580)	(474)	—
Subtotal	(580)	(474)	—
Income tax expense	$ 306	$ 345	$ —

The difference between the income tax expense and the amount computed by applying the federal statutory income tax rate to loss before income taxes is explained as follows (in thousands):

	Year Ended December 31,		
	2021	2020	2019
Tax at federal statutory rate	$ (37,372)	$ (25,363)	$ (20,038)
State taxes, net	(6,734)	(3,168)	(9,597)
Foreign rate differential	362	376	(665)
Global Intangible Low-taxed Income	637	1,335	—
Non-deductible stock-based compensation	2,770	4,232	2,817
Research credits	(5,230)	(3,657)	(3,429)
Change in valuation allowance	45,373	26,537	29,655
Other	500	53	1,257
Income tax expense	$ 306	$ 345	$ —

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

	December 31,	
	2021	2020
Assets:		
Deferred tax assets:		
Net operating loss carryforwards	$ 159,740	$ 164,276
Research and development tax credit carryforwards	35,260	27,679
Stock-based compensation	6,691	5,321
Deferred revenue	61,114	20,681
Fixed assets	10,130	10,525
Lease liability	11,279	10,251
Accruals and reserves	1,119	430
Other	106	308
Total deferred tax asset	285,439	239,471
Valuation allowance	259,820	214,351
Deferred tax assets	25,619	25,120
Liabilities:		
Intangible assets	(13,856)	(14,321)
Operating lease right-of-use assets	(17,348)	(17,510)
Deferred tax liabilities	(31,204)	(31,831)
Total net deferred tax liabilities	$ (5,585)	$ (6,711)

The deferred tax assets and liabilities based on tax jurisdictions are presented on the Consolidated Balance Sheets as follows (in thousands):

	December 31,	
	2021	2020
Deferred tax assets (included in Other non-current assets on the Consolidated Balance Sheets)	$ 1,060	$ 474
Deferred tax liabilities	(6,645)	(7,185)
Net deferred tax liabilities	$ (5,585)	$ (6,711)

A valuation allowance is recorded when it is more likely than not that all or some portion of the deferred income tax assets will not be realized. The Company regularly assesses the need for a valuation allowance against its deferred income tax assets by considering both positive and negative evidence related to whether it is more likely than not that the Company's deferred income tax assets will be realized. In evaluating the Company's ability to recover its deferred income tax assets within the jurisdiction from which they arise, the Company considers all available positive and negative evidence, including scheduled reversals of deferred income tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. Accordingly, based upon the Company's analysis of these factors the net deferred tax assets have been substantially offset by a valuation allowance. The valuation allowance increased by $45.5 million, $26.6 million and $29.6 million for the years ended December 31, 2021, 2020 and 2019, respectively.

As of December 31, 2021, Sangamo had net operating loss carryforwards for federal and state income tax purposes of approximately $605.6 million and $253.9 million, respectively. The federal net operating loss generated before 2018 will begin to expire in 2022 and will keep expiring through 2037, if not utilized. Federal net operating loss generated from 2018 will carry forward indefinitely. If not utilized, the state net operating loss carryforwards will begin to expire in 2029, respectively. The Company's French net operating loss carryforward balance is $144.1 million, which carries over indefinitely. The Company also has federal and state research tax credit carryforwards of $28.2 million and $22.1 million, respectively. The federal research credits will begin to expire in 2022, while the state research credits have no expiration date. Utilization of the Company's net operating loss carryforwards and research tax credit carryforwards may be subject to substantial annual limitations due to the ownership change limitations provided by the Internal Revenue Code and similar state provisions. The annual limitation could result in the expiration of the net operating loss carryforwards and research tax credit carryforwards before utilization.

The Company's policy is to reinvest the earnings of its non-U.S. subsidiaries in those operations. The Company does not provide for U.S. taxes on the earnings of foreign subsidiaries because the Company intends to reinvest such earnings offshore indefinitely. However, if these funds were repatriated, the Company would be required to accrue and pay applicable U.S. taxes and withholding taxes. Due to the cumulative losses generated in foreign countries there are no earnings to repatriate.

The Company files federal and state income tax returns with varying statutes of limitations. The tax years from 2002 forward remain open to examination due to the carryover of net operating losses or tax credits. The Company also files the United Kingdom and French income tax returns, and the tax years from 2008 and thereafter remain open in the United Kingdom, and the tax years 2018 and thereafter in France are still subject to examination.

The Company's practice is to recognize interest and/or penalties related to income tax matters in income tax expense. As of December 31, 2021, the Company had $0.1 million accrued interest and/or penalties. The unrecognized tax benefits may change during the next year for items that arise in the ordinary course of business. In the event that any unrecognized tax benefits are recognized, the amount that would impact the effective tax rate was $1.2 million, $0.6 million, and zero as of December 31, 2021, 2020 and 2019, respectively.

The following table summarizes the activity related to the Company's unrecognized tax benefits (in thousands):

	December 31,		
	2021	2020	2019
Beginning balance	$ 12,892	$ 11,630	$ 6,288
Additions based on tax positions related to the current year	2,454	2,834	5,393
Additions for tax positions of prior years	130	1,982	—
Reductions for tax positions of prior years	(414)	(3,554)	(51)
Ending balance	$ 15,062	$ 12,892	$ 11,630

NOTE 12 – RELATED PARTY TRANSACTION

The Company acquired 185,400 vested free shares from a former executive of Sangamo, pursuant to the exercise of the Free Shares Options for approximately $0.4 million of cash during the year December 31, 2020. There were no material related party transactions during the year ended December 31, 2021.

ITEM 9 – CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A – CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our Exchange Act reports 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 our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Under the supervision of our principal executive officer and acting principal financial officer, we evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15€ and 15d-15(e) of the Exchange Act) as of December 31, 2021. Based on that evaluation, as of December 31, 2021, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective at the reasonable assurance level.

Inherent Limitations on Controls and Procedures

Our management, including the principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures and our internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well designed and operated, can only provide reasonable assurances that the objectives of the control system are met. The design of a control system reflects resource constraints; the benefits of controls must be considered relative to their costs. Because there are inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, for our company have been or will be detected. As these inherent limitations are known features of the disclosure and financial reporting processes, it is possible to design into the processes safeguards to reduce, though not eliminate, these risks. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls is based in part upon certain assumptions about the likelihood of future events. While our disclosure controls and procedures and our internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives, there can be no assurance that any design will succeed in achieving its stated goals under all future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with the policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining an adequate internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act) for our company. Our management, including our principal executive officer and principal financial officer, conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in the "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on an evaluation under that framework, our management concluded that our internal control over financial reporting was effective at the reasonable assurance level as of December 31, 2021.

The effectiveness of our internal control over financial reporting as of December 31, 2021 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the three months ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

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

Opinion on Internal Control over Financial Reporting

We have audited Sangamo Therapeutics, Inc.'s internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Sangamo Therapeutics, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the 2021 consolidated financial statements of the Company and our report dated February 24, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ ERNST & YOUNG LLP

Redwood City, California
February 24, 2022

ITEM 9B – OTHER INFORMATION

None.

ITEM 9C – DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

Certain information required by Part III is omitted from this Report on Form 10-K because we intend to file our definitive Proxy Statement for our next Annual Meeting of Stockholders, pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, or the 2022 Proxy Statement, no later than 120 days following the end of the fiscal year covered by this Annual Report on Form 10-K, and certain information to be included in the 2022 Proxy Statement is incorporated herein by reference.

ITEM 10 – DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is to be included in our 2022 Proxy Statement as follows:

- The information relating to our directors and nominees for director is to be included in the section entitled “Election of Directors;”
- The information relating to our executive officers is to be included in the section entitled “Executive Officers;”
- The information relating to our audit committee and audit committee financial expert is to be included in the section entitled “Election of Directors – Audit Committee;”
- The information relating to the procedures by which stockholders may recommend nominees to our Board of Directors is to be included in the section entitled “Questions and Answers About These Proxy Materials and Voting;” and
- The information regarding compliance with Section 16(a) of the Exchange Act is to be included in the section entitled “Delinquent Section 16(a) Reports.”

Such information is incorporated herein by reference to our 2022 Proxy Statement, provided that if the 2022 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

ITEM 11 – EXECUTIVE COMPENSATION

The information required by this item is to be included in our 2022 Proxy Statement under the sections entitled “Executive Compensation,” “Director Compensation,” “Election of Directors – Compensation Committee Interlocks and Insider Participation” and “Compensation Committee Report” and is incorporated herein by reference, provided that if the 2022 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

ITEM 12 – SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item with respect to equity compensation plans is to be included in our 2022 Proxy Statement under the section entitled “Equity Compensation Plan Information” and the information required by this item with respect to security ownership of certain beneficial owners and management is to be included in our 2022 Proxy Statement under the section entitled “Security Ownership of Certain Beneficial Owners and Management” and in each case is incorporated herein by reference, provided that if the 2022 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

ITEM 13 – CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is to be included in our 2022 Proxy Statement under the sections entitled “Certain Relationships and Related Transactions” and “Election of Directors —Board Independence” and is incorporated herein by reference, provided that if the 2022 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

ITEM 14 – PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is to be included in our 2022 Proxy Statement under the section entitled “Ratification of Independent Registered Public Accounting Firm” and is incorporated herein by reference, provided that if the 2022 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

PART IV

ITEM 15 – EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

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

1. Financial Statements—See Index to Consolidated Financial Statements in Item 8.

2. Financial Statement Schedules—Not Applicable.

3. Exhibits

Exhibit Number	Description of Document
2.1	Share Purchase Agreement dated July 20, 2018 among the Company and the Selling TxCell Shareholders named on the signature page thereto (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed July 23, 2018).
2.2	Amendment Agreement to the Share Purchase Agreement dated October 1, 2018 between the Company and TxCell S.A. (incorporated by reference to Exhibit 2.2 to the Company's Current Report on Form 8-K filed November 6, 2018).
2.3	Tender Offer Agreement dated July 20, 2018 between the Company and TxCell S.A. (incorporated by reference to Exhibit 2.2 to the Company's Current Report on Form 8-K filed July 23, 2018).
2.4	Amendment No. 1 to the Tender Offer Agreement dated October 1, 2018 between the Company and TxCell S.A. (incorporated by reference to Exhibit 2.4 to the Company's Current Report on Form 8-K filed November 6, 2018).
3.1	Seventh Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q filed August 9, 2017).
3.2	Fourth Certificate of Amendment of the Seventh Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed May 22, 2020).
3.3	Fourth Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed December 15, 2020).
4.1	Description of Capital Stock (incorporated by reference to Exhibit 4.1 of the Company's Annual Report on Form 10-K filed on February 24, 2021)
4.2	Form of Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed January 6, 2017).
10.1(+)	Amended and Restated 2013 Stock Incentive Plan (the "2013 Plan") (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed May 10, 2018).
10.2(+)	Amended and Restated 2018 Equity Incentive Plan (the "2018 Plan") (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed May 22, 2020).
10.3(+)	2018 Equity Incentive Plan French Stock-Options Sub-Plan (the "French Options Sub-Plan") (incorporated by reference to Exhibit 10.3 to the Company's Annual Report on Form 10-K filed March 1, 2019).
10.4(+)	2018 Equity Incentive Plan French Restricted Stock Unit Award Sub-Plan (the "French RSU Sub-Plan") (incorporated by reference to Exhibit 10.4 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.5(+)	2020 Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.1 to the Company's Registration Statement on Form S-8, filed October 15, 2020).
10.6(+)	Form of Restricted Stock Unit Award Agreement under the 2013 Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.7(+)	Form of Notice of Grant of Stock Option under the 2013 Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.8(+)	Form of Stock Option Agreement under the 2013 Plan (incorporated by reference to Exhibit 10.4 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.9(+)	Form of Notice of Grant of Stock Option – Director Initial Grant under the 2013 Plan (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.10(+)	Form of Notice of Grant of Stock Option – Director Annual Grant under the 2013 Plan (incorporated by reference to Exhibit 10.6 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.11(+)	Form of Automatic Stock Option Agreement under the 2013 Plan (incorporated by reference to Exhibit 10.7 to the Company's Current Report on Form 8-K filed June 14, 2013).
10.12(+)	Form of Stock Option Grant Notice and Form of Option Agreement (U.S. employees) under the 2018 Plan (incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K filed June 15, 2018).

Exhibit Number	Description of Document
10.13(+)	Form of Stock Option Grant Notice and Form of Option Agreement (non-employee directors) under the 2018 Plan (incorporated by reference to Exhibit 99.3 to the Company's Current Report on Form 8-K filed June 15, 2018).
10.14(+)	Form of Stock Option Grant Notice and Form of Option Agreement (U.K. employees) under the 2018 Plan (incorporated by reference to Exhibit 99.4 to the Company's Current Report on Form 8-K filed June 15, 2018).
10.15(+)	Form of Stock Option Grant Notice (French employees) under the 2018 Plan and the French Options Sub-Plan (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K filed March 1, 2019).
10.16(+)	Form of Stock Option Agreement (French Employees) under the 2018 Plan and the French Options Sub-Plan (incorporated by reference to Exhibit 10.15 to the Company's Annual Report on Form 10-K filed March 1, 2019).
10.17(+)	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (U.S. employees) under the 2018 Plan (incorporated by reference to Exhibit 99.5 to the Company's Current Report on Form 8-K filed June 15, 2018).
10.18(+)	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (non-employee directors) under the 2018 Plan (incorporated by reference to Exhibit 99.6 to the Company's Current Report on Form 8-K filed June 15, 2018).
10.19(+)	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (U.K. employees) under the 2018 Plan (incorporated by reference to Exhibit 99.7 to the Company's Current Report on Form 8-K filed June 15, 2018).
10.20(+)	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (French employees) under the 2018 Plan and the French RSU Sub-Plan. (incorporated by reference to Exhibit 10.19 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.21(+)	Amended and Restated Severance Plan (incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.22(+)	Amended and Restated Incentive Compensation Plan (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed May 10, 2018).
10.23(+)	Form of Indemnity Agreement (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed May 11, 2020).
10.24(+)	Employment Agreement between the Company and Alexander (Sandy) Macrae, dated May 17, 2016 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed August 4, 2016).
10.25(+)	Employment Agreement between the Company and Sung Lee effective as of October 31, 2019 (incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K filed February 28, 2020).
10.26(+)	Letter Agreement between the Company and Sung Lee dated as of January 22, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed January 28, 2021).
10.27(+)	Employment Agreement between the Company and Gary Loeb effective as of June 6, 2019 (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K filed February 28, 2020)
10.28(+)	Employment Agreement between the Company and Rolf Andrew (Andy) Ramelmeier effective as of November 1, 2017 (incorporated by reference to Exhibit 10.26 to the Company's Annual Report on Form 10-K filed February 28, 2020).
10.29(+)	Letter Agreement Regarding Andrew Ramelmeier Special Bonus (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed August 5, 2020).
10.30(+)	Letter Agreement between the Company and Jason Fontenot dated as of January 28, 2019 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed May 4, 2021).
10.31(+)	Letter Agreement between the Company and Robert J. Schott dated as of January 6, 2021 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q filed May 4, 2021).
10.32(+)	Letter Agreement between the Company and Prathyusha Duraibabu dated as of May 21, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed August 5, 2021).
10.33(+)	Letter Agreement between the Company and Scott Willoughby dated as of August 2, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed November 4, 2021).
10.34(+)	Letter Agreement between the Company and David Mark McClung dated November 1, 2021.

Exhibit Number	Description of Document
10.35(+)	Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated May 23, 1997 (incorporated by reference to Exhibit 10.5 to the Company's Registration Statement on Form S-1 (Reg. No. 333-30314), as amended, filed February 24, 2000).
10.36	First Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated March 12, 2004 (incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10-K filed February 23, 2005).
10.37	Second Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated March 15, 2007 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed November 4, 2013).
10.38	Third Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated August 1, 2013 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed November 4, 2013).
10.39	Fourth Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated June 10, 2016 (incorporated by reference to Exhibit 10.33 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.40	Fifth Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated July 10, 2017 (incorporated by reference to Exhibit 10.34 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.41	Sixth Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated May 11, 2018 (incorporated by reference to Exhibit 10.9 to the Company's Quarterly Report on Form 10-Q filed August 8, 2018).
10.42	Seventh Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated May 20, 2020 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q filed August 5, 2020).
10.43	Eighth Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated May 29, 2020 (incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q filed August 5, 2020).
10.44	Ninth Amendment to Triple Net Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated January 4, 2021 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed May 4, 2021).
10.45	Amended and Restated Office and Laboratory Lease between the Company and Point Richmond R&D Associates II, LLC, dated October 18, 2021.
10.46	Lease Agreement between the Company and Marina Boulevard Property, LLC dated November 3, 2017 (incorporated by reference to Exhibit 10.21 to the Company's Annual Report on Form 10-K filed March 1, 2018).
10.47	First Amendment to Lease Agreement between the Company and Marina Boulevard Property, LLC dated January 1, 2019 (incorporated by reference to Exhibit 10.37 to the Company's Annual Report on Form 10-K (File No. 000-30171), filed with the SEC on March 1, 2019).
10.48	Open Market Sale Agreement between the Company and Jefferies LLC, dated August 5, 2020 (incorporated by reference to Exhibit 1.1 to the Company's Quarterly Report on Form 10-Q filed August 5, 2020).
10.49	Amendment No. 1 to Open Market Sale Agreement between the Company and Jefferies LLC, dated May 5, 2021 (incorporated by reference to Exhibit 1.3 to the Company's Registration Statement on Form S-3 filed May 5, 2021).
10.50†	Amended and Restated Collaboration and License Agreement between the Company and Shire International GmbH, dated September 1, 2015 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed October 30, 2015).
10.51†	Global Research, Development and Commercialization Collaboration and License Agreement between the Company and Biogen MA Inc. (Bioverativ Inc.), dated January 8, 2014 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed May 7, 2014).
10.52†	Letter Amendment to Global Research, Development and Commercialization Collaboration and License Agreement between the Company and Biogen MA Inc. (Bioverativ Inc.), dated December 14, 2015 (incorporated by reference to Exhibit 10.63 to the Company's Annual Report on Form 10-K filed February 18, 2016).
10.53†	Letter Agreement and Waiver between the Company and Biogen MA Inc. (Bioverativ Inc.), dated March 24, 2016 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed May 5, 2016).

Exhibit Number	Description of Document
10.54†	Collaboration and License Agreement between the Company and Pfizer Inc., dated May 10, 2017 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed August 9, 2017).
10.55‡	Letter Amendment, dated December 17, 2019, to the Collaboration and License Agreement between the Company and Pfizer Inc., dated May 10, 2017 (incorporated by reference to Exhibit 10.45 to the Company's Annual Report on Form 10-K filed February 28, 2020).
10.56†	Research Collaboration and License Agreement between the Company and Pfizer Inc., dated December 28, 2017 (incorporated by reference to Exhibit 10.40 to the Company's Annual Report on Form 10-K filed March 1, 2018).
10.57†	Amendment No. 1 to Research Collaboration and License Agreement between the Company and Pfizer Inc., dated March 21, 2019 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed May 8, 2019).
10.58‡	Amendment No. 2 to Research Collaboration and License Agreement between the Company and Pfizer Inc., dated July 31, 2020 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed November 4, 2020).
10.59†	Amended and Restated Collaboration and License Agreement between the Company and Kite Pharma, Inc., dated September 11, 2019 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed November 6, 2019).
10.60‡	Collaboration and License Agreement among the Company, Biogen MA, Inc. and Biogen International GmbH, dated February 26, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed May 11, 2020).
10.61	Stock Purchase Agreement between the Company and Biogen MA, Inc., dated February 26, 2020 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed May 11, 2020).
10.62‡	Collaboration and License Agreement between the Company and Novartis Institutes for BioMedical Research, Inc., dated July 27, 2020 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed November 4, 2020).
21.1	Subsidiaries of the Company.
23.1	Consent of Independent Registered Public Accounting Firm.
24.1	Power of Attorney (included on signature page).
31.1	Rule 13a-14(a) Certification of Principal Executive Officer.
31.2	Rule 13a-14(a) Certification of Principal Financial Officer.
32.1*	Certification Pursuant to 18 U.S.C. Section 1350.
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	The cover page from Sangamo's Annual Report on Form 10-K for the year ended December 31, 2021, is formatted in Inline XBRL and it is contained in Exhibit 101

† *Confidential treatment has been granted for certain information contained in this document pursuant to an order of the SEC. Such information has been omitted and filed separately with the SEC.*

‡ Certain portions of this exhibit (indicated by "[*]") have been omitted in accordance with 17 CFR § 229.601(b).

(+) Indicates management contract or compensatory plan or arrangement.

* *The certifications attached as Exhibit 32.1 accompany this Annual Report on Form 10-K pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed "filed" by the Company for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.*

ITEM 16 – FORM 10-K SUMMARY

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on February 24, 2022.

Date: February 24, 2022

SANGAMO THERAPEUTICS, INC.

By: /s/ ALEXANDER D. MACRAE

Alexander D. Macrae

President and Chief Executive Officer

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Alexander D. Macrae and Scott Willoughby, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their, his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ ALEXANDER D. MACRAE **Alexander D. Macrae, M.B., Ch.B., Ph.D.**	President, Chief Executive Officer (Principal Executive Officer) and Director	February 24, 2022
/s/ PRATHYUSHA DURAIBABU **Prathyusha Duraibabu**	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	February 24, 2022
/s/ H. STEWART PARKER **H. Stewart Parker**	Director and Chair of the Board	February 24, 2022
/s/ ROBERT F. CAREY **Robert F Carey**	Director	February 24, 2022
/s/ KENNETH J. HILLAN **Kenneth J. Hillan, M.B., Ch.B.**	Director	February 24, 2022
/s/ JAMES R. MEYERS **James R. Meyers**	Director	February 24, 2022
/s/ JOHN H. MARKELS **John H. Markels, Ph.D.**	Director	February 24, 2022
/s/ SAIRA RAMASASTRY **Saira Ramasastry**	Director	February 24, 2022
/s/ KAREN L. SMITH **Karen L. Smith, M.D., Ph.D., M.B.A., L.L.M.**	Director	February 24, 2022
/s/ JOSEPH S. ZAKRZEWSKI **Joseph S. Zakrzewski**	Director	February 24, 2022

EXECUTIVE EMPLOYMENT AGREEMENT

Employment Agreement ("Agreement") made effective as of the 1st day of November 2021 by and between Sangamo Therapeutics, Inc., a Delaware corporation (the "Company"), and David Mark McClung ("Executive") (collectively, the "Parties").

R E C I T A L S

WHEREAS, the Company desires to promote Mr. McClung to Executive Vice President, Chief Operating Officer, and Executive desires to be promoted by the Company, on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises set forth herein, the Parties agree follows:

1. **Employment**.

The Company hereby agrees to employ Executive and Executive hereby agrees to accept such employment, on the terms and conditions set forth in this Agreement, with an effective date of November 1, 2021 (the "Effective Date"). To the extent of any inconsistency with Mr. McClung's prior employment agreements with the Company, this Agreement shall supersede such prior agreements.

2. **At-Will Employment**.

Executive shall be employed on an at-will basis. Either Executive or the Company may terminate employment at any time, with or without cause, and with or without advance notice.

3. **Position, Duties and Obligations**.

(a) As of the Effective Date, Executive shall be appointed as the Executive Vice President, Chief Operating Officer and shall serve in such position, and in such other positions as the Board and the Company may from time to time reasonably determine, subject at all times to the direction, supervision and authority of the Chief Executive Officer (collectively, your "Duties").

(b) During Executive's employment, Executive shall perform Executive's Duties faithfully and to the best of Executive's ability, and shall devote substantially all of Executive's business time, attention, knowledge, skills and interests to the business of the Company (and its affiliates or subsidiaries).

(c) During Executive's employment, Executive shall not, whether directly or indirectly, render any services of a commercial or professional nature to any other person or organization, whether for compensation or otherwise, without the prior written consent of the Chief Executive Officer.

(d) The foregoing in this Section 3 shall not preclude Executive from serving on any corporate, civic or charitable boards or committees on which Executive is serving as of the Effective Date and discloses to the Chief Executive Officer prior to the Effective Date or on which Executive commences service following such date with the Chief Executive Officer's prior written approval, so long as such activities do not interfere with the performance of Executive's responsibilities hereunder.

(e) Executive's principal place of business will continue to be located in Brisbane, California.

(f) Executive represents that Executive may enter into this Agreement, and as of the Effective Date, 1) continue employment with the Company under the terms of this Agreement, and 2) perform the Duties and responsibilities contemplated by this Agreement without violating any other agreement or agreements with other parties including but not limited to and any prior employers.

4. **Compensation and Benefits**.

(a) **Base Compensation.** The Company shall pay to Executive an annual base salary of $470,000 Dollars, prorated for any partial employment period and payable in equal monthly installments in accordance with the Company's payroll schedule. The Compensation Committee of the Board shall annually review the then-current level of Executive's base salary (for increase only) to determine the amount, if any, of change to such salary.

(b) **Annual Performance Bonus.** Executive shall continue to be eligible to earn an annual performance bonus commencing with the 2021 calendar year performance period. The target amount of Executive's annual cash bonus shall remain at 40% percent of Executive's annual base salary. The Board shall have sole discretion to determine whether any annual cash bonus will be paid based upon achievement of both corporate objectives and Executive's personal objectives, and the reasonable discretion to determine that actual amount of any such bonus. Executive must be an employee in good standing on the date that the Board makes such determination in order to earn any such bonus, which determination shall be made by the Board no later than March 31 of the calendar year first following the performance period calendar year. The actual bonus may be more or less than the target amount based upon the Company's achievement over the year. Any bonus to which Executive becomes entitled for a particular calendar year shall be paid in accordance with the terms of the applicable bonus plan, but in no event later than the second payroll period following such Board determination. The Compensation Committee of the Board shall annually review Executive's then target amount for the annual cash bonus (for increase only) to determine the amount, if any, of change to such target amount.

(c) **Executive Severance Plan.** Executive shall continue to be deemed an Eligible Employee and an Executive Officer and entitled to receive certain severance benefits under the Sangamo Therapeutics, Inc. Executive Severance Plan dated February 6, 2019 (the "Severance Plan") subject to the terms and conditions of the Severance Plan.

(d) **Benefits.** Executive will continue to be entitled to the employee benefits generally provided to other executive officers of the Company pursuant to the terms of the applicable benefit plans. Executive will not be subject to a formal paid time off program. Executive is free to take paid time off from work for vacation, medical appointments, and other short-term absences due to illnesses or other personal reasons. If Executive desires to take time off for a duration longer than two (2) weeks manager approval is required. Unlimited paid time off is available from the first day of employment.

(e) **Clawback**. Notwithstanding anything to the contrary in this Agreement, all compensation paid to Executive by the Company (whether payable pursuant to this Agreement or otherwise) will be subject to reduction, recovery and/or recoupment to the extent required by any present or future law, government regulation or stock exchange listing requirement (or any policy adopted by the Company which ensures compliance with the requirements of any such law, government regulation or stock exchange listing requirement).

(f) **Resignation from Positions**. Notwithstanding any other provision of this Agreement to the contrary, upon any termination of employment (whether voluntary or involuntary), Executive, upon written request from the Board, shall immediately resign from any positions Executive has with the Company (or any subsidiary), whether as an executive, officer, employee, consultant, director, trustee, fiduciary or otherwise.

5. **Confidentiality**. Executive agrees to continue to abide by the terms and conditions of the Employee Confidential Information and Invention Assignment Agreement between Executive and the Company, a copy of which has previously been executed and is attached as Exhibit A. Executive further agrees that at all times both during Executive's employment by the Company and after Executive's employment ends, Executive will keep in confidence and trust, and will not use or disclose, except as directed by the Company, any confidential or proprietary information of the Company.

6. **Tax Withholdings**. Any and all cash compensation and other benefits (including without limitation, base salary, annual bonus and sign-on bonus) paid to Executive under this Agreement shall be subject to all applicable tax withholding requirements, and the Company shall make such other deductions as may be required and/or allowed by applicable law and/or as authorized in writing by Executive.

7. **Arbitration**. Any dispute, controversy, or claim, whether contractual or non-contractual, between Executive and the Company shall be resolved by binding arbitration before the Judicial Arbitration and Mediation Service (the "JAMS"), in accordance with the JAMS Employment Arbitration Rules and Procedures, available at www.jamsadr.com. Executive and the Company each agree that before proceeding to arbitration, they will mediate disputes before the JAMS by a mediator approved by the JAMS. If mediation fails to resolve the matter, any subsequent arbitration shall be conducted by an arbitrator approved by the JAMS and mutually acceptable to Executive and the Company. All disputes, controversies, and claims shall be conducted by a single arbitrator, who shall: (i) allow discovery authorized by California Code of Civil Procedure Section 1282, et seq., or any other discovery required by applicable law; and (ii) issue a written award that sets forth the essential findings of fact and conclusions of law on which the award is

based. The arbitrator shall have the authority to award any relief authorized by law in connection with the asserted claims or disputes. Judgment upon the arbitrator's award may be entered in any court having jurisdiction thereof. If Executive and the Company are unable to agree on the mediator or the arbitrator, then the JAMS shall select the mediator/arbitrator. The resolution of the dispute by the arbitrator shall be final, binding, non-appealable, and fully enforceable by a court of competent jurisdiction under the Federal Arbitration Act. The arbitration award shall be in writing and shall include a statement of the reasons for the award. The arbitration shall be held in San Francisco, California. The Company shall pay all JAMS, mediation, and arbitrator's fees and costs, irrespective of who raised the claim and the outcome of arbitration.

8. **Miscellaneous**.

(a) **Governing Law**. This Agreement shall be interpreted, construed, governed and enforced according to the laws of the State of California.

(b) **Attorneys' Fees**. In the event of any controversy, claim or dispute between the parties, arising out of or relating to this Agreement or the breach hereof, or the interpretation hereof, each party shall bear its own legal fees and expenses. Notwithstanding the foregoing, in the event of a finding by any court having jurisdiction over such matter that any party initiating an action under this Agreement failed to have a reasonable prospect of prevailing on its claim, the arbitrator shall have discretion to award the prevailing party attorneys' fees and costs incurred by it with respect to such claim or action. The "prevailing party" means the party determined by the arbitrator to have most nearly prevailed, even if such party did not prevail in all matters, not necessarily the one in whose favor a judgment is rendered.

(c) **Amendments**. No amendment or modification of the terms or conditions of this Agreement shall be valid unless in writing and signed by the Parties hereto.

(d) **Severability**. If any provision of this Agreement as applied to any party or to any circumstance should be adjudged by a court of competent jurisdiction (or determined by the arbitrator) to be void or unenforceable for any reason, the invalidity of that provision shall in no way affect (to the maximum extent permissible by law) the application of such provision under circumstances different from those adjudicated by the court or determined by the arbitrator, the application of any other provision of this Agreement, or the enforceability or invalidity of this Agreement as a whole. Should any provision of this Agreement become or be deemed invalid, illegal or unenforceable in any jurisdiction by reason of the scope, extent or duration of its coverage, then such provision shall be deemed amended to the extent necessary to conform to applicable law so as to be valid and enforceable or, if such provision cannot be so amended without materially altering the intention of the parties, then such provision will be stricken, and the remainder of this Agreement shall continue in full force and effect.

(e) **Successors and Assigns**. The rights and obligations of the Company under this Agreement shall inure to the benefit of and shall be binding upon the successors and assigns of the Company. Executive shall not be entitled to assign any of Executive's rights or obligations under this Agreement.

(f) **Entire Agreement**. This Agreement, along with any other agreements set forth herein, including without limitation, the Proprietary Information and Inventions Agreement, constitutes the entire agreement between the parties with respect to the employment of Executive.

SANGAMO THERAPEUTICS, INC.

By:
Name: Whitney B. Jones

Title: Senior Vice President, Chief People Officer

Name: Whitney B. Jones
Title: Senior Vice President, Chief People Officer

DAVID MARK MCCLUNG

EXHIBIT A

AMENDED AND RESTATED
OFFICE/LABORATORY LEASE

BETWEEN

POINT RICHMOND R&D ASSOCIATES II, LLC (LANDLORD)

AND

SANGAMO THERAPEUTICS, INC. (TENANT)

501 Canal Boulevard
Point Richmond, California

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ARTICLE 1
BASIC LEASE PROVISIONS

1.1 BASIC LEASE PROVISIONS

In the event of any conflict between these Basic Lease Provisions and any other Lease provision, such other Lease provision shall control.

(1) BUILDING AND ADDRESS:

501 Canal Boulevard
Point Richmond, California 94804

(2) LANDLORD AND ADDRESS:

Point Richmond R&D Associates II, LLC
1120 Nye Street, Suite 400
San Rafael, California 94901

Notices to Landlord shall be addressed:

Point Richmond R&D Associates II, LLC
c/o Wareham Property Group
1120 Nye Street, Suite 400
San Rafael, California 94901

With a copy to:

Stewart Ward & Josephson LLP
1601 Response Road, Suite 360
Sacramento, California 95815
Attention: Winnifred C. Ward, Esq.

And to:

Shartsis Friese LLP
One Maritime Plaza, 18th Floor
San Francisco, California 94901
Attention: Senior Real Estate Partner

And with regard to notices to Mortgagee in Section 11.6(a) only:

Unum Life Insurance Company of America
2211 Congress Street, B268
Portland, ME 04122

(3) TENANT AND NOTICE ADDRESS:

(a) Name and Entity:

SANGAMO THERAPEUTICS, INC., a Delaware corporation

(b) Federal Tax Identification Number: 68-0359556

Tenant shall promptly notify Landlord of any change in the foregoing items.

Tenant shall promptly notify Landlord of any change in the foregoing items.

(c) Notices to Tenant shall be addressed:

Sangamo Therapeutics, Inc.
7000 Marina Boulevard
Brisbane, CA 94005
Attn: Facilities/Chris Holman/Katie Cary

With a copy to:

Sangamo Therapeutics, Inc.
7000 Marina Boulevard
Brisbane, CA 94005
Attn: Legal

And to:

Farella Braun + Martel
235 Montgomery Street
17th Floor
San Francisco, California 94104
Attention: Gregory B. Shean

(4) DATE OF LEASE: as of October 18, 2021

(5) TERM: October 1, 2021 (the "Commencement Date"), through August 31, 2031 (the "Expiration Date").

(6) SUITE D TERM: November 1, 2021 (the "Suite D Commencement Date") through the Expiration Date.

(7) MONTHLY BASE RENT:

PERIOD	SUITE A	SUITE C-2	SUITE F	SUITES G, H & J	SUITE K	SUITE D	TOTAL
10/01/21 – 10/31/21	$67,145.00	$10,324.00	$13,106.00	$21,886.31	$12,813.00	$0.00	$125,274.31

PERIOD	SUITE A	SUITE C-2	SUITE F	SUITES G, H & J	SUITE K	SUITE D	TOTAL
11/01/21 – 11/30/21	$67,145.00	$10,324.00	$13,106.00	$21,886.31	$12,813.00	$20,472.32	$145,746.63
12/01/21 – 07/31/22	$67,145.00	$10,582.00	$13,106.00	$21,886.31	$12,813.00	$20,472.32	$146,004.63
08/01/22 – 08/31/22	$67,145.00	$10,582.00	$13,434.00	$21,886.31	$12,813.00	$20,472.32	$146,332.63
09/01/22 – 11/30/22	$68,824.00	$10,582.00	$13,434.00	$22,433.47	$13,133.00	$20,984.12	$149,390.59
12/01/22 – 07/31/23	$68,824.00	$10,846.00	$13,434.00	$22,433.47	$13,133.00	$20,984.12	$149,654.59
08/01/23 – 08/31/23	$68,824.00	$10,846.00	$13,769.00	$22,433.47	$13,133.00	$20,984.12	$149,989.59
09/01/23 – 11/30/23	$70,545.00	$10,846.00	$13,769.00	$22,994.31	$13,461.00	$21,508.73	$153,124.04
12/01/23 – 07/31/24	$70,545.00	$11,117.00	$13,769.00	$22,994.31	$13,461.00	$21,508.73	$153,395.04
08/01/24 – 08/31/24	$70,545.00	$11,117.00	$14,114.00	$22,994.31	$13,461.00	$21,508.73	$153,740.04
09/01/24 – 11/30/24	$72,308.00	$11,117.00	$14,114.00	$23,569.17	$13,798.00	$22,046.45	$156,952.62
12/01/24 – 07/31/25	$72,308.00	$11,395.00	$14,114.00	$23,569.17	$13,798.00	$22,046.45	$157,230.62
08/01/25 – 08/31/25	$72,308.00	$11,395.00	$14,466.00	$23,569.17	$13,798.00	$22,046.45	$157,582.62

09/01/25 – 11/30/25	$74,116.00	$11,395.00	$14,466.00	$24,158.40	$14,143.00	$22,597.61	$160,876.01
12/01/25 – 07/31/26	$74,116.00	$11,680.00	$14,466.00	$24,158.40	$14,143.00	$22,597.61	$161,161.01
08/01/26 – 08/31/26	$74,116.00	$11,680.00	$14,828.00	$24,158.40	$14,143.00	$22,597.61	$161,523.01
	COMBINED PREMISES						
09/01/26 – 08/31/27	$166,270.89						
09/01/27 – 08/31/28	$171,359.76						
09/01/28 – 08/31/29	$176,500.55						
09/01/29 – 08/31/30	$181,795.57						
09/01/30 – 08/31/31	$187,249.44						

(8) PREMISES: The leasable areas within the Building, as outlined on Exhibit A hereto, containing a total Rentable Area of 59,485 square feet and comprised of:

(a) Suite A*: 26,629 square feet

(b) Suite C-2: 5,165 square feet

(c) Suite F: 6,153 square feet

(d) Suites G, H, and J: 8,541 square feet

(e) Suite K: 5,000 square feet

(f) Suite D: 7,997 square feet

*Previously identified as Suites A, B and C-1 in the Existing Lease.

(9) SECURITY DEPOSIT: One Hundred Sixty-six Thousand Two Hundred Seventy and 89/100 Dollars ($166,270.89) (i.e., Fifty-three Thousand Seven Hundred Nineteen and 50/100 Dollars ($53,719.50) held under the Existing Lease, plus the additional sum of One Hundred Twelve Thousand Five Hundred Fifty-one and 39/100 Dollars ($112,551.39); the "Additional Security Deposit").

(10) TENANT'S USE OF PREMISES: Research and development laboratory use, manufacturing, and related office use.

(11) PARKING:

(a) From the Commencement Date through the day before the Suite D Commencement Date: Up to 151 unreserved parking spaces on surface lot(s) serving the Building.

(b) As of the Suite D Commencement Date through the balance of the Term: Up to 175 unreserved parking spaces on surface lot(s) serving the Building.

(12) BROKERS: None

(13) TENANT IMPROVEMENT ALLOWANCES:

(a) Existing Lease Remaining Tenant Improvement Allowance: $1,650,000.00, including $150,000.00 designated as the Suite K Tenant Improvement Allowance in the Existing Lease.

(b) Extension Tenant Improvement Allowance: $750,000.00

(c) Suite D Tenant Improvement Allowance: $240,000.00

1.2 ENUMERATION OF EXHIBITS AND RIDER(S)

The Exhibits and Rider set forth below and attached to this Lease are incorporated in this Lease by this reference:

EXHIBIT A	Outline of Premises
EXHIBIT A-1	Emergency Generator Site
EXHIBIT B	Work Letter Agreement
EXHIBIT C-1	Laboratory Rules and Regulations
EXHIBIT C-2	Rules and Regulations
EXHIBIT D	Form of SNDA

1.3 DEFINITIONS

For purposes hereof, in addition to terms defined elsewhere in this Lease, the following terms shall have the following meanings:

ADDITIONAL SECURITY DEPOSIT: The amount specified in Section 1.1.

AFFILIATE: Any corporation or other business entity that is currently owned or controlled

by, owns or controls, or is under common ownership or control with Tenant or Landlord, as the case may be.

BANKRUPTCY CODE: As defined in Section 11.3.

BUILDING: The building located at the address specified in Section 1.1. The Building includes office, laboratory and other uses.

CABLE: As defined in Section 8.2.

CITY: The City of Richmond, California.

COMMENCEMENT DATE: The date determined pursuant to Article 2, which date is anticipated to be the Projected Commencement Date specified in Section 1.1.

COMMON AREAS: All areas of the Project made available by Landlord from time to time for the general common use or benefit of the tenants of the Building, and their employees and invitees, or the public, as such areas currently exist and as they may be changed from time to time.

CONFIDENTIALITY AGREEMENT: As defined in Section 7.2(f).

DEFAULT: As defined in Section 11.1.

DEFAULT RATE: Two (2) percentage points above the rate then most recently announced by Bank of America N.A. at its San Francisco main office as its base lending reference rate, from time to time announced, but in no event higher than the maximum rate permitted by Law.

EXISTING LEASE: As defined in Section 2.1.

EXISTING LEASE REMAINING TENANT IMPROVEMENT ALLOWANCE: As defined in Section 1.1.

EXPIRATION DATE: The date specified in Section 1.1.

EXTENSION TENANT IMPROVEMENT ALLOWANCE: As defined in Section 1.1.

FORCE MAJEURE: Any accident, casualty, act of God, war or civil commotion, strike or labor troubles, or any cause whatsoever beyond the reasonable control of the party obligated to perform under this Lease, including pandemics or other widespread health emergencies, water shortages, energy shortages or governmental preemption in connection with an act of God, a national emergency, or by reason of Law, or by reason of the conditions of supply and demand which have been or are affected by act of God, war or other emergency; provided, however, in no event shall any Force Majeure event excuse or delay Tenant's obligation to timely pay all Monthly Base Rent, additional Rent and other sums owing under this Lease.

HAZARDOUS MATERIALS: As defined in Section 7.1(f).

HAZARDOUS MATERIALS LAWS: As defined in Section 7.1(f).

INDEMNITEES: Collectively, Landlord, any Mortgagee or ground lessor of the Property, the property manager and the leasing manager for the Property, and their respective partners, members, directors, officers, agents and employees.

LAND: The parcel(s) of real estate on which the Building and Project are located.

LAWS OR LAW: All laws, ordinances, rules, regulations, other requirements, orders, rulings or decisions adopted or made by any governmental body, agency, department or judicial authority having jurisdiction over the Property, the Premises or Tenant's activities at the Premises and any covenants, conditions or restrictions of record which affect the Property.

and any covenants, conditions or restrictions of record which affect the Property.

LEASE: This instrument and all exhibits and riders attached hereto, as may be amended from time to time.

MONTHLY BASE RENT: The monthly base rent specified in Section 1.1.

MORTGAGEE: Any holder of a mortgage, deed of trust or other security instrument encumbering the Property.

NAMED TENANT: As defined in Section 2.2(b)(6).

NATIONAL HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day and other holidays recognized by Landlord and the janitorial and other unions servicing the Building in accordance with their contracts.

OPERATING EXPENSES: All costs, expenses and disbursements of every kind and nature which Landlord shall pay or become obligated to pay in connection with the ownership, management, operation, maintenance, replacement and repair of the Building and the Property, including, without limitation, property management fees not to exceed five percent (5%) of Landlord's rent received from Building tenants; costs and expenses of any capital improvement that is Landlord's responsibility under this Lease and that (X) is intended to reduce Operating Expenses, or (Y) is required by Laws first enacted after the Commencement Date, and if Landlord elects to amortize such costs and expenses, then such costs and expenses shall be amortized over the useful life of the improvement as reasonably determined by Landlord, together with interest thereon at 7%; an equitable allocation of management office expenses (including, without limitation, market rate office rent, supplies, equipment, salaries, wages, bonuses and other compensation relating to employees of Landlord or its agents engaged in the management, operation, repair, or maintenance of the Building); and, if applicable, the cost of operating a fitness center and/or any conference centers that are available for use by Tenant (which cost will be equitably allocated between tenants of the Building to whom such facilities are available for use), as reasonably determined by Landlord. Landlord shall not collect or be entitled to collect more than one hundred percent (100%) of the Operating Charges actually paid by Landlord in connection with the Project in any calendar year. If any Operating Expense, though paid in one year, relates to more than one calendar year, such expense shall be proportionately allocated among such related calendar years. Operating Expenses for the Property that are not, in Landlord's reasonable discretion, allocable solely to either the office, laboratory or retail portion of the Building shall be equitably allocated by Landlord between/amongst such uses. The above enumeration of services and facilities shall not be deemed to impose an obligation on Landlord to

make available or provide such services or facilities except to the extent if any that Landlord has specifically agreed elsewhere in this Lease to make the same available or provide the same.

PERMITTED TRANSFEREE: As defined in Section 10.1(e).

PREMISES: The space located in the Building at the Suite Numbers listed in Section 1.1 and depicted on Exhibit A attached hereto. Prior to the Suite D Commencement Date, the Premises shall mean all of the suites listed in Section 1.1, other than Suite D. As of the Suite D Commencement Date, the Premises shall mean all of the suites listed in Section 1.1, including Suite D.

PROJECT or PROPERTY: The Project consists of the office and laboratory/research building located at the street address specified in Section 1.1, and associated surface parking as designated by Landlord from time to time, landscaping and improvements, together with the Land, any associated interests in real property, and the personal property, fixtures, machinery, equipment, systems and apparatus located in or used in conjunction with any of the foregoing. The Project may also be referred to as the Property.

PROJECT'S SUSTAINABILITY PRACTICES: The operations and maintenance practices for the Building, whether incorporated into the Building's Rules and Regulations, construction rules and regulations or separate written sustainability policies of Landlord with respect to the Building or the Project, as the same may be created and revised from time to time (upon not less than thirty days' prior written notice to Tenant), so long as such operations and maintenance practices and any revisions thereto, do not materially and negatively impact Tenant's use of the Premises or materially increase Tenant's costs, addressing, among other things: energy efficiency; energy measurement and reporting; water usage; recycling, composting, and waste management; indoor air quality; and chemical use.

PROJECTED COMMENCEMENT DATE: The date specified in Section 1.1.

REAL PROPERTY: The Property excluding any personal property.

RENT: Collectively, Monthly Base Rent, Rent Adjustments and Rent Adjustment Deposits, and all other charges, payments, late fees or other amounts required to be paid by Tenant under this Lease.

RENT ADJUSTMENT: Any amounts owed by Tenant for payment of Operating Expenses and/or Taxes. The Rent Adjustments shall be determined and paid as provided in Article 4.

RENT ADJUSTMENT DEPOSIT: An amount equal to Landlord's reasonable estimate of the Rent Adjustment attributable to each month of the applicable calendar year (or partial calendar year) during the Term, as provided in Article 4.

RENTABLE AREA OF THE PREMISES: The amount of square footage set forth in Section 1.1, which amount may change from time to time due to Landlord's remeasurement of the Premises or the Building, provided such change does not result in any increase to the Monthly Base Rent set forth in Section 1.1 above or to Tenant's Share.

SECURITY DEPOSIT: The funds specified in Section 1.1, if any, deposited by Tenant with Landlord as security for Tenant's performance of its obligations under this Lease.

STANDARD OPERATING HOURS: Monday through Friday from 6:00 A.M. to 6:00 P.M., excluding National Holidays.

SUITE D: The portion of the Premises identified as "Suite D" in Section 1.1.

SUITE D COMMENCEMENT DATE: The date set forth in Section 1.1.

SUITE D TENANT IMPROVEMENT ALLOWANCE: As defined in Section 1.1.

SUITE D TENANT WORK: As defined in the Work Letter.

SUITE D TERM: The term as to Suite D only, commencing on the Suite D Commencement Date and expiring on the Expiration Date.

TAXES: All federal, state and local governmental taxes, assessments, license fees and charges of every kind or nature, whether general, special, ordinary or extraordinary, which Landlord shall pay or become obligated to pay because of or in connection with the ownership, leasing, management, control, sale, transfer, or operation of the Property or any of its components (including any personal property used in connection therewith) or Landlord's business of owning and operating the Property, which may also include any rental, revenue, general gross receipts or similar taxes levied in lieu of or in addition to general real and/or personal property taxes. For purposes hereof, Taxes for any year shall be Taxes which are assessed for any period of such year, whether or not such Taxes are billed and payable in a subsequent calendar year. There shall be included in Taxes for any year the amount of all fees, costs and expenses (including reasonable attorneys' fees) paid by Landlord during such year in seeking or obtaining any refund or reduction of Taxes. Taxes for any year shall be reduced by the net amount of any tax refund received by Landlord attributable to such year. If a special assessment payable in installments is levied against any part of the Property, Taxes for any year shall include only the installment of such assessment and any interest payable or paid during such year. Notwithstanding the foregoing, Taxes shall not include any transfer taxes, interest charges or penalties incurred as a result of Landlord's failure to timely pay Taxes or federal or state inheritance, general income, gift or estate taxes, except that if a change occurs in the method of taxation resulting in whole or in part in the substitution of any such taxes, or any other assessment, for any Taxes as above defined, such substituted taxes or assessments shall be included in the Taxes. Tenant and Landlord acknowledge that Proposition 13 was adopted by the voters of the State of California in the June, 1978 election and that assessments, taxes, fees, levies and charges may be imposed by governmental agencies for such purposes as fire protection, street, sidewalk, road, utility construction and maintenance, refuse removal and for other governmental services which may formerly have been provided without charge to property owners or occupants. It is the intention of the parties that all new and increased assessments, taxes, fees, levies and charges due to any cause whatsoever are to be included within the definition of Taxes for purposes of this Lease.

TENANT ADDITIONS: Collectively, the Tenant Work and Tenant Alterations.

TENANT ALTERATIONS: Any alterations, improvements, additions, installations or

construction in or to the Premises or any Building systems serving the Premises (excluding Tenant Work); and any supplementary air-conditioning systems installed by Landlord or by Tenant at Landlord's request pursuant to Section 6.1(b).

TENANT IMPROVEMENT ALLOWANCES: As defined in Section 1.1.

TENANT INDEMNITEE: As defined in Section 17.2(b).

TENANT PARTY OR TENANT PARTIES: As defined in Section 7.1(f)(1)(xii).

TENANT WORK: All work installed or furnished to the Premises by Tenant, if any, pursuant to the Work Letter.

TENANT'S SHARE: The percentage that represents the ratio of the Rentable Area of the Premises to the Rentable Area of the Building. As of the date of this Lease, Tenant's Share is 63.33%; as of the date that Suite D is added to the Premises, Tenant's Share will be 73.16%. Tenant acknowledges that the Rentable Area of the Premises or Building may change from remeasurement or otherwise during the Term or as a result of Tenant leasing additional space within the Building.

TERM: The term of this Lease commencing on the Commencement Date and expiring on the Expiration Date, and extension of the term, if any.

TERMINATION DATE: The Expiration Date or such earlier date as this Lease terminates or Tenant's right to possession of the Premises terminates.

WORK LETTER: The Agreement regarding the manner of completion of the Tenant Work set forth on Exhibit B attached hereto.

ARTICLE 2
PREMISES, EXISTING LEASE, TERM, AND PARKING

2.1 LEASE OF PREMISES; EXISTING LEASE

(a) Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the Premises for the Term and upon the terms, covenants and conditions provided in this Lease. The parties acknowledge and agree that the Rentable Area set forth in this Lease has been conclusively determined and is deemed final for the purposes of this Lease.

(b) Existing Lease. Tenant currently leases the Premises (other than Suite D) pursuant to the terms of that certain Triple Net Laboratory Lease dated as of May 23, 1997, together with an Addendum thereto dated May 28, 1997, as amended by those certain letter agreements dated June 15, 1999, April 21, 2000 and November 3, 2000, that certain First Amendment to Lease dated March 12, 2004, that certain Lease Addendum dated December 12, 2006, that certain Second Amendment to Lease dated March 15, 2007, that certain Lease Addendum III dated April 2, 2012, that certain Third Amendment to Lease dated August 1, 2013, that certain Lease Addendum dated December 1, 2013, that certain Fourth Amendment to Lease

dated June 10, 2016, that certain Fifth Amendment to Lease dated July 10, 2017, that certain Sixth Amendment to Lease dated May 11, 2018, that certain Seventh Amendment to Lease dated May 20, 2020, that certain Eighth Amendment to Lease dated May 29, 2020, and that certain Ninth Amendment to Lease dated January 4, 2021 (collectively, the "Existing Lease"), the term of which lease expires as of August 31, 2026. Through this Lease, the parties agree that Tenant has exercised its final remaining option to extend the term of the Existing Lease, and that no further options to extend remain under the Existing Lease or this Lease. It is the intent of the parties that this Lease shall amend, restate, supersede and replace in its entirety the Existing Lease as of the Commencement Date. Landlord hereby leases to Tenant and Tenant hereby leases from Landlord

the Premises for the Term and upon the terms, covenants and conditions provided in this Lease.

2.2 TERM

(a) Initial Term. The initial Term of this Lease shall be as set forth in Section 1.1(5); provided, however, the Suite D Term shall commence as of the Suite D Commencement Date, as set forth in Section 1.1(6).

(b) Option to Extend. Provided that (i) Tenant has not sublet over thirty percent (30%) of the Premises (other than to Permitted Transferees), and (ii) at the time of exercise and at all times prior to the commencement of the Extended Term, there is not an uncured Default under this Lease, the Term of this Lease shall be subject to one (1) extension option for an additional period of 60 months (the "Extension Option"), commencing as of the expiration of the Initial Term, and expiring on the date that is 60 full calendar months thereafter (the "Extended Term"), exercisable as follows:

(1) The Extension Option shall be upon the same material terms and conditions contained in this Lease, except that (i) the initial Monthly Base Rent for the Premises shall be equal to the greater of (A) the Fair Market Rent (as defined in Section 2.2(b)(2) below) for the Premises as of the first month of the Extension Option determined in the manner set forth in Section 2.2(b)(3) below, or (B) the Monthly Base Rent in effect as of the expiration of the Initial Term; and (ii) Tenant shall accept the Premises in an "as is" condition without any obligation of Landlord to repaint, remodel, repair, improve or alter the Premises.

(2) Tenant's election to exercise the Extension Option must be given to Landlord in writing no less than 270 days and no more than 365 days prior to the expiration of the initial Term (the "Extension Notice"). Within thirty (30) days of Landlord's receipt of the Extension Notice, Landlord shall send Tenant written notice of Landlord's determination of the Fair Market Rent for the Premises (the "Fair Market Rent Notice"). For purposes of this Section, the term "Fair Market Rent" shall mean the base rental rate, periodic rental rate adjustment and other charges and increases, if any, for space comparable in size, location and quality to the Premises under a primary lease (and not sublease) to new or renewing tenants, for a comparable term, if applicable and taking into consideration such amenities as existing improvements, view, floor on which the Premises are situated and the like, situated in buildings in Richmond, California; provided, however, that the Monthly Base Rent shall be increased by three percent (3%) each year during the Extension Option. Notwithstanding anything to the contrary contained herein, the Extension Option shall automatically terminate and be of no further force or effect, whether or not Tenant has timely exercised the Extension Option, if a Default exists at the time of exercise of the

Extension Option or at the time of commencement of the Extended Term.

(3) If Tenant properly exercises the Extension Option, the Monthly Base Rent during the Extended Term shall be determined in the following manner. The Monthly Base Rent as of the commencement of the Extended Term shall be adjusted to an amount equal to the Fair Market Rent for the Premises as specified in the Fair Market Rent Notice, subject to Tenant's right of arbitration as set forth below. If Tenant believes that the Fair Market Rent specified in the Fair Market Rent Notice exceeds the actual Fair Market Rent for the Premises as of the date of such notice, then Tenant shall so notify Landlord within thirty (30) days of Tenant's receipt of the Fair Market Rent Notice. If Tenant fails to so notify Landlord within such 30-day period, Landlord's determination of the Fair Market Rent shall be final and binding upon the parties. If the parties are unable to agree upon the Fair Market Rent within ten (10) days after Landlord's receipt of Tenant's objection to the Fair Market Rent Notice, the amount of Monthly Base Rent as of the commencement of the Extended Term shall be determined as follows:

(i) Within 30 days after the 10-day period has expired and the parties have failed to agree on the Fair Market Rent, Tenant, at its sole expense, shall obtain and deliver in writing to Landlord a determination of the Fair Market Rent for the Premises for a term

equal to the Extended Term from a broker ("Tenant's Broker") licensed in the State of California and engaged in the office and life sciences brokerage business in Richmond, California, for at least the immediately preceding five (5) years. If Landlord accepts such determination, the Monthly Base Rent for the Extended Term shall be adjusted to an amount equal to the amount determined by Tenant's Broker.

(ii) If Landlord does not accept such determination, within 15 days after receipt of the determination of Tenant's broker, Landlord shall designate a broker ("Landlord's Broker") licensed in the State of California and engaged in the office and life sciences brokerage business in Richmond, California, for at least the immediately preceding five (5) years. Landlord's Broker and Tenant's Broker shall name a third broker, similarly qualified, within five (5) days after appointment of Landlord's Broker. Landlord's Broker and Tenant's Broker shall each determine the Fair Market Rent for the Premises as of the commencement of the Extended Term for a term equal to the Extended Term within 15 days after the appointment of the third broker. The Monthly Base Rent payable by Tenant effective as of the commencement of the Extended Term shall be adjusted to an amount equal to the determination of Fair Market Rent made by either Landlord's Broker or Tenant's Broker that the third broker finds to be closer to the Fair Market Rent.

(iii) Landlord shall pay the costs and fees of Landlord's Broker in connection with any determination hereunder, and Tenant shall pay the costs and fees of Tenant's Broker in connection with such determination. The costs and fees of any third broker shall be paid one-half by Landlord and one-half by Tenant.

(4) If the amount of the Fair Market Rent is not known as of the commencement of the Extended Term, then Tenant shall continue to pay the Monthly Base Rent for the Premises in effect at the expiration of the Extended Term until the amount of the Fair Market Rent is determined. When such determination is made, Tenant shall pay any deficiency to Landlord upon demand. Notwithstanding any provision of this Section 2.2(b) to the contrary, in

no event shall the Monthly Base Rent for the Premises payable during the Extended Term be less than such Monthly Base Rent in effect prior to the commencement of the Extended Term.

(5) In connection with the extension of the Term pursuant to Tenant's exercise of the Extension Option, the parties acknowledge and agree that Landlord shall not be responsible for the payment to any real estate broker, salesperson or finder claiming to have represented Tenant of any commission, finder's fee or other compensation in connection with or as a consequence of Tenant's exercise of the Extension Option.

(6) Notwithstanding anything to the contrary contained herein, Tenant's rights under this Section 2.2(b) are personal to the original Tenant executing this Lease and any Permitted Transferee to which this Lease is assigned ("Named Tenant") and shall not be assigned or assignable, in whole or in part, to any third party other than a Permitted Transferee. Any assignment or other transfer of such rights by Named Tenant in contravention of this paragraph shall be void and of no force or effect. Without limiting the generality of the foregoing, no sublessee of the Premises shall be permitted to exercise the rights granted to Tenant under this Section 2.2(b).

2.3 FAILURE TO DELIVER POSSESSION OF SUITE D

If Suite D is not delivered to Tenant by the Suite D Commencement Date for any reason, Landlord shall not be liable for any claims, damages or liabilities by reason thereof, nor affect the validity of this Lease or the obligations of Tenant hereunder; provided, however, the Suite D Commencement Date shall be adjusted to reflect the actual delivery date, and Landlord and Tenant shall enter into a commercially reasonable form of memorandum to memorialize the Suite D Commencement Date, and the Commencement Date as to the balance of the Premises shall remain as set forth in the Basic Lease Information. Notwithstanding the foregoing, if Landlord fails to deliver Suite D to Tenant by the date (the "Outside Date") that is sixty (60) days after the Suite D Commencement Date (which Outside Date shall be subject to extension day-for-day for Force Majeure events), Landlord will credit against the first installments of Monthly Base Rent and Rent Adjustments Deposits first becoming due under this Lease for Suite D an amount equal to one (1) day of Monthly Base Rent and Rent Adjustments Deposits for Suite D for each day that delivery is delayed beyond the Outside Date. The remedy set forth above shall be Tenant's sole remedy in the event of a delay in delivering possession of Suite D to Tenant. In no event shall Landlord be liable for special or consequential damages as a result of any such delay.

2.4 CONDITION OF PREMISES

Tenant shall notify Landlord in writing within ninety (90) days (or six (6) months, as to issues with Suite D's HVAC, as defined in Section 6.1(a)(1) below, only) after the Suite D Commencement Date of any defects in Suite D claimed by Tenant (the "Suite D Defect Notice"). As specified in Section 2.1 above, Tenant currently leases the Premises (other than Suite D) pursuant to the terms of the Existing Lease. Therefore, except for defects stated in the Suite D Defect Notice, Tenant shall be conclusively deemed to have (a) accepted the Premises "AS IS" in the condition existing on (i) the date of this Lease, as to all of the Premises other than Suite D, and (ii) as of the date Tenant first takes possession of Suite D, as to Suite D, and (b) waived all claims relating to the current condition of the Premises, and relating to the condition of Suite D as of the

date Tenant takes possession thereof. Landlord shall proceed diligently to correct the defects stated

in the Suite D Defect Notice unless Landlord disputes the existence of any such defects. No agreement of Landlord to alter, remodel, decorate, clean or improve the Premises or the Real Property and no representation regarding the condition of the Premises or the Real Property has been made by or on behalf of Landlord to Tenant, except as may be specifically stated in this Lease or in the Work Letter.

2.5 PARKING

During the Term, Tenant may use the number of spaces specified in Section 1.1 at no additional cost to Tenant. Tenant acknowledges and agrees that the parking spaces serving the Project may include a mixture of spaces for compact vehicles as well as full-size passenger automobiles, and that Tenant shall not use parking spaces for vehicles larger than the striped size of the parking spaces. Tenant shall comply with any and all reasonable parking rules and regulations from time to time established by Landlord, including a requirement that Tenant pay to Landlord for any and all loss or other damage caused by persons or vehicles related to use by Tenant of Tenant's parking spaces. Tenant shall not allow any vehicles using Tenant's parking spaces to be parked, loaded or unloaded except in accordance with this Section, including in the areas and in the manner reasonably designated by Landlord or its parking operator for such activities.

ARTICLE 3
RENT

From and after the Commencement Date, Tenant shall pay to Landlord at the address specified in Section 1.1, or to such other persons, or at such other places designated by Landlord, without any prior demand therefor in immediately available funds and without any deduction or offset whatsoever, Rent, including Monthly Base Rent and Rent Adjustments in accordance with Article 4, during the Term. Monthly Base Rent shall be paid monthly in advance on or prior to the first day of each month of the Term. Monthly Base Rent shall be prorated for partial months within the Term. Tenant's covenant to pay Rent shall be independent of every other covenant in this Lease.

ARTICLE 4
RENT ADJUSTMENTS AND PAYMENTS

4.1 RENT ADJUSTMENTS

(a) From and after the Commencement Date, Tenant shall pay to Landlord Rent Adjustments with respect to each calendar year (or partial calendar year in the case of the year in which the Commencement Date and the Termination Date occur) as follows:

(1) The Rent Adjustment Deposit representing Tenant's Share of Operating Expenses for the applicable calendar year (or partial calendar year), monthly during the Term with the payment of Monthly Base Rent;

(2) The Rent Adjustment Deposit representing Tenant's Share of Taxes for the applicable calendar year (or partial calendar year), monthly during the Term with the

payment of Monthly Base Rent; and

(3) Any Rent Adjustments due in excess of the Rent Adjustment Deposits in accordance with Section 4.2. Rent Adjustments due from Tenant to Landlord for any calendar year (or partial calendar year) shall be Tenant's Share of Operating Expenses for such calendar year (or partial calendar year) and Tenant's Share of Taxes for such calendar year (or partial calendar year).

(b) On or before the beginning of each calendar year or with Landlord's Statement (as defined in Section 4.2 below), Landlord may estimate and notify Tenant in writing

Statement (as defined in Section 4.2 below), Landlord may estimate and notify Tenant in writing of its reasonable estimate of the amount of Operating Expenses and Taxes payable by Tenant for such calendar year. Prior to the first determination by Landlord of the amount of Operating Expenses and Taxes for the first calendar year, Landlord may reasonably estimate such amounts in the foregoing calculation. Landlord shall have the right from time to time during any calendar year to provide a new or revised estimate of Operating Expenses and/or Taxes and to notify Tenant in writing thereof, of corresponding adjustments in Tenant's Rent Adjustment Deposit payable over the remainder of such year; provided, however, that such new Rent Adjustment Deposit shall not be effective until thirty (30) days after Landlord's notice. The last estimate by Landlord shall remain in effect as the applicable Rent Adjustment Deposit unless and until Landlord notifies Tenant in writing of a change, which notice may be given by Landlord from time to time during any calendar year throughout the Term.

(c) Landlord shall have the right, at its sole discretion, from time to time, to equitably allocate certain Operating Expenses among only certain tenants of the Project as to any expense or cost that relates to a repair, replacement or service that benefits only those tenants, and the Rent Adjustments shall reflect any such allocations.

(d) Notwithstanding anything in this Article 4 to the contrary, Tenant's Share of Operating Expenses shall not increase by more than 5% per calendar year on a compounding and cumulative basis (e.g. Tenant's Share of Operating Expenses for calendar year 2021 shall not exceed 105% of Tenant's Share of Operating Expenses for calendar year 2020; Tenant's Share of Operating Expenses for calendar year 2022 shall not exceed 105% of the maximum allowable amount of Tenant's Share of Operating Expenses permitted for calendar year 2021, etc.). By way of illustration, if Tenant's Share of Operating Expenses were to be $1.00 per rentable square foot per month for calendar year 2020, then Tenant's Share of Operating Expenses for calendar year 2021 would not exceed $1.05 per rentable square foot per month, and Tenant's Share of Operating Expenses for calendar year 2022 would not exceed $1.1025 per rentable square foot per month. The foregoing notwithstanding, nothing in this paragraph shall entitle Tenant to any refund, credit or offset in the event that the actual Operating Expenses for any calendar year during the Term is less than or equal to the Operating Expenses for any prior calendar year during the Term. Notwithstanding any contrary provision of this Lease, the terms of this paragraph shall not apply (i) to any space into which Tenant may expand, or (ii) during any period of time following the current Term. For the avoidance of doubt, in no event shall the provisions of this paragraph apply to Tenant's Share of Taxes, which shall not be subject to any limitations or caps.

4.2 STATEMENT OF LANDLORD

As soon as practical after the expiration of each calendar year (but in no event more than one hundred fifty (150) days after the expiration of each calendar year), Landlord will furnish Tenant with a statement respecting the prior calendar year ("Landlord's Statement") showing the following:

(a) Operating Expenses and Taxes for such calendar year;

(b) The amount of Rent Adjustments due Landlord for the last calendar year, less credit for Rent Adjustment Deposits paid, if any; and

(c) Any change in the Rent Adjustment Deposit due monthly in the current calendar year, including the amount or revised amount due for months preceding any such change pursuant to Landlord's Statement.

Tenant shall pay to Landlord within thirty (30) days after receipt of such statement any amounts for Rent Adjustments then due in accordance with Landlord's Statement. Any amounts due from Landlord to Tenant pursuant to this Section shall be credited to the Rent Adjustment Deposit next coming due, or refunded to Tenant within forty-five (45) days after delivery of such

statement if the Term has already expired or otherwise terminated, provided Tenant is not in default hereunder. No interest or penalties shall accrue on any amounts that Landlord is obligated to credit or refund to Tenant by reason of this Section 4.2. Landlord's failure to deliver Landlord's Statement or to compute the amount of the Rent Adjustments shall not constitute a waiver by Landlord of its right to deliver such items nor constitute a waiver or release of Tenant's obligations to pay such amounts. The Rent Adjustment Deposit shall be credited against Rent Adjustments due for the applicable calendar year (or partial calendar year). During the last complete calendar year or during any partial calendar year in which this Lease terminates, Landlord may include in the Rent Adjustment Deposit its estimate of Rent Adjustments which might not be finally determined until after the termination of this Lease. Tenant's obligation to pay Rent Adjustments, and Landlord's obligation to refund Rent Adjustments, survive the expiration or termination of this Lease.

4.3 BOOKS AND RECORDS

Landlord shall maintain books and records showing Operating Expenses and Taxes in accordance with sound accounting and management practices, consistently applied. Tenant or its representative (which representative shall be a certified public accountant licensed to do business in the state in which the Property is located and whose primary business is certified public accounting and who shall not be paid on a contingency basis) shall have the right, for a period of one hundred twenty (120) days following the date upon which Landlord's Statement is delivered to Tenant, to examine Landlord's books and records (which shall be made available by Landlord at an office in the San Francisco Bay area) with respect to the items in the foregoing statement of Operating Expenses and Taxes during normal business hours, upon written notice, delivered at least five (5) business days in advance. Tenant shall pay for all costs of such examination. If Tenant performs such examination, but does not object in writing to Landlord's Statement within one hundred eighty (180) days after Tenant's receipt thereof, specifying the nature of the item in dispute and the reasons therefor, then Landlord's Statement shall be considered final and accepted by Tenant and Tenant shall be deemed to have waived its right to dispute Landlord's Statement.

If Tenant does dispute any Landlord's Statement, Tenant shall deliver a copy of any such audit to Landlord at the time of notification of the dispute. If Tenant does not provide such notice of dispute and a copy of such audit to Landlord within such one hundred eighty (180) day period, it shall be deemed to have waived such right to dispute Landlord's Statement. Any amount due to Landlord as shown on Landlord's Statement, whether or not disputed by Tenant as provided herein shall be paid by Tenant when due as provided above, without prejudice to any such written exception. In no event shall Tenant be permitted to examine Landlord's records or to dispute any statement of Operating Expenses and Taxes unless Tenant has paid and continues to pay all Rent when due (after any applicable notice and cure periods). Upon resolution of any dispute with respect to Operating Expenses and Taxes, Tenant shall either pay Landlord any shortfall or Landlord shall credit Tenant against the next Rent coming due (until such credit is exhausted) or, if the Term has ended, pay to Tenant within sixty (60) days, any overages due to Tenant. The records obtained by Tenant shall be treated as confidential and neither Tenant nor any of its representatives or agents shall disclose or discuss the information set forth in the audit to or with any other person or entity; provided, however, such duty of confidentiality shall not apply to information which (a) is lawfully known by or in the possession of Tenant prior to disclosure of such information by Landlord; or (b) is or becomes publicly available through no fault on the part of Tenant; or (c) is required to be disclosed by law, court order, subpoena or other legal compulsion; or (d) is received from third parties who have not been instructed by Landlord or otherwise agreed to maintain the subject information confidential (the "Confidentiality Requirement"). Tenant shall indemnify and hold Landlord harmless for any losses or damages arising out of the breach of the Confidentiality Requirement.

4.4 TENANT OR LEASE SPECIFIC TAXES

In addition to Monthly Base Rent, Rent Adjustments, Rent Adjustment Deposits and other charges to be paid by Tenant, Tenant shall pay to Landlord, upon demand, any and all taxes payable by Landlord (other than federal or state inheritance, general income, gift or estate taxes) whether or not now customary or within the contemplation of the parties hereto: (a) upon, allocable to, or measured by the Rent payable hereunder, including any gross receipts tax or excise tax levied by any governmental or taxing body with respect to the receipt of such Rent; or (b) upon or with respect to the possession, leasing, operation, management, maintenance, alteration, repair, use or occupancy by Tenant of the Premises or any portion thereof; or (c) upon the measured value of Tenant's personal property located in the Premises or in any storeroom or any other place in the Premises or the Property, or the areas used in connection with the operation of the Property, it being the intention of Landlord and Tenant that, to the extent possible, such personal property taxes shall be billed to and paid directly by Tenant; (d) resulting from any Tenant Work or Tenant Alterations, whether title thereto is in Landlord or Tenant; or (e) upon this transaction. Taxes or supplemental taxes paid by Tenant pursuant to this Section 4.4 shall not be included in any computation of Taxes payable pursuant to Sections 4.1 and 4.2, but standard property management fees shall apply to any such payments.

ARTICLE 5
SECURITY

(a) Simultaneously with Tenant's execution and delivery of this Lease to Landlord, Tenant shall pay Landlord in immediately available funds the cash amount of the

Additional Security Deposit set forth in Section 1.1 of this Lease, which Additional Security

Deposit, plus the amount held under the Existing Lease (as set forth in Section 1.1), Landlord shall hold under this Lease for the full and faithful performance by Tenant of each and every term, provision, covenant, and condition of this Lease. If Tenant fails timely to perform any of the terms, provisions, covenants and conditions of this Lease, which failure results in a Default under this Lease, then Landlord may use, apply, or retain the whole or any part of the Security Deposit for the payment of any Rent not paid when due, for the cost of repairing any damage, for the cost of cleaning the Premises, for the payment of any other sum which Landlord may expend or may be required to expend by reason of Tenant's failure to perform, and otherwise for compensation of Landlord for any other loss or damage to Landlord occasioned by Tenant's failure to perform, including, but not limited to, any loss of future Rent and any damage or deficiency in the reletting of the Premises (whether such loss, damages or deficiency accrue before or after summary proceedings or other reentry by Landlord) and the amount of the unpaid past Rent, future Rent loss, and all other losses, costs and damages, that Landlord would be entitled to recover if Landlord were to pursue recovery under Section 11.2(b) or (c) of this Lease or California Civil Code Section 1951.2 or 1951.4 (and any supplements, amendments, replacements and substitutions thereof and therefor from time to time). If Landlord so uses, applies or retains all or part of the Security Deposit, Tenant shall within ten (10) business days after demand pay or deliver to Landlord in immediately available funds the sum necessary to replace the amount used, applied or retained. If there is no Default on the part of Tenant, the Security Deposit (except any amount retained for application by Landlord as provided herein) shall be returned to Tenant with thirty (30) days after the latest of: (i) the Expiration Date or earlier termination of the Lease; (ii) the removal of Tenant from the Premises; or (iii) the surrender of the Premises by Tenant to Landlord in accordance with this Lease; provided, however, in no event shall any such return be construed as an admission by Landlord that Tenant has performed all of its obligations hereunder.

(b) The Security Deposit shall not be deemed an advance rent deposit or an advance payment of any kind, or a measure of Landlord's damages with respect to Tenant's failure to perform, nor shall any action or inaction of Landlord with respect to it or its use or application be a waiver of, or bar or defense to, enforcement of any right or remedy of Landlord. Landlord shall not be required to keep the Security Deposit separate from its general funds and shall not have any fiduciary duties or other duties (except as set forth in this Section) concerning the Security Deposit. Tenant shall not be entitled to any interest on the Security Deposit. In the event of any sale, lease or transfer of Landlord's interest in the Building, Landlord shall have the right to transfer the Security Deposit, or balance thereof, to the transferee and any such transfer shall release Landlord from all liability for the return of the Security Deposit. Tenant thereafter shall look solely to such transferee for the return or payment of the Security Deposit. Tenant shall not assign or encumber or attempt to assign or encumber the Security Deposit; provided, however, that if Tenant assigns its interest in this Lease as permitted herein, Landlord shall return the Security Deposit to such assignee pursuant to the terms of this Lease governing the return of the Security Deposit. Tenant hereby waives any and all rights of Tenant under the provisions of Section 1950.7 of the California Civil Code, and any and all rights of Tenant under all provisions of Law, now or hereafter enacted, regarding security deposits.

ARTICLE 6
SERVICES

6.1 LANDLORD'S GENERAL SERVICES

(a) Landlord shall furnish the following services the cost of which services shall be included in Operating Expenses or paid directly by Tenant to the utility or service provider:

(1) heat, ventilation and air-conditioning ("HVAC") in the Premises at all times, as necessary for the comfortable occupancy of the Premises and sufficient for Tenant's

all times, as necessary for the comfortable occupancy of the Premises and sufficient for Tenant's office and laboratory operations, subject to reasonable limitations of the HVAC equipment and compliance with all applicable mandatory regulations and Laws;

(2) tempered and cold water for normal and customary use in the Premises and in lavatories in common with other tenants from the regular supply of the Building;

(3) customary cleaning and janitorial services in the Common Areas five (5) days per week, excluding National Holidays; and

(4) washing of the outside windows in the Premises weather permitting at intervals determined by Landlord.

(b) Landlord shall provide a security program for the Building (but not individually for Tenant or the Premises), the cost of which program shall be an Operating Expense. Landlord shall not be liable in any manner to Tenant or any other Tenant Parties for any acts (including criminal acts) of others, or for any direct, indirect, or consequential damages, or any injury or damage to, or interference with, Tenant's business, including, but not limited to, loss of profits, loss of rents or other revenues, loss of business opportunity, loss of goodwill or loss of use, or other loss or damage, bodily injury or death, related to any malfunction, circumvention or other failure of any security program, or for the failure of any security program to prevent bodily injury, death, or property damage, or loss, or to apprehend any person suspected of causing such injury, death, damage or loss.

(c) Landlord shall furnish to the Premises replacement lamps, bulbs, ballasts and starters used in any normal Building lighting installed in the Premises, except that if the replacement or repair of such items is a result of negligence of Tenant, its employees, agents, servants, licensees, subtenants, contractors or invitees, such cost shall be paid by Tenant within ten (10) days after notice from Landlord and shall not be included as part of Operating Expenses.

(d) If Tenant uses heat generating machines or equipment in the Premises to an extent which materially and adversely affects the temperature otherwise maintained by the air-cooling system or whenever the occupancy or electrical load materially and adversely affects the temperature otherwise maintained by the air-cooling system, Landlord reserves the right to install or to require Tenant to install reasonably required supplementary air-conditioning units in the Premises. Tenant shall bear all reasonable costs and expenses related to the installation, maintenance and operation of such units.

(e) Tenant shall pay Landlord at rates reasonably fixed by Landlord for all

tenants in the Building, charges for all water furnished to the Premises beyond that described in Section 6.1(a)(2), including the expenses of installation of a water line, meter and fixtures.

6.2 UTILITIES AND JANITORIAL SERVICES

Except as otherwise provided in the definition of Operating Expenses, all utility services not directly contracted for and paid by Tenant to the utility provider, and used in the production of heating and cooling and air supply and exhaust from the central HVAC systems serving the Building and Premises, including, without limitation, electricity and gas, as well as water and sewer services, shall constitute Operating Expenses. All utility services used by Tenant within the Premises, including, without limitation, electricity and gas, shall be paid for by Tenant either through a separate charge or as part of Operating Expenses. Such charges shall be based upon Tenant's usage, which usage: (a) as to electricity, other than overhead lighting, shall be measured by a separate meter or sub-meter that is already installed in the Premises, and paid by Tenant within 30 days after billing as additional Rent under this Lease; and (b) as to all other utilities, shall either be reasonably estimated by Landlord and paid by Tenant within 30 days after billing as additional Rent under this Lease or included in Operating Expenses. In addition, Tenant shall provide its own janitorial services to the Premises, using a janitorial service reasonably acceptable to Landlord

or shall make arrangements with Landlord for Landlord, through Landlord's vendors, to perform such Premises cleaning services, and shall pay the costs thereof directly to Landlord. Notwithstanding any provision of this Lease to the contrary, Tenant shall not make any alterations or additions to the electric equipment or systems, in each instance, without the prior written approval of Landlord, which approval shall not be unreasonably withheld, conditioned or delayed so long as such alterations or additions (i) do not exceed the capacity of the wiring, feeders and risers and (ii) are in compliance with the City's building code. Tenant's use of electric current shall at no time exceed the capacity of the wiring, feeders and risers providing electric current to the Premises or the Building. The consent of Landlord to the installation of electric equipment shall not relieve Tenant from the obligation to limit usage of electricity to no more than such capacity.

6.3 ADDITIONAL AND AFTER HOURS SERVICES

At Tenant's written request (which request may be made by email), Landlord shall furnish additional quantities of any of the services or utilities specified in Section 6.1, if Landlord can reasonably do so, on the terms set forth herein. To the extent not paid directly by Tenant to the utility provider, for services or utilities requested by Tenant and furnished by Landlord, Tenant shall pay to Landlord as a charge therefor Landlord's prevailing rates charged from time to time for such services and utilities, as additional Rent under this Lease. Without limiting the generality of the foregoing, for HVAC service in the office areas of the Premises that is outside of Standard Operating Hours, Landlord's prevailing rate as of the date of this Lease includes a one (1) hour minimum per activation. If Tenant shall fail to make any such payment, Landlord may, upon notice to Tenant and in addition to Landlord's other remedies under this Lease, discontinue any or all of such additional services.

6.4 TELEPHONE SERVICES

All telephone and communication connections which Tenant may desire shall be subject to Landlord's prior written approval, in Landlord's reasonable discretion, and the location of all Cables and the work in connection therewith shall be performed by contractors approved by Landlord, which approval shall not unreasonably be withheld and shall be deemed given if not denied by notice with the reasons for such denial, given to Tenant within five (5) days following Tenant's second request for approval, and shall be subject to the reasonable direction of Landlord and in compliance with Landlord's then current Building standards for Cable installation. Tenant shall be responsible for and shall pay for all costs incurred in connection with the installation of Cables in the Premises, including any hook up, access and maintenance fees related to the installation of such Cables in the Premises and the commencement of service therein, and the maintenance thereafter of such Cables, and there shall be included in Operating Expenses for the Building all installation, removal, hook-up or maintenance costs incurred by Landlord in connection with Cables serving the Building which are not allocable to any individual users of such service but are allocable to the Building generally. If Tenant fails to maintain all Cables in the Premises and such failure adversely affects or interferes with the operation or maintenance of any other Cables serving the Building, and Tenant fails to remedy such failure within five (5) Business Days after receipt of written notice from Landlord, Landlord or any vendor hired by Landlord may enter into and upon the Premises forthwith and perform such repairs, restorations or alterations as Landlord deems reasonably necessary in order to eliminate any such interference (and Landlord may recover from Tenant all of Landlord's costs in connection therewith). If required by Landlord, no later than the Termination Date Tenant shall remove all Cables installed by Tenant for and during Tenant's occupancy and surrender the installation in a condition previously approved by Landlord. Tenant agrees that neither Landlord nor any of its agents or employees shall be liable to Tenant, or any of Tenant's employees, agents, customers or invitees or anyone claiming through, by or under Tenant, for any damages, injuries, losses, expenses, claims or causes of action because of any interruption, diminution, delay or discontinuance at any time for any reason in the furnishing of any telephone or other communication service to the Premises and the Building.

6.5 DELAYS IN FURNISHING SERVICES

Tenant agrees that Landlord shall not be in breach of this Lease nor be liable to Tenant for damages or otherwise, for any failure to furnish, or a delay in furnishing, or a change in the quantity or character of any service when such failure, delay or change is occasioned, in whole or in part, by repairs, improvements or mechanical breakdowns, by the act or default of Tenant or other parties or by an event of Force Majeure. No such failure, delay or change shall be deemed to be an eviction or disturbance of Tenant's use and possession of the Premises, or relieve Tenant from paying Rent or from performing any other obligations of Tenant under this Lease, without any deduction or offset. Failure to any extent to make available, or any slowdown, stoppage, or interruption of, the specified utility services resulting from any cause, including changes in service provider or Landlord's compliance with any voluntary or similar governmental or business guidelines now or hereafter published or any requirements now or hereafter established by any governmental agency, board, or bureau having jurisdiction over the operation of the Property, shall not render Landlord liable in any respect for damages to either persons, property, or business, nor be construed as an eviction of Tenant or work an abatement of Rent, nor relieve Tenant of Tenant's obligations for fulfillment of any covenant or agreement hereof. Should any equipment or machinery furnished by Landlord break down or for any cause cease to function properly, Landlord

shall use reasonable diligence to repair same promptly, but Tenant shall have no claim for

abatement of Rent or damages on account of any interruption of service occasioned thereby or resulting therefrom. Tenant hereby waives any benefits of any applicable existing or future Law, including the provisions of California Civil Code section 1932(1), permitting the termination of this Lease due to such interruption, failure or inability. Notwithstanding anything to the contrary in the foregoing, if Tenant is unable to use the Premises as a result of an interruption in service, and if any such interruption (i) continues for five (5) consecutive business days following Tenant's delivery to Landlord of notice of such interruption, (ii) is caused by the negligence of Landlord and the cure of same is within the reasonable control of Landlord (and is not attributable to any acts or omissions of Tenant), (iii) materially and adversely affects Tenant's ability to conduct business in the Premises, or any material portion thereof, and (iv) on account of such interruption Tenant ceases doing business in the Premises, Rent shall thereafter abate to the extent the Premises are materially and adversely affected, commencing on the sixth (6^{th}) business day following Tenant's notice hereunder and continuing for the remainder of the interruption.

6.6 CHOICE OF SERVICE PROVIDER

Tenant acknowledges that Landlord may, at Landlord's sole option, to the extent permitted by applicable law, elect to change, from time to time, the company or companies which provide services (including electrical service, gas service, water, telephone and technical services) to the Building, the Premises and/or its occupants. Notwithstanding anything to the contrary set forth in this Lease, Tenant acknowledges that Landlord has not and does not make any representations or warranties concerning the identity or identities of the company or companies which provide services to the Building and the Premises or its occupants, and Tenant acknowledges that the choice of service providers and matters concerning the engagement and termination thereof shall be solely that of Landlord in its reasonably discretion. Landlord shall not engage a vendor to be the exclusive provider of utility services to the Premises which is not a regulated public utility or which pays any compensation to Landlord or its Affiliates for the right to provide services to the Building. The foregoing provision is not intended to modify, amend, change or otherwise derogate any provision of this Lease concerning the nature or type of service to be provided or any specific information concerning the amount thereof to be provided. Tenant agrees to reasonably cooperate with Landlord and each of its service providers in connection with any change in service or provider.

6.7 SIGNAGE

(a) Named Tenant shall, in accordance with Building standard signage programs, continue to have the right (as it has under the Existing Lease) to maintain one (1) exterior non-illuminated sign displaying Tenant's trade name on the exterior of the Building ("Tenant's Exterior Sign").

(b) Notwithstanding anything to the contrary contained in this Lease and in addition to the maintenance and repair obligations of Tenant set forth in Section 8.2 below, any and all maintenance and repair relating to Tenant's Exterior Sign shall be the sole responsibility of Tenant including, without limitation: (i) ensuring all penetrations of the exterior of the Project related to Tenant's Exterior Sign remain "watertight/waterproof" meaning that no portions of Tenant's Exterior Sign cause or permit any water to penetrate or damage any portion of the Project,

(ii) cleaning Tenant's Exterior Sign whenever necessary in order to ensure that its appearance complies with the "Class-A" nature of the Project (as determined by Landlord in its reasonable discretion), (iii) promptly repairing any cracks in or other damage to the exterior façade of the Project caused by Tenant's Exterior Sign (as determined by Landlord in its reasonable discretion), (iv) taking any necessary measures to prevent or abate the presence of birds which may congregate on or around Tenant's Exterior Sign (as determined in Landlord's reasonable discretion), and (v) making any other repair or maintenance to Project that Landlord reasonably determines necessary due to the installation, existence, or removal of Tenant's Exterior Sign. Tenant shall promptly perform such maintenance and repair obligations in a good and workmanlike manner, such that

Tenant's Exterior Sign appears and operates at all times in the manner intended at the time it was designed and installed.

(c) Notwithstanding anything to the contrary contained in this Lease, Tenant shall, prior to the expiration or earlier termination of this Lease, and at Tenant's sole cost and expense, remove Tenant's Exterior Sign and restore any portion(s) of the Building or Project impacted by Tenant's Exterior Sign (as determined by Landlord in its reasonable discretion) to the condition of such portion(s) of the Building or Project which existed prior to the installation of Tenant's Exterior Sign. If any patching of holes or other cosmetic blemishes relating to Tenant's Exterior Sign are visible in the reasonable opinion of Landlord (including, without limitation, discoloration of the exterior façade materials of the Building) following such removal by Tenant, Landlord may require that the underlying façade materials be replaced with new materials consistent in color, appearance and texture to the original façade materials, at Tenant's sole cost and expense.

(d) All costs pertaining to the maintenance, repair and removal of Tenant's Exterior Sign or any part thereof shall be paid by Tenant when due. The provisions of this Lease pertaining to mechanic's liens shall apply to Tenant's Exterior Sign. Tenant shall insure Tenant's Exterior Sign pursuant to the provisions of Section 16.1 below in the same manner and to the same extent as the Tenant Additions.

(e) Notwithstanding anything to the contrary contained in this Lease, Landlord shall have the right, but not the obligation, to perform any of the obligations of Tenant set forth in this Section 6.7 on Tenant's behalf, if, after ten (10) days following the delivery of written notice to Tenant of the necessity of any work or obligation set forth herein, Tenant has not caused the commencement of such work or fulfillment of such obligation (or if the completion of such work or fulfillment of such obligation has commenced but ceases to be diligently pursued by Tenant). Tenant shall promptly pay all of Landlord's costs and expenses related to any such work plus an administration fee of fifteen percent (15%) of such costs and expenses for Landlord's supervision and coordination of such work. Tenant shall pay such costs and expenses to Landlord within fifteen (15) days after the receipt of reasonably detailed invoice therefor from Landlord, together with reasonable evidence of the amounts incurred and paid by Landlord for such purposes. Such costs and fee shall constitute a part of the Rent due under this Lease and shall be in addition to all other Rent, and Landlord shall have the same rights and remedies with respect to any failure to pay them as herein required which Landlord would have with respect to any other failure to pay Rent when due.

(f) Notwithstanding anything to the contrary contained herein, Named

Tenant's rights under this Section 6.7 are personal to Named Tenant and shall not be assigned or assignable, in whole or in part, to any third party. Any assignment or other transfer of such rights by Named Tenant shall be void and of no force or effect. Without limiting the generality of the foregoing, no sublessee of the Premises shall be permitted to exercise the rights granted to Named Tenant under this Section 6.7.

ARTICLE 7
USE OF PREMISES; LANDLORD'S ACCESS RIGHTS

7.1 USE OF PREMISES

(a) Tenant shall occupy and use the Premises only for the uses specified in Section 1.1 to conduct Tenant's business. Tenant shall not occupy or use the Premises (or permit the use or occupancy of the Premises) for any purpose or in any manner which: (1) is unlawful or in violation of any Law or Hazardous Materials Law; (2) may be unreasonably dangerous to persons or property; (3) is contrary to or prohibited by the terms and conditions of this Lease or the rules of the Building set forth in Article 18; or (4) creates or continues a nuisance. Notwithstanding the foregoing, in no event will Tenant be prohibited from using the Premises for

research and development laboratory use, manufacturing use, and related office use.

(b) Landlord shall provide Tenant with access to the Premises 24 hours per day, 7 days per week and 365/366 days per year, subject to closure due to Force Majeure events when required by governmental authorities with jurisdiction over the Premises, or in the event of an imminent threat to safety or the Building.

(c) Landlord and Tenant acknowledge that the Americans With Disabilities Act of 1990 (42 U.S.C. §12101 et seq.) and regulations and guidelines promulgated thereunder, as all of the same may be amended and supplemented from time to time (collectively referred to herein as the "ADA") establish requirements for business operations, accessibility and barrier removal, and that such requirements may or may not apply to the Premises, the Building and the Project depending on, among other things: (1) whether Tenant's business is deemed a "public accommodation" or "commercial facility", (2) whether such requirements are "readily achievable", and (3) whether a given alteration affects a "primary function area" or triggers "path of travel" requirements. The parties hereby agree that: (a) Landlord shall be responsible for ADA Title III compliance in the Common Areas, except as provided below, (b) Tenant shall be responsible for ADA Title III compliance in the Premises, including any Tenant Additions or other work to be performed in the Premises by Tenant under or in connection with this Lease,
(c) Landlord may perform, or require that Tenant perform, and Tenant shall be responsible for the cost of, ADA Title III "path of travel" requirements triggered by Tenant Additions in the Premises, and (d) Landlord may perform, or require Tenant to perform, and Tenant shall be responsible for the cost of, ADA Title III compliance in the Common Areas necessitated by the Building being deemed to be a "public accommodation" instead of a "commercial facility" as a result of Tenant's use of the Premises for other than research and development laboratory use, and related office use. Tenant shall be solely responsible for requirements under Title I of the ADA relating to Tenant's employees.

(d) Landlord and Tenant agree to cooperate and use commercially reasonable

efforts to participate in traffic management programs generally applicable to businesses located in or about the area and Tenant shall encourage and support van, shuttle service, and carpooling by, and staggered and flexible working hours for, its office workers and service employees to the extent reasonably permitted by the requirements of Tenant's business. Neither this Section or any other provision of this Lease is intended to or shall create any rights or benefits in any other person, firm, company, governmental entity or the public.

(e) Tenant agrees to reasonably cooperate with Landlord and to comply with any and all guidelines or controls concerning energy management and usage disclosure imposed upon Landlord by federal or state governmental organizations or by any energy conservation association to which Landlord is a party or which is applicable to the Building, including, without limitation, the requirements of California's Nonresidential Building Energy Use Disclosure Program, as more particularly specified in California Public Resources Code Sections 25402.10 et seq. and regulations adopted pursuant thereto. Further, Tenant hereby authorizes (and agrees that Landlord shall have the authority to authorize) any electric or gas utility company providing service to the Building to disclose from time to time so much of the data collected and maintained by it regarding Tenant's energy consumption data as may be necessary to cause the Building to participate in the ENERGY STAR® Portfolio Manager system and similar programs; and Tenant further authorizes Landlord to disclose information concerning energy use by Tenant, either individually or in combination with the energy use of other tenants, as applicable as Landlord determines to be reasonably necessary to comply with applicable Laws pertaining to the Building or Landlord's ownership thereof.

(f) Hazardous Materials.

(1) Definitions. The following terms shall have the following meanings for purposes of this Lease:

(i) "Biohazardous Materials" means any and all substances and materials defined or referred to as "medical waste," "biological waste," "biohazardous waste," "biohazardous material" or any other term of similar import under any Hazardous Materials Laws, including (but not limited to) California Health & Safety Code Sections 25105 et seq., and any regulations promulgated thereunder, as amended from time to time.

(ii) "Chemical Control Area Plan" means that certain plan for the use and storage of Hazardous Materials in the Building created by Landlord and approved by the City, if any, which plan shall not materially increase Tenant's expenses nor materially impact Tenant's use of the Premises, and a copy of which plan shall be provided to Tenant no later than thirty (30) days prior to such plan's implementation.

(iii) "Environmental Condition" means the Release of any Hazardous Materials in, over, on, under, through, from or about the Project (including, but not limited to, the Premises).

(iv) "Environmental Damages" means all claims, suits, judgments, damages, losses, penalties, fines, liabilities, encumbrances, liens, costs and expenses of whatever kind or nature, contingent or otherwise, matured or unmatured, foreseeable or

unforeseeable, arising out of or in connection with any Environmental Condition, including, to the

extent arising out of an Environmental Condition, without limitation: (A) damages for personal injury, or for injury or damage to the Project or natural resources occurring on or off the Project, including without limitation (1) any claims brought by or on behalf of any person, (2) any loss of, lost use of, damage to or diminution in value of any Project or natural resource, and (3) costs of any investigation, remediation, removal, abatement, containment, closure, restoration or monitoring work required by any federal, state or local governmental agency or political subdivision, or otherwise reasonably necessary to protect the public health or safety, whether on or off the Project; (B) reasonable fees incurred for the services of attorneys, consultants, contractors, experts and laboratories in connection with the preparation of any feasibility studies, investigations or reports or the performance of any work described above; (C) any liability to any third person or governmental agency to indemnify such person or agency for costs expended or liabilities incurred in connection with any items described in clause (A) or (B) above; (D) any fair market or fair market rental value of the Project; and (E) the amount of any penalties, damages or costs a party is required to pay or incur in excess of that which the party otherwise would reasonably have expected to pay or incur absent the existence of the applicable Environmental Condition.

(v) "Handling" or **"**Handles", when used with reference to any substance or material, includes (but is not limited to) any receipt, storage, use, generation, Release, transportation, treatment or disposal of such substance or material.

(vi) "Hazardous Materials" means any and all chemical, explosive, biohazardous, radioactive or otherwise toxic or hazardous materials or hazardous wastes, including without limitation any asbestos-containing materials, PCB's, CFCs, petroleum and derivatives thereof, Radioactive Materials, Biohazardous Materials, Hazardous Wastes, any other substances defined or listed as or meeting the characteristics of a hazardous substance, hazardous material, Hazardous Waste, toxic substance, toxic waste, biohazardous material, biohazardous waste, biological waste, medical waste, radiation, radioactive substance, radioactive waste, or other similar term, as applicable, under any law, statute, ordinance, code, rule, regulation, directive, order, condition or other written requirement enacted, promulgated or issued by any public officer or governmental or quasi-governmental authority, whether now in force or hereafter in force at any time or from time to time to protect the environment or human health, and/or any mixed materials, substances or wastes containing more than one of the foregoing categories of materials, substances or wastes.

(vii) "Hazardous Materials Laws" means, collectively, (A) the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Sections 9601-9657, (B) the Hazardous Materials Transportation Act of 1975, 49 U.S.C. Sections 1801-1812, (C) the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sections 6901-6987 (together with any amendments thereto, any regulations thereunder and any amendments to any such regulations as in effect from time to time, "RCRA"), (D) the California Carpenter-Presley-Tanner Hazardous Substance Account Act, California Health & Safety Code Sections 25300 et seq., (E) the Hazardous Materials Release Response Plans and Inventory Act, California Health & Safety Code Sections 25500 et seq., (F) the California Hazardous Waste Control Law, California Health & Safety Code Sections 25100 et seq. (together with any amendments thereto, any regulations thereunder and any amendments to any such regulations as

in effect from time to time, the "CHWCL"), (G) California Health & Safety Code Sections 25015-25027.8, (H) any amendments to or successor statutes to any of the foregoing, as adopted or enacted from time to time, (I) any regulations or amendments thereto promulgated pursuant to any of the foregoing from time to time, (J) any Laws relating to Biohazardous Materials, including (but not limited to) any regulations or requirements with respect to the shipping, use, decontamination and disposal thereof, and (K) any other Law now or at any time hereafter in effect regulating, relating to or imposing liability or standards of conduct concerning any Hazardous Materials, including (but not limited to) any requirements or conditions imposed pursuant to the terms of any orders, permits, licenses, registrations or operating plans issued or approved by any governmental

or quasi-governmental authority from time to time either on a Project-wide basis or in connection with any Handling of Hazardous Materials in, on or about the Premises or the Project.

(viii) "Hazardous Wastes" means (A) any waste listed as or meeting the identified characteristics of a "hazardous waste" or terms of similar import under RCRA, (B) any waste meeting the identified characteristics of a "hazardous waste", "extremely hazardous waste" or "restricted hazardous waste" under the CHWCL, and/or (C) any and all other substances and materials defined or referred to as a "hazardous waste" or other term of similar import under any Hazardous Materials Laws.

(ix) "Landlord's Contamination" means any Hazardous Materials which exist in, on, under or in the vicinity of the Project as of the date of this Lease or which migrate onto or beneath the Project after termination of this Lease. Tenant shall not be required to pay any costs with respect to the remediation or abatement of Landlord's Contamination.

(x) "Radioactive Materials" means (A) any and all substances and materials the Handling of which requires an approval, consent, permit or license from the Nuclear Regulatory Commission, (B) any and all substances and materials the Handling of which requires a Radioactive Material License or other similar approval, consent, permit or license from the State of California, and (C) any and all other substances and materials defined or referred to as "radiation," a "radioactive material" or "radioactive waste," or any other term of similar import under any Hazardous Materials Laws, including (but not limited to) Title 26, California Code of Regulations Section 17-30100, and any statutes, regulations or other laws administered, enforced or promulgated by the Nuclear Regulatory Commission.

(xi) "Release" means any accidental or intentional spilling, leaking, pumping, pouring, emitting, discharging, injecting, escaping, leaching, migrating, dumping or disposing into the air, land, surface water, groundwater or the environment (including without limitation the abandonment or discarding of receptacles containing any Hazardous Materials).

(xii) "Tenant's Contamination" means any Hazardous Material Release on or about the Property by Tenant and/or any agents, employees, contractors, vendors, suppliers, licensees, subtenants, and invitees of Tenant (individually, a "Tenant Party" and collectively, "Tenant Parties").

(2) Handling of Hazardous Materials. The parties acknowledge that

Tenant wishes and intends to use all or a portion of the Premises as a bio-pharmaceutical research and development facility in conformance with the conduct by Tenant of its business in accordance with the use specified in Section 1.1, that such use, as conducted or proposed to be conducted by Tenant, would customarily include the Handling of Hazardous Materials, and that Tenant shall therefore be permitted to engage in the Handling in the Premises of necessary and reasonable quantities of Hazardous Materials customarily used in or incidental to the operation of a bio-pharmaceutical research, manufacturing, development preparation and/or dispensing facility in conformance with business operations of Tenant in the manner conducted or proposed to be conducted by Tenant hereunder ("Permitted Hazardous Materials"), provided that the Handling of such Permitted Hazardous Materials by all Tenant Parties shall at all times comply with and be subject to all provisions of this Lease and all Laws, including all Hazardous Materials Laws, and with Landlord's Chemical Control Area Plan for the Building. Without limiting the generality of the foregoing, Tenant shall comply at all times with all Hazardous Materials Laws applicable to any aspect of Tenant's use of the Premises and the Project and of Tenant's operations and activities in, on and about the Premises and the Project, and shall ensure at all times that Tenant's Handling of Hazardous Materials in, on and about the Premises does not violate (x) the terms of any governmental licenses or permits applicable to the Building (including, but not limited to, the Building Discharge Permit as defined below) or Premises or to Tenant's Handling of any

Building Discharge Permit as defined below) or Premises or to Tenant's Handling of any Hazardous Materials therein, or (y) any applicable requirements or restrictions relating to the occupancy classification of the Building and the Premises.

(3) Disposition or Emission of Hazardous Materials. Tenant shall not Release or dispose of any Hazardous Materials, except to the extent authorized by permit, at the Premises or on the Project, but instead shall arrange for off-site disposal, under Tenant's own name and EPA waste generator number (or other similar identifying information issued or prescribed by any other governmental authority with respect to Radioactive Materials, Biohazardous Materials or any other Hazardous Materials) and at Tenant's sole expense, in compliance with all applicable Hazardous Materials Laws, with the Laboratory Rules and Regulations (defined below) and with all other applicable Laws and regulatory requirements.

(4) Information Regarding Hazardous Materials. Tenant shall maintain and make available to Landlord the following information and/or documentation within thirty (30) days after written demand:

(i) An inventory of all Hazardous Materials that Tenant receives, uses, handles, generates, transports, stores, treats or disposes of from time to time, or at the time of preparation of such inventory proposes or expects to use, handle, generate, transport, store, treat or dispose of from time to time, in connection with its operations at the Premises. Such inventory shall include, but shall separately identify, any Hazardous Wastes, Biohazardous Materials and Radioactive Materials covered by the foregoing description. If such inventory includes any Biohazardous Materials, Tenant shall also disclose in writing to Landlord the Biosafety Level designation associated with the use of such materials.

(ii) Copies of all then existing permits, licenses, registrations and other similar documents issued by any governmental or quasi-governmental authority that authorize any Handling of Hazardous Materials in, on or about the Premises or the Project by any Tenant Party.

(iii) All Material Safety Data Sheets ("MSDSs"), if any, required to be completed with respect to operations of Tenant at the Premises from time to time in accordance with Title 26, California Code of Regulations Section 8-5194 or 42 U.S.C. Section 11021, or any amendments thereto, and any Hazardous Materials Inventory Sheets that detail the MSDSs.

(iv) All hazardous waste manifests (as defined in Title 26, California Code of Regulations Section 22-66481), if any, that Tenant is required to complete from time to time in connection with its operations at the Premises.

(v) A copy of any "Hazardous Materials Business Plan" required from time to time with respect to Tenant's operations at the Premises pursuant to California Health & Safety Code Sections 25500 et seq., and any regulations promulgated thereunder, as amended from time to time, or in connection with Tenant's application for a business license from the City. If applicable law does not require Tenant to prepare a Hazardous Materials Business Plan, Tenant shall furnish to Landlord at the times and in the manner set forth above the information that would customarily be contained in a Hazardous Materials Business Plan, including (but not limited to) information regarding Tenant's Hazardous Materials inventories. The parties acknowledge that a Hazardous Materials Business Plan would ordinarily include an emergency response plan, and that regardless of whether applicable Law requires Tenant or other tenants in the Building to prepare Hazardous Materials Business Plans, Landlord in its discretion may elect to prepare a coordinated emergency response plan for the entire Building and/or for multiple Buildings on the Project (if and to the extent applicable).

(vi) Any "Contingency Plans and Emergency Procedures" required of Tenant from time to time, in connection with its operations at the Premises, pursuant to applicable Law, Title 26, California Code of Regulations Sections 22-67140 et seq., and any amendments thereto, and any "Training Programs and Records" required under Title 26, California Code of Regulations Section 22-66493, and any amendments thereto from time to time. Landlord in its discretion may elect to prepare a Contingency Plan and Emergency Procedures for the entire Building and/or for multiple buildings on the Project, in which event, if applicable law does not require Tenant to prepare a Contingency Plan and Emergency Procedures for its operations at the Premises, Tenant shall furnish to Landlord at the times and in the manner set forth above the information that would customarily be contained in a Contingency Plan and Emergency Procedures.

(vii) Copies of any biennial or other periodic reports furnished or required to be furnished to the California Department of Health Services from time to time, under applicable law, pursuant to Title 26, California Code of Regulations Section 22-66493 and any amendments thereto, relating to any Hazardous Materials.

(viii) Copies of any industrial wastewater discharge permits issued to or held by Tenant from time to time in connection with its operations at the Premises (the parties presently anticipate, however, that because of the existence of the Building Discharge Permit in Landlord's name as described above. Tenant will not be required to maintain a separate, individual discharge permit).

(ix) Copies of any other lists, reports, studies, or inventories of

Hazardous Materials or of any subcategories of materials included in Hazardous Materials that Tenant is otherwise required to prepare and file from time to time with any governmental or quasi-governmental authority in connection with Tenant's operations at the Premises, including (but not limited to) reports filed by Tenant with the federal Food & Drug Administration or any other regulatory authorities primarily in connection with the presence (or lack thereof) of any "select agents" or other Biohazardous Materials on the Premises, together with proof of filing thereof.

(x) Any other information reasonably requested by Landlord in writing from time to time in connection with (A) Landlord's monitoring (in Landlord's reasonable discretion) and enforcement of Tenant's obligations under this Section and of compliance with applicable Laws in connection with any Handling or Release of Hazardous Materials in the Premises or Building or on or about the Project by any Tenant Party, (B) any inspections or enforcement actions by any governmental authority pursuant to any Hazardous Materials Laws or any other Laws relating to the presence or Handling of Hazardous Materials in the Premises or Building or on or about the Project by any Tenant Party, and/or (C) Landlord's preparation (in Landlord's reasonable discretion) and enforcement of any reasonable rules and procedures relating to the presence or Handling by Tenant or any Tenant Party of Hazardous Materials in the Premises or Building or on or about the Project, including (but not limited to) any contingency plans or emergency response plans as described above. Except as otherwise required by Law, Landlord shall keep confidential any information supplied to Landlord by Tenant pursuant to the foregoing, provided, however, that the foregoing shall not apply to any publicly available information filed with any governmental authority or available to the public at large. Landlord may provide such information to its lenders, consultants or investors provided such entities agree to keep such information confidential.

(5) Indemnification; Notice of Release. Tenant shall be responsible for and shall indemnify, defend and hold Landlord harmless from and against all Environmental Damages to the extent arising out of or otherwise relating to, (i) any Handling of Hazardous Materials by any Tenant Party in, on or about the Premises or the Project in violation of this Section, (ii) any breach of Tenant's obligations under this Section or of any Hazardous Materials Laws by any Tenant Party, or (iii) the existence of any Tenant's Contamination in, on or about the Premises or the Project to the extent caused by any Tenant Party, including without limitation any removal, cleanup or restoration work and materials necessary to return the Project or any improvements of whatever nature located on the Project to the condition existing prior to the Handling of Hazardous Materials in, on or about the Premises or the Project by any Tenant Party. In the event of any Tenant's Contamination in, on or about the Premises or any other portion of the Project or any adjacent lands, Tenant shall promptly remedy the problem in accordance with all applicable Hazardous Materials Laws, shall give Landlord oral notice of any such non-standard or non-customary Release promptly after Tenant becomes aware of such Release, followed by written notice to Landlord within ten (10) business days after Tenant becomes aware of such Release, and shall furnish Landlord with concurrent copies of any and all notices, reports and other written materials filed by any Tenant Party with any governmental authority in connection with such Release. Tenant shall have no obligation to indemnify, defend and hold Landlord harmless from and against or remedy any Hazardous Materials contamination which was not caused or released by a Tenant Party.

(6) Governmental Notices. Tenant shall promptly provide Landlord with copies of all notices received by Tenant relating to any actual or alleged presence or Handling by any Tenant Party of Hazardous Materials in, on or about the Premises or any other portion of the Project, including, without limitation, any notice of violation, notice of responsibility or demand for action from any federal, state or local governmental authority or official in connection with any actual or alleged presence or Handling by any Tenant Party of Hazardous Materials in or about the Premises or any other portion of the Project.

(7) Inspection by Landlord. In addition to, and not in limitation of,

Landlord's rights under this Lease, upon reasonable prior request by Landlord, Tenant shall grant Landlord and its consultants, as well as any governmental authorities having jurisdiction over the Premises or over any aspect of Tenant's use thereof, reasonable access to the Premises at reasonable times to inspect Tenant's Handling of Hazardous Materials in, on and about the Premises, and Landlord shall not thereby incur any liability to Tenant or be deemed guilty of any disturbance of Tenant's use or possession of the Premises by reason of such entry; provided, however, that Landlord shall use reasonable efforts to minimize interference with Tenant's use of the Premises caused by such entry, and Landlord shall comply with any security and confidentiality requirements reasonably imposed by Tenant during any entry onto the Premises and shall minimize to the extent reasonably possible any interference with Tenant's use of the Premises caused by such entry. Notwithstanding Landlord's rights of inspection and review of documents, materials and physical conditions under this Section with respect to Tenant's Handling of Hazardous Materials, Landlord shall have no duty or obligation to perform any such inspection or review or to monitor in any way any documents, materials, physical conditions or compliance with Laws in connection with Tenant's Handling of Hazardous Materials, and no third Party shall be entitled to rely on Landlord to conduct any such inspection, review or monitoring by reason of the provisions of this Section.

(8) Monitoring by Landlord. Subject to subsection (7) immediately above, Landlord reserves the right to monitor, in Landlord's reasonable discretion and at Landlord's cost, the reasonable cost of which shall be recoverable as an Operating Expense (except in the case of a breach of any of Tenant's obligations under this Section, in which event such reasonable monitoring costs may be charged back entirely to Tenant and shall be reimbursed by Tenant to Landlord within fifteen (15) business days after written demand by Landlord from time to time, accompanied by supporting documentation reasonably evidencing the costs for which such reimbursement is claimed), at such times and from time to time as Landlord in its reasonable discretion may determine, through consultants engaged by Landlord or otherwise as Landlord in its reasonable discretion may determine: (x) all aqueous and atmospheric discharges and emissions from the Premises during the Term by a Tenant Party, (y) Tenant's compliance and the collective compliance of all tenants in the Building with requirements and restrictions relating to the occupancy classification of the Building (including, but not limited to, Hazardous Materials inventory levels of Tenant and all other tenants in the Building), and (z) Tenant's compliance with all other requirements of this Section.

(9) Discovery of Discharge. If Landlord, Tenant or any governmental or quasi-governmental authority discovers any Release from the Premises during the Term by a Tenant Party in violation of this Section that, in Landlord's reasonable determination, jeopardizes the ability of the Building or the Project to meet applicable Laws or otherwise materially and

adversely affects the Building's or the Project's compliance with applicable discharge or emission standards, or if Landlord discovers any other material breach of Tenant's obligations under this Section, then upon receipt of written notice from Landlord or at such earlier time as Tenant obtains actual knowledge of the applicable discharge, emission or breach, Tenant at its sole expense shall within a reasonable time (x) in the case of a Release in violation of this Lease, cease the applicable discharge or emission and remediate any continuing effects of the discharge or emission until such time, if any, as Tenant demonstrates to Landlord's reasonable satisfaction that the applicable discharge or emission is in compliance with all applicable Laws and any other applicable regulatory commitments and obligations to the satisfaction of the appropriate governmental agency with jurisdiction over the Release, and (y) in the case of any other breach of Tenant's obligations under this Section, take such corrective measures as Landlord may reasonably request in writing in order to cure or eliminate the breach as promptly as practicable and to remediate any continuing effects of the breach.

(10) Post-Occupancy Study. No later than fifteen (15) days following the Termination Date, Tenant, at its sole cost and expense, shall obtain and deliver to Landlord a decommissioning study that is performed (A) in accordance with then-current market standards in the San Francisco Bay Area for like-kind laboratory space, and (B) by an expert reasonably

the San Francisco Bay Area for like-kind laboratory space, and (B) by an expert reasonably satisfactory to Landlord, evaluating the presence or absence of any Tenant's Contamination in, on and about the Premises and the Project. Landlord acknowledges that the following are acceptable experts for the performance of such study as of the date of this Lease: Burke-Herring, Nanoclean or Ingenium. Such study shall be based on a reasonable and prudent level of tests and investigations of the Premises and surrounding portions of the Project (if appropriate) which tests shall be conducted no earlier than fifteen (15) days prior to the Termination Date. Liability for any remedial actions required or recommended on the basis of such study shall be allocated in accordance with the applicable provisions of this Lease. To the extent any such remedial actions are the responsibility of Tenant, Tenant at its sole expense shall promptly commence and diligently pursue to completion the required remedial actions.

(11) Emergency Response Plans. If Landlord in its reasonable discretion adopts any emergency response plan and/or any Contingency Plan and Emergency Procedures for the Building (or for multiple buildings on the Project if and to the extent applicable) as contemplated above, Landlord shall provide copies of any such plans and procedures to Tenant and, so long as such plans and procedures are reasonable and do not impose material additional costs or expenses on Tenant, Tenant shall comply with all of the requirements of such plans and procedures to the extent applicable to Tenant and/or the Premises. If Landlord elects to adopt or materially modify any such plans or procedures that apply to the Building during the Term, Landlord shall consult with Tenant and Tenant shall reasonably cooperate, at no material cost to Tenant, in the preparation of such plans, procedures or modifications in efforts to accurately reflect and maintain consistency with Tenant's operations in the Premises, but Landlord alone shall determine, in its good faith reasonable discretion, the appropriate scope of such consultation and nothing in this Section shall be construed to give Tenant any right of approval or disapproval over Landlord's adoption or modification of any such plans or procedures.

(12) Radioactive Materials. Without limiting any other applicable provisions of this Section, if Tenant Handles or proposes to Handle any Radioactive Materials in or about the Premises, Tenant shall provide Landlord with copies of Tenant's licenses or permits

for such Radioactive Materials and with copies of all radiation protection programs and procedures required under applicable Laws or otherwise adopted by Tenant from time to time in connection with Tenant's Handling of such Radioactive Materials. In addition, Tenant shall comply with any and all rules and procedures issued by Landlord in its good faith discretion from time to time with respect to the Handling of Radioactive Materials on the Project (such as, by way of example but not limitation, rules implementing a label defacement program for decayed waste destined for common trash and/or rules relating to transportation and storage of Radioactive Materials on the Project), provided that such rules and procedures shall be reasonable and not in conflict with any applicable Laws.

(13) Deemed Holdover Occupancy. Notwithstanding any other provisions of this Lease, Landlord and Tenant expressly agrees as follows:

(i) If Tenant Handles any Radioactive Materials in or about thePremises or the Project during the Term, then for so long as any license or permit relating to such Radioactive Materials remains open or valid following the Termination Date, and another entity handling Radioactive Materials which is a prospective tenant of Landlord is legally prohibited from occupying a portion of the Premises for a use similar to Tenant's use, then Tenant shall be deemed to be occupying that portion of the Premises on a holdover basis without Landlord's consent (notwithstanding such otherwise applicable termination or expiration of the Term) and shall be required to continue to pay Rent and other charges in accordance with Article 13 solely for that portion of the Premises effected by the radioactive materials license, until such time as all such Radioactive Materials licenses and permits have been fully closed out in accordance with therequirements of this Lease and with all applicable Hazardous Materials Laws and other Laws.

(ii) If Tenant Handles any Hazardous Materials in or about the Premises or the Project during the Term and, on or before the Termination Date, has failed to remove from the Premises or the Project all known Hazardous Materials Handled by a Tenant Party or has failed to complete any remediation or removal of Tenant's Contamination and/or to have fully remediated in compliance with the requirements of this Lease and with all applicable Hazardous Materials Laws and any other applicable Laws, the Tenant's Handling and/or Release (if applicable) of any such Hazardous Materials during the Term, then for so long as such circumstances continue to exist, Tenant shall be deemed to be occupying the Premises on a holdover basis without Landlord's consent (notwithstanding such otherwise applicable termination or expiration of the Term) and shall be required to continue to pay Rent and other charges in accordance with Article 13 until such time as all such circumstances have been fully resolved in accordance with the requirements of this Lease and with all applicable Hazardous Materials Laws and other Laws.

(iii) As to the Named Tenant, the "deemed occupancy" set forth in subsections (i) and (ii) above shall apply only if Tenant's failure to comply with such subsections continues for period of thirty (30) days following the Termination Date, with the holdover penalties commencing as of the thirty-first (31st) day following the Termination Date, but only as to the portion of the Premises that has not been decommissioned to Landlord's reasonable satisfaction (i.e., in accordance with decommissioning standards then in effect for similar laboratory space in the San Francisco Bay Area).

(14) Survival of Obligations. Each party's obligations under this Section

shall survive the Termination Date and shall survive any conveyance by Landlord of its interest in the Premises. The provisions of this Section and any exercise by either party of any of the rights and remedies contained herein shall be without prejudice to any other rights and remedies that such party may have under this Lease or under applicable Law with respect to any Environmental Conditions and/or any Hazardous Materials. Either party's exercise or failure to exercise, at any time or from time to time, any or all of the rights granted in this Section shall not in any way impose any liability on such party or shift from the other party to such party any responsibility or obligation imposed upon the other party under this Lease or under Hazardous Materials Laws, Environmental Conditions and/or compliance with Laws.

(15) Laboratory Rules and Regulations. Tenant agrees for itself and for its subtenants, employees, agents, and invitees to comply with the laboratory rules and regulations ("Laboratory Rules and Regulations") attached to this Lease as Exhibit C-1 and with all reasonable modifications and additions thereto which Landlord may make from time to time that do not impose material additional costs or expenses on Tenant.

(16) Landlord's Obligations.

(i) If Landlord and/or its authorized agents Handle Hazardous Materials in, on or about the Project, such Hazardous Materials shall be Handled in compliance with applicable Hazardous Materials Laws.

(ii) If, as a result of Landlord and/or its authorized agents Handling Hazardous Materials in, on or about the Project, such Hazardous Materials must be remediated under Hazardous Materials Laws, Landlord shall promptly take all necessary actions in order to address such remediation.

(iii) If Hazardous Materials on the Project, resulting from Landlord's acts, contaminate the Project, or if the Project was contaminated prior to Tenant's occupancy under the Existing Lease, Landlord shall indemnify and hold Tenant and its agents harmless from any and all claims, damages, penalties, fines, costs, liabilities and losses, damages, attorneys' fees, consultants' fees and experts' fees resulting from such contamination.

7.2 LANDLORD ACCESS TO PREMISES; APPROVALS

(a) Tenant shall permit Landlord to erect, use and maintain pipes, ducts, wiring and conduits in and through the Premises, so long as Tenant's use, layout or design of the Premises is not materially affected or altered. Landlord or Landlord's agents shall have the right to enter upon the Premises in the event of an emergency, or to inspect the Premises, to perform any services required hereunder, to conduct safety and other testing in the Premises and to make such repairs, alterations, improvements or additions to the Premises or the Building or other parts of the Property as Landlord may deem necessary or desirable (including all alterations, improvements and additions in connection with a change in service provider or providers). Any entry or work by Landlord may be during Standard Operating Hours and Landlord shall use reasonable efforts to ensure that any entry or work shall not materially interfere with Tenant's occupancy of the Premises.

(b) Advance notice shall not be required for entry in the event of an emergency or urgent situation, as reasonably determined by Landlord, but any other entry or work by Landlord shall be (i) at a time mutually agreed upon between Landlord and Tenant, (ii) during Standard Operating Hours, (iii) upon at least two (2) business day's prior written notice to Tenant, which notice may be delivered orally or by e-mail to Tenant's on-site manager at the Premises, and (iv) conducted with a representative of Tenant present.

(c) Subject to the provisions of this Section 7.2, Landlord may enter the Premises for the purpose of conducting such inspections, tests and studies as Landlord may deem

desirable or necessary to confirm Tenant's compliance with all Laws and Hazardous Materials Laws or for other purposes necessary in Landlord's reasonable judgment to ensure the sound condition of the Property and the systems serving the Property. If Landlord discovers any unsafe or hazardous conditions during any such inspection, Landlord shall promptly notify Tenant of such conditions. Landlord's rights under this Section 7.2(c) are for Landlord's own protection only, and Landlord has not, and shall not be deemed to have assumed, any responsibility to Tenant or any other party as a result of the exercise or non-exercise of such rights, for compliance with Laws or Hazardous Materials Laws or for the accuracy or sufficiency of any item or the quality or suitability of any item for its intended use.

(d) Landlord may do any of the foregoing, or undertake any of the inspection or work described in the preceding paragraphs without such action constituting an actual or constructive eviction of Tenant, in whole or in part, or giving rise to an abatement of Rent by reason of loss or interruption of business of Tenant, or otherwise.

(e) The review, approval or consent of Landlord with respect to any item required or permitted under this Lease is for Landlord's own protection only, and Landlord has not, and shall not be deemed to have assumed any responsibility to Tenant or any other party, as a result of the exercise or non-exercise of such rights, for compliance with Laws or Hazardous Materials Laws or for the accuracy or sufficiency of any item or the quality or suitability of any item for its intended use.

(f) Landlord shall make commercially reasonable efforts to advise its employees, agents, contractors, invited guests, and assigns that they will not be permitted to enter the Premises without executing a commercially reasonable form of confidentiality agreement provided by Tenant (the "Confidentiality Agreement"), which Confidentiality Agreement shall prohibit the disclosure, dissemination or distribution of any information that any such parties may learn of, discover, or see within the Premises (whether during an inspection or otherwise), regardless of the nature, source, or storage medium of said confidential information. In the event that Landlord's employees enter the Premises, Landlord covenants, warrants, and agrees that its employees shall execute the Confidentiality Agreement prior to entering the Premises, and at all times shall maintain the confidentiality of any and all such information. Landlord shall make commercially reasonable efforts to advise any and all persons entering the Premises at its request or acquiescence, by its authority, or on its behalf that such persons will be required to execute the Confidentiality Agreement, but Landlord shall not be liable for such persons failure to do so, nor for Tenant's failure to require such execution as a condition to entering the Premises. Landlord agrees to immediately notify Tenant of any violation of this section by Landlord's employees.

7.3 QUIET ENJOYMENT

Landlord covenants that so long as Tenant is not in Default under this Lease, Tenant shall have the right to quiet enjoyment of the Premises without hindrance or interference from Landlord or those claiming through Landlord, and subject to the covenants and conditions set forth in this Lease and to the rights of any Mortgagee.

7.4 TRANSPORTATION DEMAND MANAGEMENT PROGRAM

(a) Landlord may elect or may be required to develop and implement a Transportation Demand Management ("TDM") program for the Building in order to reduce the traffic-related impacts resulting from development of the Property. One element of any such TDM program will require tenants of the Building to adopt programs and offer incentives to their employees to reduce auto use and support the increase of alternative modes of transit. The following are examples of such programs and incentives:

(1) Alternative commute subsidies and/or parking cash-out, where employees are provided with a subsidy if they use transit or commute by alternative modes;

(2) Opportunities to purchase commuter checks which allow employees to purchase transit tickets at discounted rates from their before-tax income; and

(3) Compressed work weeks and flex time where employees adjust their work schedules to reduce peak hour trips to/from the Building.

(b) In order to support any such TDM program for the Building, Tenant agrees that it shall make commercially reasonable efforts, taking into consideration the location of the Premises, to adopt programs and offer incentives to its employees in order to reduce auto use and support the increase of alternative modes of transit. The specifics of Tenant's programs and incentives shall be tailored to the needs of Tenant's workforce and shall be determined by Tenant in its good faith efforts to meet the goals of the TDM program. Upon request by Landlord from time to time, but not more often than once per calendar year, Tenant shall provide to Landlord a written report summarizing the programs and incentives being offered by Tenant to achieve the goals of the TDM program.

ARTICLE 8
MAINTENANCE

8.1 LANDLORD'S MAINTENANCE

Subject to the provisions of Articles 4 and 14 and the definition of "Operating Expenses", Landlord shall, as an Operating Expense, maintain and make necessary repairs to the foundations, roofs, roof membrane, exterior walls, and the structural elements of the Building, the electrical, plumbing, heating, ventilating, air-conditioning, mechanical, communication, security and the fire and life safety systems of the Building and those corridors, washrooms and lobbies which are Common Areas of the Building, except that: (a) Landlord shall not be responsible for the maintenance or repair of any floor or wall coverings in the Premises or any of such systems which are located within the Premises and are supplemental or special to the Building's standard systems;

and (b) the cost of performing any of said maintenance or repairs whether to the Premises or to the Building caused by the negligence of Tenant, its employees, agents, servants, licensees, subtenants, contractors or invitees, shall be paid by Tenant, subject to the waivers set forth in Section 16.4.

8.2 TENANT'S MAINTENANCE

Tenant shall, at its sole cost and expense, perform all maintenance, repair and replacement of the Premises that are not Landlord's express responsibility under this Lease, and keep the Premises in good condition and repair, reasonable wear and tear excepted. Tenant's maintenance, repair and replacement obligations include, without limitation, maintenance, repairs and replacements of: (a) floor covering; (b) interior partitions; (c) doors; (d) the interior side of demising walls; (e) electronic, phone and data cabling, wiring and related equipment that is installed by or for the exclusive benefit of Tenant (collectively, "Cable"); (f) supplemental air conditioning units, kitchens, including hot water heaters, plumbing, and similar facilities exclusively serving Tenant; and (g) Tenant Alterations. Landlord shall allocate one hundred percent (100%) of the cost (plus any applicable administration fees) of Landlord's maintenance, repair or replacement of any Tenant Alterations, or repairs or replacements required to areas outside of the Premises due to same, to Tenant as additional Rent under this Lease. Subject to the waiver of subrogation provisions set forth in Section 16.4 below, Tenant shall reimburse Landlord for the cost of repairing damage to the Building caused by the acts of Tenant, Tenant Parties and their respective contractors and vendors. All maintenance, repairs and replacements upon notice to Tenant, including, but not limited to, janitorial and cleaning services, pest control and waste management and recycling performed by or on behalf of Landlord or Tenant must comply with the Project's Sustainability Practices. If Tenant fails to make any repairs or replacements of the Premises for more than fifteen (15) days after notice from Landlord (although notice shall not be required in an emergency), Landlord may make the repairs or replacements, and Tenant shall pay, as additional Rent under this Lease, the reasonable cost of the repairs or replacements, together with an administrative charge in an amount equal to ten percent (10%) of the cost of the repairs or replacements. Tenant hereby waives all right to make repairs or replacements at the expense of Landlord or in lieu thereof to vacate the Premises and its other similar rights as provided in California Civil Code Sections 1932(1), 1941 and 1942 or any other Laws (whether now or hereafter in effect). In addition to the foregoing, Tenant shall be responsible for all costs in connection with maintaining, repairing and replacing all special tenant fixtures and improvements, including garbage disposals, showers, plumbing, water filtration systems and appliances. If Tenant requests that Landlord maintain, repair and/or replace any such fixtures and improvements, Tenant shall reimburse Landlord for the cost of all such maintenance, repair and replacement work, plus an administrative fee equal to ten percent (10%) of such cost, as additional Rent under this Lease, and Landlord's liability for such maintenance, repair and replacement work shall be subject to and limited by the provisions of Article 17 below.

8.3 SUDDEN WATER INTRUSION.

Notwithstanding anything in this Lease to the contrary, in the event of sudden water intrusion into the Premises, due to a leaking or bursting pipe or other water source, Landlord will have the right, but not the obligation, to undertake immediate mitigation and repairs measures (the "Water Damage Work") of such nature as would normally be Tenant's responsibility under Section

8.2 above and to notify Tenant promptly after the repairs have been undertaken (including notice

by telephone, to the extent reasonably practicable). Landlord shall determine, in its sole and absolute discretion, the contractors to be used for the Water Damage Work, and Tenant will reimburse Landlord for the reasonable cost of the Water Damage Work, as additional Rent under this Lease, within 30 days following Tenant's receipt of written demand from Landlord therefor.

ARTICLE 9
ALTERATIONS AND IMPROVEMENTS

9.1 TENANT ALTERATIONS

(a) The following provisions shall apply to the completion of any Tenant Alterations:

(1) Tenant shall not, except as provided herein, without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed, make or cause to be made any Tenant Alterations in or to the Premises or any Property systems serving the Premises. In the event Landlord does not respond to such request within ten (10) days after written request by Tenant, and such failure continues following a second, 5-business-day written notice to Landlord, Landlord shall be deemed to have approved of such Tenant Alteration. Prior to making any Tenant Alterations, Tenant shall give Landlord ten (10) days prior written notice (or such earlier notice as would be necessary pursuant to applicable Law) to permit Landlord sufficient time to post appropriate notices of non-responsibility. Tenant shall furnish Landlord with the names and addresses of all contractors and subcontractors and copies of all contracts. All Tenant Alterations shall be completed only by contractors or mechanics approved by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed; provided, however, that Landlord may, in its sole discretion, specify the engineers and contractors to perform all work relating to the Building's systems (including the mechanical, heating, plumbing, security, ventilating, air-conditioning, electrical, communication and the fire and life safety systems in the Building). In the event Landlord does not respond to such request for approval within ten (10) days after written request by Tenant, and such failure continues following a second, 5-business-day written notice to Landlord, Landlord shall be deemed to have approved of such contractor(s) or mechanic(s). The contractors, mechanics and engineers who may be used are further limited to those whose work will not cause or threaten to cause labor disharmony or interference with Landlord or other tenants in the Building and their respective agents and contractors performing work in or about the Building. Landlord may further condition its consent upon Tenant furnishing to Landlord and Landlord approving prior to the commencement of any work or delivery of materials to the Premises related to the Tenant Alterations such of the following as specified by Landlord: architectural plans and specifications, opinions from Landlord's engineers stating that the Tenant Alterations will not in any way adversely affect the Building's systems, necessary permits and licenses, certificates of insurance, and such other documents in such form reasonably requested by Landlord. Upon completion of Tenant Alterations requiring a building permit, Tenant shall deliver to Landlord, if available, an as-built digitized set of plans and specifications for the Tenant Alterations in both protected document (".pdf") and computer-aided design ("CAD") formats. Notwithstanding the foregoing, Tenant may make Tenant Alterations without Landlord's consent, but upon not less than ten (10) days prior written notice to Landlord, so long as they (i) do not require a building permit, (ii) do not involve any of the structural elements of the Building,

(iii) do not adversely affect any of the Building's systems, (iv) are not visible from the exterior of the Building, and (v) cost less than $75,000.00 per Tenant Alteration (and not as a cumulative cap).

(2) Tenant shall pay the cost of all Tenant Alterations and the cost of decorating the Premises and any work to the Property required due to such Tenant Alterations. Upon completion of Tenant Alterations, Tenant shall furnish Landlord with full and final waivers of lien and receipted bills covering all labor and materials expended and used in connection therewith.

(3) Tenant agrees to complete all Tenant Alterations (i) in accordance

(3) Tenant agrees to complete all Tenant Alterations (i) in accordance with all Laws, Hazardous Materials Laws, all requirements of applicable insurance companies and in accordance with Landlord's standard construction rules and regulations, (ii) in a good and workmanlike manner with the use of good grades of materials, and (iii) in accordance with the requirements of the Project's Sustainability Practices. Tenant shall notify Landlord immediately if Tenant receives any notice of violation of any Law in connection with completion of any Tenant Alterations and, unless Tenant is contesting such violation, shall immediately take such steps as are necessary to remedy such violation. In no event shall such supervision or right to supervise by Landlord nor shall any approvals given by Landlord under this Lease constitute any warranty by Landlord to Tenant of the adequacy of the design, workmanship or quality of such work or materials for Tenant's intended use or of compliance with the requirements of Section 9.1(a)(3)(i) and (ii) above or impose any liability upon Landlord in connection with the performance of such work.

(b) For any Tenant Alterations which Tenant requests Landlord to install, the forgoing provisions of this Section 9.1 shall apply; provided, however, in addition to paying the cost of the Tenant Alterations, Tenant also shall pay an administrative fee equal to ten percent (10%) of such cost to Landlord, as additional Rent under this Lease, and Landlord's liability for such Tenant Alterations work shall be subject to and limited by the provisions of Article 17 below. All Tenant Additions, whether installed by Landlord or Tenant, shall without compensation or credit to Tenant, become part of the Premises and the property of Landlord at the time of their installation and shall remain in the Premises, unless pursuant to Article 12, Tenant may remove them or is required to remove them at Landlord's request; provided, however, at the time Tenant requests Landlord's consent to a proposed Tenant Alteration, or before the commencement of any Tenant Alterations for which Landlord's consent is not required, Tenant may ask Landlord in writing whether Landlord will require that the Tenant Alterations be removed on expiration or earlier termination of the Term.

9.2 LIENS

Tenant shall not permit any lien or claim for lien of any mechanic, laborer or supplier or any other lien to be filed against the Building, the Land, the Premises, or any other part of the Property arising out of work performed, or alleged to have been performed by, or at the direction of, or on behalf of Tenant. If any such lien or claim for lien is filed, Tenant shall within thirty (30) days after receiving notice of such lien or claim (a) have such lien or claim for lien released of record or (b) deliver to Landlord a bond in form, content, amount, and issued by surety, reasonably satisfactory to Landlord, indemnifying, protecting, defending and holding harmless the Indemnitees against all costs and liabilities resulting from such lien or claim for lien and the

foreclosure or attempted foreclosure thereof. If Tenant fails to take any of the above actions, Landlord, in addition to its rights and remedies under Article 11, without investigating the validity of such lien or claim for lien, may pay or discharge the same and Tenant shall, as payment of additional Rent hereunder, reimburse Landlord upon demand for the amount so paid by Landlord, including Landlord's expenses and attorneys' fees.

9.3 EMERGENCY GENERATORS

(a) Emergency Generators. Landlord hereby agrees that, subject to the terms and provisions of this Section 9.3, Tenant's compliance with all applicable Laws and all recorded covenants, conditions and restrictions affecting the Project, and subject to the approval of all applicable governmental authorities, Tenant shall continue to have the right at Tenant's sole cost and expense, to operate two (2) back-up emergency generators (collectively, the "Emergency Generators") within the location specified on Exhibit A-1 hereto (the "Emergency Generator Site"). The Emergency Generators shall be of such size and specifications, and shall include such platforms, enclosures and other related materials and equipment, as shall be approved by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed. In addition, Tenant shall have the right, subject to available capacity of the Building, to continue to maintain and/or to

shall have the right, subject to available capacity of the Building, to connect to maintain and/or to install such connection equipment, such as conduits, cables, risers, feeders and materials (collectively, the "Emergency Generator Connecting Equipment"; and collectively with the Emergency Generators, the "Emergency Generator Equipment") in the shafts, ducts, conduits, chases, utility closets and other facilities of the Building as is reasonably necessary to connect the Emergency Generators to Tenant's other machinery and equipment in the Premises, subject, however, to the following provisions of this Section 9.3. Notwithstanding the foregoing, the size, location, and specifications of the Emergency Generator Equipment as of the date of this Lease are hereby approved by Landlord.

(b) Alteration. The alteration, modification, and/or replacement of either of the Emergency Generators and/or any other Emergency Generator Connecting Equipment shall constitute an Alteration and shall be performed in accordance with and subject to the provisions of Section 9.1 of this Lease, including, without limitation, Tenant's obligation to obtain Landlord's prior consent to the size and other specifications of the Emergency Generators (and any related Emergency Generator Connecting Equipment therefor), the methods and locations of all connections to the Emergency Generator Equipment through the Building's existing conduits, cables, risers and feeders, and any such alterations, modifications and/or replacements of or to the Emergency Generator Equipment, which consent shall not be unreasonably withheld, conditioned, or delayed. The Emergency Generator Equipment shall be treated for all purposes of this Lease as if the Emergency Generator Equipment were Tenant's personal property. In no event shall Tenant be permitted to void any warranties pertaining to the Building or Project in connection with the use, operation, alteration, modification, and/or replacement of the Emergency Generator Equipment. Tenant, at Tenant's sole cost and expense, shall install such noise reduction and other protective equipment on or about the Emergency Generator Equipment as Landlord may reasonably determine.

(c) Tenant's Covenants; Maintenance and Repair. Tenant shall use, operate, modify and/or replace the Emergency Generator Equipment in compliance with all applicable Laws and all recorded covenants, conditions and restrictions affecting the Project and in such a

manner so as not to damage or interfere with the operation of the Project or the Building or any portion thereof, including, without limitation, the systems and equipment of the Building and Project, and any other generators or power sources or similar equipment located in, at or on the Building or Project. Tenant's use, maintenance or repair of the Emergency Generator Equipment shall not cause unreasonably noise, vibration or odor. Tenant shall, at its sole cost and expense, (i) be solely responsible for any damage caused as a result of the Emergency Generator Equipment, and (ii) promptly pay any tax, license or permit fees charged pursuant to any requirements in connection with the maintenance or use of the Emergency Generator Equipment and comply with all precautions and safeguards recommended by all governmental authorities. Landlord shall enter into a contract or contracts (and maintain in effect during the entire Term) for the maintenance, repair and testing of the Emergency Generator Equipment, and Tenant shall reimburse Landlord for all costs related thereto as additional Rent under this Lease.

(d) Landlord's Obligations. Notwithstanding anything contained in this Section 9.3 to the contrary, it shall be Landlord's responsibility to maintain and test the Emergency Generator Equipment. Except as otherwise specifically set forth in Section 9.3(c) above, Landlord shall not be responsible for any damage that may be caused to the Emergency Generator Equipment. Landlord makes no representation that the Emergency Generator Equipment will be able to supply sufficient power to the Premises, and Tenant agrees that Landlord shall not be liable to Tenant therefor.

(e) Hazardous Materials. Tenant shall not use any Hazardous Materials in connection with the Emergency Generator Equipment, except that Tenant may use diesel fuel (or an alternative fuel or power source that does not pose a greater environmental risk or has a higher combustibility than diesel fuel) stored in a double walled steel tank (each, a "Fuel Tank") contained within each of the Emergency Generator (the exact location and size of such Fuel Tank shall be reasonably approved by Landlord, provided however that the location of any Fuel Tanks as of the date of this Lease are hereby approved by Landlord), as long as such fuel and such Fuel Tank are kept, maintained and used in accordance with all applicable Hazardous Materials Laws and reasonable safety standards for such use, and so long as such fuel is always stored within each such Fuel Tank and is not used or stored in any area outside of the Fuel Tank. Landlord shall have the right, but not the obligation, to provide such fuel, and if Landlord so elects, Tenant shall pay the actual cost thereof incurred by Landlord as additional Rent under this Lease.

(f) Security. Physical security of the Emergency Generator Equipment is the sole responsibility of Tenant, who shall bear the sole cost, expense and liability of any security services, emergency alarm monitoring and other similar services in connection therewith. Landlord shall not be liable to Tenant for any direct, indirect, consequential or other damages arising out of or in connection with the physical security, or lack thereof, of the Emergency Generator Site and/or Emergency Generator Equipment.

(g) Default. If Tenant fails to perform any of its obligations under this Section 9.3 and does not correct such noncompliance within ten (10) business days after receipt of notice thereof from Landlord or such longer period as may be reasonably necessary to correct such noncompliance, so long as Tenant commences to correct such noncompliance within such ten (10)-business day period and thereafter proceeds with due diligence to correct such noncompliance, then a Default shall be deemed to have occurred under Section 11.1 of this Lease (notwithstanding

any additional notice or cure periods set forth in Section 11.1 of this Lease), and in addition to all

other remedies Landlord may have under this Lease, Tenant shall, upon notice from Landlord, immediately discontinue its use of that portion of the Emergency Generator Equipment to which such noncompliance relates, and make such repairs and restoration as required under Section 9.3(i) below with respect thereto.

(h) Removal at End of Term. Upon the expiration of the Term and Landlord's written request, Tenant shall, subject to the control of and direction from Landlord, and at Tenant's sole cost and expense, remove the Emergency Generator Equipment (including, without limitation all electrical switch gear, underground conduit and feeders, architectural enclosure and/or modifications to the Emergency Generator Site), repair any damage caused thereby, and restore the Emergency Generator Site and other facilities of the Building and the Project to their condition existing prior to the installation of the Emergency Generator Equipment. All such removal, repair and restoration work shall be performed by certified and licensed contractors previously approved in writing by Landlord (which approval shall not be unreasonably withheld, conditioned or delayed), in accordance with a previously approved removal, repair and restoration plan, in a workmanlike manner, in compliance with all applicable Laws, and without any interference, damage or destruction to any other equipment, structures or operations at the Building or the Project and/or any equipment of other licensees or tenants. If Tenant fails to timely perform such removal, repair and/or restoration work, then Landlord may perform such work at Tenant's cost, which cost shall be due and payable to Landlord within ten (10) days after Tenant's receipt of invoice therefor from Landlord.

ARTICLE 10
ASSIGNMENT AND SUBLETTING

10.1 ASSIGNMENT AND SUBLETTING

(a) Without the prior written consent of Landlord, which consent of Landlord shall not be unreasonably withheld, conditioned or delayed, Tenant may not sublease, assign, mortgage, pledge, hypothecate or otherwise transfer or permit the transfer of this Lease or the encumbering of Tenant's interest therein in whole or in part, by operation of Law or otherwise or permit the use or occupancy of the Premises, or any part thereof, by anyone other than Tenant. Tenant agrees that the provisions governing sublease and assignment set forth in this Article 10 shall be deemed to be reasonable. If Tenant desires to enter into any sublease of the Premises or assignment of this Lease, Tenant shall deliver written notice thereof to Landlord ("Tenant's Notice"), together with the identity of the proposed subtenant or assignee and the proposed principal terms thereof and financial and other information reasonably sufficient for Landlord to make an informed judgment with respect to such proposed subtenant or assignee at least thirty (30) days prior to the commencement date of the term of the proposed sublease or assignment. If Tenant proposes to sublease less than all of the Rentable Area of the Premises, the space proposed to be sublet and the space retained by Tenant must each be a marketable unit as reasonably determined by Landlord and otherwise in compliance with all Laws. Landlord shall notify Tenant in writing of its approval or disapproval (with the reason for such disapproval) of the proposed sublease or assignment or its decision to exercise its rights under Section 10.2 within ten (10) business days after receipt of Tenant's Notice (and all required information).

(b) With respect to Landlord's consent to an assignment or sublease, Landlord may take into consideration any factors that Landlord may reasonably deem relevant, and the reasons for which Landlord's denial shall be deemed to be reasonable shall include, without limitation, the following:

(i) the business reputation or creditworthiness of any proposed subtenant or assignee is not reasonably acceptable to Landlord; or

(ii) in Landlord's reasonable judgment the proposed assignee or sublessee would diminish the value or reputation of the Project or Landlord, or would materially

sublessee would diminish the value or reputation of the Project or Landlord, or would materially increase Landlord's expenses associated with operating, maintaining and repairing the Project; or

(iii) any proposed assignee's or sublessee's use of the Premises would violate Section 7.1 of this Lease or would violate the provisions of any other leases of tenants in the Project; or

(iv) the portion of the Premises retained by Tenant after a proposed sublease would not constitute a "marketable unit", meaning that such space would be: (A) deprived of ready access to the then-current corridor and elevator lobby without extension or reconfiguration of the corridor or creation of a connecting corridor; or (B) rendered in violation of any building code requirements; or

(v) the proposed sublessee or assignee is a current occupant of the Project or is a bona fide prospective tenant of Landlord in the Project (as demonstrated by a written proposal from such prospective tenant to Landlord dated within six (6) months prior to the date of Tenant's request), and Landlord has vacancy in the Project of a similar size and finish as the space subject to such proposed sublease or assignment; or

(vi) Tenant is in Default under this Lease and such Default is not cured on or before the effective date of the proposed sublease or assignment.

(c) Any sublease or assignment shall be expressly subject to the terms and conditions of this Lease. Any assignee shall execute such documents as Landlord may reasonably require to evidence such assignee's assumption of the obligations and liabilities of Tenant under this Lease. Tenant shall deliver to Landlord a copy of all agreements executed by Tenant and the proposed subtenant and assignee with respect to the Premises. Landlord's approval of a sublease, assignment, hypothecation, transfer or third party use or occupancy shall not constitute a waiver of Tenant's obligation to obtain Landlord's consent to further assignments or subleases, hypothecations, transfers or third party use or occupancy.

(d) For purposes of this Article 10, an assignment shall be deemed to include a change in the majority control of Tenant, resulting from any transfer, sale or assignment of shares of stock of Tenant occurring by operation of Law or otherwise if Tenant is a corporation whose shares of stock are not traded publicly. If Tenant is a partnership, any change in the partners of Tenant shall be deemed to be an assignment.

(e) For purposes of this Lease, a "Permitted Transferee" shall mean any Person which: (i) is an Affiliate; or (ii) is the corporation or other entity (the "Successor") resulting from

a merger, consolidation or non-bankruptcy reorganization with Tenant; or (iii) is otherwise a deemed assignee due to a change of control under Section 10.1(d) above; or (iv) purchases substantially all the assets of Tenant as a going concern (the "Purchaser"). Notwithstanding anything to the contrary in Sections 10.1(a),(b) and (f), 10.2 and 10.3, provided there is no uncured Default under this Lease, Tenant shall have the right, without the prior written consent of Landlord, to assign this Lease to a Permitted Transferee or to sublease the Premises or any part thereof to a Permitted Transferee provided that: (1) Landlord receives fifteen (15) days' prior written notice of an assignment or sublease (including a proposed transaction described in subparts (i), (ii), (iii) or (iv) of this Section 10.1(e)), unless Tenant is subject to a confidentiality obligation with respect to the proposed transaction giving rise to the subject assignment or sublease, in which case Tenant shall give Landlord such notice promptly after the effective date of such assignment or sublease; (2) the Permitted Transferee's net worth is not less than $150 million (however, if Named Tenant or an Affiliate of Named Tenant is then the Tenant under this Lease, then Landlord shall require only that the Permitted Transferee's liquidity is not less than the then-applicable Base Rent rate multiplied by forty-eight (48) months, and no net worth standard shall apply); (3) the Permitted Transferee expressly assumes (except a Permitted Transferee which is a sublessee in the event of a sublease under this Section 10.1(e)) in writing reasonably satisfactory to Landlord all of the obligations of Tenant under this Lease and delivers such assumption to Landlord no later than ten

obligations of Tenant under this Lease and delivers such assumption to Landlord no later than ten (10) days prior to the effective date of the assignment, unless Tenant is subject to a confidentiality obligation with respect to the proposed transaction giving rise to the subject assignment, in which case Tenant shall give Landlord such documentation promptly after the effective date of such assignment; (5) Landlord receives no later than ten (10) days before the effective date a fully executed copy of the applicable assignment or sublease agreement between Tenant and the Permitted Transferee, unless Tenant is subject to a confidentiality obligation with respect to the proposed transaction giving rise to the subject assignment or sublease, in which case Tenant shall give Landlord such documentation promptly after the effective date of such assignment or sublease; (6) promptly after Landlord's written request, Tenant and the Permitted Transferee provide such reasonable documents and information which Landlord reasonably requests for the purpose of substantiating whether or not the assignment or sublease is to a Permitted Transferee; and (7) such transfer is not being entered into for the purpose of avoiding the requirement for Landlord's prior consent or the provisions of Sections 10.2 or 10.3. All determinations of net worth and liquidity for purposes of this Subsection shall mean "tangible" net worth (i.e., the excess of total assets over total liabilities, as determined in accordance with generally accepted accounting principles consistently applied).

(f) With respect to any sublease hereunder, Tenant hereby irrevocably assigns to Landlord, effective upon any such sublease, all rent and other payments due from subtenant under the sublease, provided however, that Tenant shall have a license to collect such rent and other payments until the occurrence of a Default by Tenant under any of the provisions of this Lease. At any time after such Default, at Landlord's option, Landlord shall have the right to give notice to the subtenant of such assignment. Landlord shall credit Tenant with any rent received by Landlord under such assignment but the acceptance of any payment on account of rent from the subtenant as the result of any such default shall in no manner whatsoever serve to release Tenant from any liability under the terms, covenants, conditions, provisions or agreement under this Lease. No such payment of rent or any other payment by the subtenant directly to Landlord and/or acceptance of such payment(s) by Landlord, regardless of the circumstances or reasons therefor, shall in any manner whatsoever be deemed an attornment by the subtenant to Landlord

in the absence of a specific written agreement signed by Landlord to such an effect.

10.2 RECAPTURE

[Intentionally omitted.]

10.3 EXCESS RENT

Tenant shall pay Landlord on the first day of each month during the term of any sublease (but not with respect to any assignment), as additional Rent under this Lease, fifty percent (50%) of the amount by which the sum of all rent due from the subtenant for such month exceeds: (i) that portion of the Monthly Base Rent and Rent Adjustments due under this Lease for said month which is allocable to the space sublet; and (ii) the following costs and expenses for the subletting of such space: (1) brokerage commissions and attorneys' fees and expenses, (2) the actual costs paid in making any improvements or substitutions in the Premises required by any sublease; and (3) moving costs and other amounts actually paid with respect of such subtenant's other leases or occupancy arrangements.

10.4 TENANT LIABILITY

In the event of any sublease or assignment, whether or not with Landlord's consent, Tenant shall not be released or discharged from any liability, whether past, present or future, under this Lease; provided that as to any sublease or assignment to which Landlord has provided its written consent, Tenant shall be released and discharged from any liability under this Lease arising from the exercise of any renewal or expansion option, to the extent such exercise is expressly permitted by Landlord. Tenant's liability shall remain primary, and in the event of default by any subtenant, assignee or successor of Tenant in performance or observance of any of the covenants or conditions of this Lease, Landlord may proceed directly against Tenant without the necessity of exhausting remedies against said subtenant, assignee or successor. After any assignment, Landlord may consent to subsequent assignments or subletting of this Lease, or amendments or modifications of this Lease with assignees of Tenant, without notifying Tenant, or any successor of Tenant, and without obtaining its or their consent thereto, and such action shall not relieve Tenant or any successor of Tenant of liability under this Lease; provided, that Tenant shall not be bound by any amendments or modifications that increase the obligations of Tenant under this Lease. In addition, if Tenant has any options to extend the Term or to add other space to the Premises, such options shall not be available to any subtenant or assignee (other than a Permitted Transferee), directly or indirectly without Landlord's express written consent, which may be withheld in Landlord's sole discretion.

10.5 ASSUMPTION AND ATTORNMENT

If Tenant shall assign this Lease as permitted herein, the assignee shall expressly assume all of the obligations of Tenant hereunder in a written instrument satisfactory to Landlord and, upon request from Landlord, furnished (with redactions deemed reasonably necessary to Tenant) to Landlord not later than fifteen (15) days prior to the effective date of the assignment; provided, however, Tenant's obligation to provide such written instrument with respect to an assignment to a Permitted Transferee shall be governed by Section 10.1(e). Each sublease by Tenant hereunder shall be subject and subordinate to this Lease and to the matters to which this Lease is or shall be

subordinate, and each subtenant by entering into a sublease is deemed to have agreed that in the

event of termination, re-entry or dispossession by Landlord under this Lease, Landlord may, at its option, either terminate the sublease or take over all of the right, title and interest of Tenant, as sublandlord, under such sublease, and such subtenant shall, at Landlord's option, attorn to Landlord pursuant to the then executory provisions of such sublease, except that Landlord shall not be: (1) liable for any previous act or omission of Tenant under such sublease (except for any default that continues after the date of such sublease or assignment); (2) subject to any counterclaim, offset or defense that such subtenant might have against Tenant; (3) bound by any previous modification of such sublease or by any rent or additional rent or advance rent which such subtenant might have paid for more than the current month to Tenant, and all such rent shall remain due and owing, notwithstanding such advance payment; (4) bound by any security or advance rental deposit made by such subtenant which is not delivered or paid over to Landlord and with respect to which such subtenant shall look solely to Tenant for refund or reimbursement; or (5) obligated to perform any work in the subleased space or to prepare it for occupancy, and in connection with such attornment, the subtenant shall execute and deliver to Landlord any instruments Landlord may reasonably request to evidence and confirm such attornment. Each subtenant or licensee of Tenant shall be deemed, automatically upon and as a condition of its occupying or using the Premises or any part thereof, to have agreed to be bound by the terms and conditions set forth in this Section 10.5. The provisions of this Section 10.5 shall be self-operative, and no further instrument shall be required to give effect to this provision.

10.6 PROCESSING EXPENSES

Tenant shall pay to Landlord, as Landlord's cost of processing each proposed assignment or subletting (whether or not the same is ultimately approved by Landlord or consummated by Tenant), an amount equal to Landlord's reasonable out-of-pocket attorneys' and other professional fees.

10.7 EFFECT OF IMPERMISSIBLE TRANSFER

Any assignment or sublease effected without Landlord's consent in violation of this Article 10 shall, at Landlord's option, be a noncurable Default under Section 11.1 without the necessity of any notice and grace period.

ARTICLE 11
DEFAULT AND REMEDIES

11.1 DEFAULT

The occurrence or existence of any one or more of the following shall constitute a "Default" by Tenant under this Lease:

(a) Tenant fails to pay any installment or other payment of Rent including Rent Adjustment Deposits or Rent Adjustments within five (5) business days after written notice to Tenant that the same is past due;

(b) [Reserved];

(c) Tenant violates the restrictions on assignments and subleases set forth in Article 10 – Assignment and Subletting;

(d) Tenant fails to maintain any insurance policy required hereunder, and fails to cure such default within ten (10) business days after written notice thereof to Tenant;

(e) Tenant fails to observe or perform any of the other covenants, conditions or provisions of this Lease and fails to cure such default within thirty (30) days after written notice thereof to Tenant, unless the failure to perform is a Default for which this Lease specifies there is no cure or grace period; provided, however, that with respect to any failure that cannot reasonably

no cure or grace period; provided, however, that with respect to any failure that cannot reasonably be cured by Tenant within thirty (30) days, Tenant shall not be deemed to be in Default during the prosecution of such cure if Tenant promptly commences to cure within thirty (30) days from the date of Landlord's notice, diligently and continuously prosecutes the curing of such failure to completion and actually cures such failure;

(f) the interest of Tenant in this Lease is levied upon under execution or other legal process;

(g) a petition is filed by or against Tenant to declare Tenant bankrupt or seeking a plan of reorganization or arrangement under any Chapter of the Bankruptcy Code, or any amendment, replacement or substitution therefor, or to delay payment of, reduce or modify Tenant's debts, which in the case of an involuntary action is not discharged within sixty (60) days;

(h) Tenant is declared insolvent by Law or any assignment of Tenant's property is made for the benefit of creditors;

(i) a receiver is appointed for Tenant or Tenant's property, which appointment is not discharged within sixty (60) days; or

(j) upon the dissolution of Tenant.

11.2 LANDLORD'S REMEDIES

(a) A Default shall constitute a breach of this Lease for which Landlord shall have the rights and remedies set forth in this Section 11.2 and all other rights and remedies set forth in this Lease or now or hereafter allowed by Law, whether legal or equitable, and all rights and remedies of Landlord shall be cumulative and none shall exclude any other right or remedy now or hereafter allowed by applicable Law.

(b) With respect to a Default, at any time Landlord may terminate Tenant's right to possession by written notice to Tenant stating such election. Any written notice required pursuant to Section 11.1 shall constitute notice of unlawful detainer pursuant to California Code of Civil Procedure Section 1161 if, at Landlord's sole discretion, it states Landlord's election that Tenant's right to possession is terminated after expiration of any period required by Law or any longer period required by Section 11.1. Upon the expiration of the period stated in Landlord's written notice of termination (and unless such notice provides an option to cure within such period and Tenant cures the Default within such period), Tenant's right to possession shall terminate and this Lease shall terminate, and Tenant shall remain liable as hereinafter provided. Upon such

termination in writing of Tenant's right to possession, Landlord shall have the right, subject to applicable Law, to re-enter the Premises and dispossess Tenant and the legal representatives of Tenant and all other occupants of the Premises by unlawful detainer or other summary proceedings, or as otherwise permitted by Law, regain possession of the Premises and remove their property (including their trade fixtures, personal property and Required Removables pursuant to Article 12), but Landlord shall not be obligated to effect such removal, and such property may, at Landlord's option, be stored elsewhere, sold or otherwise dealt with as permitted by Law, at the risk of, expense of and for the account of Tenant, and the proceeds of any sale shall be applied pursuant to Law. Landlord shall in no event be responsible for the value, preservation or safekeeping of any such property. Tenant hereby waives all claims for damages that may be caused by Landlord's removing or storing Tenant's personal property pursuant to this Section or Section 12.1. Upon such written termination of Tenant's right to possession and this Lease, Landlord shall have the right to recover damages for Tenant's Default as provided herein or by Law, including the following damages provided by California Civil Code Section 1951.2:

(1) the worth at the time of award of the unpaid Rent which had been earned at the time of termination;

(2) the worth at the time of award of the amount by which the unpaid Rent which would have been earned after termination until the time of award exceeds the amount of such Rent loss that Tenant proves could reasonably have been avoided;

(3) the worth at the time of award of the amount by which the unpaid Rent for the balance of the term of this Lease after the time of award exceeds the amount of such Rent loss that Tenant proves could be reasonably avoided;

(4) any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, including, without limitation, Landlord's unamortized costs of tenant improvements, leasing commissions and legal fees incurred in connection with entering into this Lease; and

(5) any other amounts, in addition to or in lieu of those listed above, that may be permitted by applicable Law.

The word "rent" as used in this Section 11.2 shall have the same meaning as the defined term Rent in this Lease. The "worth at the time of award" of the amount referred to in clauses (1) and (2) above is computed by allowing interest at the Default Rate. The worth at the time of award of the amount referred to in clause (3) above is computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus one percent (1%). For the purpose of determining unpaid Rent under clause (3) above, the monthly Rent reserved in this Lease shall be deemed to be the sum of the Monthly Base Rent, monthly storage space rent, if any, the amounts last payable by Tenant as Rent Adjustments for the calendar year in which Landlord terminated this Lease as provided hereinabove, and any additional Rent under this Lease.

(c) Even if Tenant is in Default and/or has abandoned the Premises, this Lease

shall continue in effect for so long as Landlord does not terminate Tenant's right to possession by written notice as provided in Section 11.2(b) above, and Landlord may enforce all its rights and remedies under this Lease, including the right to recover Rent as it becomes due under this Lease. In such event, Landlord shall have all of the rights and remedies of a landlord under California Civil Code Section 1951.4 (lessor may continue Lease in effect after lessee's breach and abandonment and recover Rent as it becomes due, if lessee has the right to sublet or assign, subject only to reasonable limitations), or any successor statute. During such time as Tenant is in Default, if Landlord has not terminated this Lease by written notice and if Tenant requests Landlord's consent to an assignment of this Lease or a sublease of the Premises, such consent shall be governed by the terms and conditions of Article 10 above. Tenant acknowledges and agrees that the provisions of Article 10 shall be deemed to constitute reasonable limitations of Tenant's right to assign or sublet. Tenant acknowledges and agrees that in the absence of written notice pursuant to Section 11.2(b) above terminating Tenant's right to possession, no other act of Landlord shall constitute a termination of Tenant's right to possession or an acceptance of Tenant's surrender of the Premises, including acts of maintenance or preservation or efforts to relet the Premises or the appointment of a receiver upon initiative of Landlord to protect Landlord's interest under this Lease or the withholding of consent to a subletting or assignment, or terminating a subletting or assignment, if in accordance with other provisions of this Lease.

(d) Reserved.

(e) Tenant hereby waives any and all rights to relief from forfeiture, redemption or reinstatement granted by Law (including California Civil Code of Procedure Sections 1174 and 1179) in the event of Tenant being evicted or dispossessed for any cause or in the event of Landlord obtaining possession of the Premises by reason of Tenant's Default or otherwise in accordance with this Lease.

(f) Notwithstanding any other provision of this Lease, a notice to Tenant given under this Article and Article 24 of this Lease or given pursuant to California Code of Civil Procedure Section 1161, and any notice served by mail, shall be deemed served, and the requisite waiting period deemed to begin under said Code of Civil Procedure Section upon mailing (except as may be required under Code of Civil Procedure Section 1161 et seq.), without any additional waiting requirement under Code of Civil Procedure Section 1011 et seq. or by other Law. For purposes of Code of Civil Procedure Section 1162, Tenant's "place of residence", "usual place of business", "the property" and "the place where the property is situated" shall mean and be the Premises, whether or not Tenant has vacated same at the time of service.

(g) The voluntary or other surrender or termination of this Lease, or a mutual termination or cancellation thereof, shall not work a merger and shall terminate all or any existing assignments, subleases, subtenancies or occupancies permitted by Tenant, except if and as otherwise specified in writing by Landlord.

11.3 ATTORNEY'S FEES

In the event any party brings any suit or other proceeding with respect to the subject matter or enforcement of this Lease, the Prevailing Party (defined below) shall, in addition to such other relief as may be awarded, be entitled to recover attorneys' fees, expenses and costs of investigation

as actually incurred, including court costs, expert witness fees, costs and expenses of investigation,

and all attorneys' fees, costs and expenses in any such suit or proceeding (including in any action or participation in or in connection with any case or proceeding under the Bankruptcy Code, 11 United States Code Sections 101 et seq. (the "Bankruptcy Code"), or any successor statutes, in establishing or enforcing the right to indemnification, in appellate proceedings, or in connection with the enforcement or collection of any judgment obtained in any such suit or proceeding). For purposes of this Section 11.3, "Prevailing Party" shall mean the party receiving substantially the relief desired, whether by settlement, dismissal, summary judgment, judgment, or otherwise.

11.4 BANKRUPTCY

[Intentionally omitted.]

11.5 LANDLORD'S DEFAULT

Landlord shall be in default hereunder if Landlord fails to observe or perform any of the covenants, conditions or provisions of this Lease and fails to cure such default within thirty (30) days after Tenant's written notice thereof to Landlord; provided, however, that with respect to any failure that cannot reasonably be cured by Landlord within thirty (30) days, Landlord shall not be deemed to be in default during the prosecution of such cure if Landlord promptly commences to cure within thirty (30) days from the date of Tenant's notice, diligently and continuously prosecutes the curing of such failure to completion and actually cures such failure. In no event shall Tenant have the right to terminate or rescind this Lease as a result of Landlord's default as to any covenant or agreement contained in this Lease. Tenant hereby waives such remedies of termination and rescission and hereby agrees that, except as otherwise specifically set forth in this Lease, Tenant's remedies for default hereunder and for breach of any promise or inducement shall be limited to a suit for damages and/or injunction and Tenant's remedies in Section 11.6. In addition, Tenant hereby covenants that, prior to the exercise of any such remedies, it will give any Mortgagee notice of such default by Landlord (as specified in Section 23.2 below).

11.6 TENANT'S SELF HELP RIGHT

Landlord shall have thirty (30) days after notice from Tenant to perform (or commence to perform, if the nature of the performance is such that more than thirty (30) days is reasonably required), its repair and maintenance obligations under this Lease. If Landlord fails to provide repairs or maintenance as required under this Lease, and such failure materially interferes with Tenant's use of the Premises, and Tenant has notified Landlord of the necessity of such repairs or maintenance in writing, then Tenant may perform such repairs or maintenance at Landlord's cost by taking whatever action is reasonably necessary to do so, and at a commercially reasonable cost, provided:

(a) Tenant gives Landlord (and any Mortgagee whose address has been provided to Tenant, the current address of which is set forth in Section 1.1 of this Lease) notice of Tenant's intent to take such action at least ten (10) business days prior to taking any such action, and Landlord further fails or refuses to commence repairs within said ten (10)-business day period;

(b) Tenant uses commercially reasonable efforts to minimize interference with the rights of other tenants to use their respective premises in the Building;

(c) If such repairs or maintenance will affect the Building's electrical, mechanical, or HVAC systems, or the structural integrity of the Building, Tenant shall use only those contractors used by Landlord in the Building that work on the Building's systems, equipment or structure (unless such contractors are unwilling or unable to perform such work, in which event Tenant may utilize the services of any other qualified contractor approved by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed); and

(d) Landlord shall, within thirty (30) days after receipt of Tenant's written demand for payment of Tenant's reasonable costs incurred in taking such action on Landlord's

behalf (including a reasonably particularized statement), pay the invoice or deliver to Tenant a detailed written objection to it. In no event, however, shall Tenant have the right to withhold rent in the event that Landlord fails to timely pay such costs, and Tenant's sole remedy shall be to institute legal proceedings against Landlord to collect the amount set forth in Tenant's invoice.

11.7 NO WAIVER

No delay or omission in the exercise of any right or remedy of either party upon any default by the other party, and no exercise by Landlord of its rights pursuant to Section 25.16 to perform any duty which Tenant fails timely to perform, shall impair any right or remedy or be construed as a waiver. Except as otherwise expressly set forth in this Lease, no provision of this Lease shall be deemed waived by either party unless such waiver is in writing signed by the waiving party. The waiver by either party of any breach of any provision of this Lease shall not be deemed a waiver of any subsequent breach of the same or any other provision of this Lease.

ARTICLE 12
SURRENDER OF PREMISES

12.1 IN GENERAL

Upon the Termination Date, Tenant shall surrender and vacate the Premises immediately and deliver possession thereof to Landlord in a clean and reasonable condition, ordinary wear and tear excepted, except that any damage from casualty and condemnation, any maintenance or repairs that are Landlord's obligation hereunder, and damage caused by Landlord, shall be governed by the provisions of this Lease dealing specifically therewith. Tenant shall deliver to Landlord all keys to the Premises. All improvements in and to the Premises, including any Tenant Additions, but excluding Tenant's trade fixtures and other fixtures, furnishings, and equipment shall remain upon the Premises at the end of the Term without compensation to Tenant. Landlord, however, by written notice to Tenant at the time it approves of any Tenant Alterations, may require Tenant, at its expense, to remove (a) any Cable, and (b) any Tenant Additions that, in Landlord's reasonable judgment, are of a nature that would require removal and repair costs that are materially in excess of the removal and repair costs associated with standard laboratory and office improvements (collectively referred to as "Required Removables"). Required Removables may include, without limitation, internal stairways, raised floors, personal baths and showers, vaults, rolling file systems and structural alterations and modifications. The designated Required Removables shall be removed by Tenant before the Termination Date. Tenant's removal and disposal of items pursuant to this Section 12.1 must comply with the Project's Sustainability Practices. Tenant shall repair damage caused by the installation or removal of Required

Removables. If Tenant fails to perform its obligations in a timely manner, Landlord may perform such work at Tenant's expense. In the event possession of the Premises is not delivered to Landlord when required hereunder, or if Tenant shall fail to remove those items described above, Landlord may (but shall not be obligated to), at Tenant's expense, remove any of such property and store, sell or otherwise deal with such property, and undertake, at Tenant's expense, such restoration work as Landlord deems necessary or advisable. Notwithstanding anything in this Section 12.1 to the contrary, failure by Tenant to materially comply with the provisions of this Section 12.1 with respect to any Required Removables that are required to be removed from the Premises by Tenant hereunder shall constitute a failure of Tenant to validly surrender the Premises.

12.2 LANDLORD'S RIGHTS

All property which may be removed from the Premises by Landlord shall be conclusively presumed to have been abandoned by Tenant and Landlord may deal with such property as provided in Section 11.2(b), including the waiver and indemnity obligations provided in that Section. Tenant shall also reimburse Landlord for all reasonable costs and expenses incurred by Landlord in removing any Tenant Additions and in restoring the Premises to the condition required by this Lease.

by this Lease.

ARTICLE 13
HOLDING OVER

In the event that Tenant holds over in possession of the Premises after the Termination Date, for each month or partial month Tenant holds over possession of the Premises, Tenant shall pay Landlord (a) for the first two (2) months of such holding over, 125% of the monthly Rent payable for the month immediately preceding the holding over (including 100% of any applicable Rent Adjustments or increases to Rent Adjustments which Landlord may reasonably estimate), and (b) thereafter, 150% of the monthly Rent payable for the month immediately preceding the holding over (including 100% of any applicable Rent Adjustments or increases to Rent Adjustments which Landlord may reasonably estimate). Tenant shall also pay all damages, including consequential damages, sustained by Landlord by reason of such holding over, provided that Tenant receives written notice that there is a new tenant for the Premises, which notice Landlord shall deliver the earlier of: (i) ten (10) days after full execution of such new tenant's lease, or (ii) fifteen (15) days prior to the date Tenant must vacate the Premises in order to accommodate such new tenant. The provisions of this Article shall not constitute a waiver by Landlord of any re-entry rights of Landlord, and Tenant's continued occupancy of the Premises shall be as a tenancy in sufferance.

ARTICLE 14
DAMAGE BY FIRE OR OTHER CASUALTY

14.1 SUBSTANTIAL UNTENANTABILITY

(a) If any fire or other casualty (whether insured or uninsured) renders all or a substantial portion of the Premises or the Building untenantable, Landlord shall, with reasonable promptness (but in all cases within forty-five (45) days) after the occurrence of such damage, estimate the length of time that will be required to substantially complete the repair and restoration

(if applicable) and shall, by notice advise Tenant of such estimate ("Landlord's Notice"). If Landlord estimates that the amount of time required to substantially complete such repair and restoration will exceed three hundred sixty-five (365) days from the date such damage occurred, then Landlord, or Tenant shall have the right to terminate this Lease as of the date of such damage by delivering written notice to the other party at any time within twenty (20) days after delivery of Landlord's Notice, provided that if Landlord so chooses, Landlord's Notice may also constitute such notice of termination.

(b) Unless this Lease is terminated as provided in the preceding subparagraph, Landlord shall proceed with reasonable promptness to repair and restore the Premises to its condition as existed prior to such casualty, subject to reasonable delays for insurance adjustments and Force Majeure delays, and also subject to zoning Laws and building codes then in effect. Landlord shall have no liability to Tenant, and Tenant shall not be entitled to terminate this Lease if such repairs and restoration are not in fact completed within the time period estimated by Landlord so long as Landlord shall proceed with reasonable diligence to complete such repairs and restoration.

(c) Tenant acknowledges that Landlord shall be entitled to the full proceeds of any property insurance coverage, whether carried by Landlord or Tenant, for damages to the Premises, except for those proceeds of Tenant's insurance for its own personal property and equipment which would be removable by Tenant at the Termination Date. All such insurance proceeds shall be payable to Landlord whether or not the Premises are to be repaired and restored; provided, however, if this Lease is not terminated and the parties proceed to repair and restore Tenant Additions at Tenant's cost, to the extent Landlord received proceeds of Tenant's insurance covering Tenant Additions, such proceeds shall be applied to reimburse Tenant for its cost of repairing and restoring Tenant Additions.

(d) Notwithstanding anything to the contrary herein set forth, Landlord shall have no duty pursuant to this Section to repair or restore any portion of any Tenant Additions, except to the extent the costs of such repair or restoration are covered by Landlord's insurance (including the applicable deductible amount) or would have been covered had Landlord maintained the insurance required under this Lease, or to expend for any repair or restoration of the Premises or Building in amounts in excess of insurance proceeds paid to Landlord and available for repair or restoration (unless Tenant elects to make up any shortfall). Tenant acknowledges and agrees that (i) Tenant's insurance is primary as to any Tenant Additions, and (ii) Landlord has no express obligation to insure any Tenant Additions pursuant to Article 16 below. Whether or not this Lease is terminated pursuant to this Article 14, in no event shall Tenant be entitled to any compensation or damages for loss of the use of the whole or any part of the Premises or for any inconvenience or annoyance occasioned by any such damage, destruction, rebuilding or restoration of the Premises or the Building or access thereto.

(e) Any repair or restoration of the Premises performed by Tenant shall be in accordance with the provisions of Article 9 hereof.

14.2 INSUBSTANTIAL UNTENANTABILITY

If the Premises or the Building is damaged by a casualty but neither is rendered

substantially untenantable and Landlord reasonably estimates that the time to substantially complete the repair or restoration will not exceed three hundred sixty-five (365) days from the date such damage occurred, then Landlord shall proceed to repair and restore the Building or the Premises other than Tenant Additions, with reasonable promptness, unless such damage is to the Premises and occurs during the last six (6) months of the Term, in which event either Tenant or Landlord shall have the right to terminate this Lease as of the date of such casualty by giving written notice thereof to the other within twenty (20) days after the date of such casualty. Notwithstanding the aforesaid, Landlord's obligation to repair shall be limited in accordance with the provisions of Section 14.1 above.

14.3 RENT ABATEMENT

If all or any part of the Premises are rendered untenantable by fire or other casualty and this Lease is not terminated, Monthly Base Rent and Rent Adjustments shall abate for that part of the Premises which is untenantable on a per diem basis from the date of the casualty until Landlord has substantially completed the repair and restoration work in the Premises which it is required to perform, provided, that as a result of such casualty, Tenant does not occupy the portion of the Premises which is untenantable during such period.

14.4 WAIVER OF STATUTORY REMEDIES

The provisions of this Lease, including this Article 14, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, the Premises or the Property or any part of either, and any Law, including Sections 1932(2), 1933(4), 1941 and 1942 of the California Civil Code, with respect to any rights or obligations concerning damage or destruction shall have no application to this Lease or to any damage to or destruction of all or any part of the Premises or the Property or any part of either, and are hereby waived.

ARTICLE 15
EMINENT DOMAIN

15.1 TAKING OF WHOLE OR SUBSTANTIAL PART

In the event the whole or any substantial part of the Building or of the Premises is taken or condemned by any competent authority for any public use or purpose (including a deed given in lieu of condemnation) and is thereby rendered untenantable, this Lease shall terminate as of the date title vests in such authority, and Monthly Base Rent and Rent Adjustments shall be apportioned as of the Termination Date. Notwithstanding anything to the contrary herein set forth, in the event the taking is temporary (for less than the remaining Term of this Lease), Tenant may elect either (i) to terminate this Lease or (ii) receive the entire award attributable to the Premises in which case Tenant shall continue to pay Rent and this Lease shall not terminate.

15.2 TAKING OF PART

In the event a part of the Building or the Premises is taken or condemned by any competent authority (or a deed is delivered in lieu of condemnation) and this Lease is not terminated, this Lease shall be amended to reduce (or, with respect to Tenant's Share, increase) the Monthly Base

Rent and Tenant's Share to reflect the Rentable Area of the Premises or Building, as the case may be, remaining after any such taking or condemnation. Landlord, upon receipt and to the extent of the award in condemnation (or proceeds of sale) shall make necessary repairs and restorations to the Premises (exclusive of Tenant Additions) and to the Building to the extent necessary to constitute the portion of the Building not so taken or condemned as a complete architectural and economically efficient unit. Notwithstanding the foregoing, if as a result of any taking, or a governmental order that the grade of any street or alley adjacent to the Building is to be changed and such taking or change of grade makes it necessary to substantially remodel or restore the Building or prevents the economical operation of the Building, Landlord shall have the right to

terminate this Lease upon ninety (90) days prior written notice to Tenant.

15.3 COMPENSATION

Landlord shall be entitled to receive the entire award (or sale proceeds) from any such taking, condemnation or sale without any payment to Tenant, and Tenant hereby assigns to Landlord, Tenant's interest, if any, in such award; provided, however, Tenant shall have the right separately to pursue against the condemning authority a separate award in respect to (i) the loss, if any, to Tenant Additions paid for by Tenant without any credit or allowance from Landlord so long as there is no diminution of Landlord's award as a result, (ii) Tenant's relocation expenses, (iii) the taking of personal property and fixtures belonging to Tenant and (iv) the interruption of or damage to Tenant's business.

ARTICLE 16
INSURANCE

16.1 TENANT'S INSURANCE

Tenant, at Tenant's expense, agrees to maintain in force, with a reputable company or companies having an A.M. Best Rating of not less than A-VIII, during the Term: (a) Commercial General Liability Insurance on a primary basis and without any right of contribution from any insurance carried by Landlord covering the Premises on an occurrence basis against all claims for personal injury, bodily injury, death and property damage, including contractual liability covering the indemnification provisions in this Lease, and such insurance shall be for not less than a combined single limit (each occurrence and in the aggregate) of Five Million and No/100 Dollars ($5,000,000.00) (which limit may be achieved through use of umbrella coverage); (b) Workers' Compensation and Employers' Liability Insurance to the extent required by and in accordance with the Laws of the State of California; (c) "All Risks" property insurance in an amount adequate to cover the full replacement cost of all Tenant Additions, equipment, installations, fixtures and contents of the Premises in the event of loss from water damage, earthquake sprinkler leakage, and such other risks as Landlord may designate from time to time; and (d) in the event a motor vehicle is to be used by Tenant in connection with its business operation from the Premises, Comprehensive Automobile Liability Insurance coverage with limits of not less than One Million and No/100 Dollars ($1,000,000.00) combined single limit coverage against bodily injury liability and property damage liability arising out of the use by or on behalf of Tenant, its agents and employees in connection with this Lease, of any owned, non-owned or hired motor vehicles.

16.2 FORM OF POLICIES

Each policy referred to in Section 16.1 shall satisfy the following requirements. Each policy shall (i) name Landlord and the Indemnitees as additional insureds (except Workers' Compensation and Employers' Liability Insurance), (ii) be issued by one or more responsible insurance companies licensed to do business in the State of California, (iii) where applicable, provide for deductible amounts not to exceed $25,000.00 without Landlord's consent (not to be unreasonably withheld or delayed), and (iv) each policy of "All-Risks" property insurance shall provide that the policy shall not be invalidated should the insured waive in writing prior to a loss, any or all rights of recovery against any other party for losses covered by such policies. Tenant shall deliver to Landlord, certificates of insurance prior to the expiration date of each policy. Additionally, Tenant shall provide Landlord written notice of any cancellation or amendment of any such insurance within two (2) business days following Tenant's knowledge of the same. If Tenant fails to carry the insurance required under this Article 16 or fails to provide certificates of renewal as and when required hereunder, and does not cure such failure within the time periods set forth in Section 11.1(d), Landlord may, but shall not be obligated to acquire such insurance on Tenant's behalf or Tenant's sole cost and expense.

16.3 LANDLORD'S INSURANCE

Landlord agrees to purchase and keep in full force and effect during the Term hereof, including any extensions or renewals thereof, "All Risks" property insurance under policies issued by insurers of recognized responsibility, qualified to do business in the State of California on the Building in amounts sufficient to cover 100% of the replacement cost thereof, insuring against fire and such other risks as may be included in standard forms of "All Risks" coverage insurance reasonably available from time to time (which requirement may be achieved through use of a single insurance policy covering multiple buildings owned by Landlord and affiliates of Landlord). Landlord agrees to maintain in force during the Term, Commercial General Liability Insurance covering the Building on an occurrence basis against all claims for personal injury, bodily injury, death, and property damage. Such insurance shall be for a combined single limit (each occurrence and in the aggregate) of not less than Five Million and No/100 Dollars ($5,000,000.00) (which limit may be achieved through use of umbrella coverage). Neither Landlord's obligation to carry such insurance nor the carrying of such insurance shall be deemed to be an indemnity by Landlord with respect to any claim, liability, loss, cost or expense due, in whole or in part, to Tenant's negligent acts or omissions or willful misconduct. Landlord agrees to maintain in force during the Term, Rental Loss Insurance in an amount not less than one (1) year's rent for the Building. Without obligation to do so, Landlord may, in its sole discretion from time to time, carry insurance in amounts greater and/or for coverage additional to the coverage and amounts set forth above.

16.4 WAIVER OF SUBROGATION

Landlord hereby waives any and all right of recovery which it might otherwise have against Tenant, its servants, agents and employees, for loss or damage occurring to the Real Property and the fixtures, appurtenances and equipment therein, to the extent the same is covered by Landlord's insurance or would have been covered by Landlord's insurance had Landlord maintained the insurance it is required to maintain under this Lease, in each case including deductibles, notwithstanding that such loss or damage may result from the negligence or fault of Tenant, its servants, agents or employees. Tenant hereby waives any and all right of recovery which it might otherwise have against Landlord, its servants, and employees and against every other tenant of the

Real Property who shall have executed a similar waiver as set forth in this Section 16.4(c) for loss or damage to Tenant Additions, whether or not removable, and to Tenant's furniture, furnishings, fixtures and other property removable by Tenant under the provisions hereof to the extent the same is coverable by Tenant's insurance required under this Lease, notwithstanding that such loss or damage may result from the negligence or fault of Landlord, its servants, agents or employees, or such other tenant and the servants, agents or employees thereof. Each party shall cause each insurance policy obtained by it to provide that the insurance company waives all right of recovery by way of subrogation in connection with any damage covered by such policy.

16.5 NOTICE OF CASUALTY

Tenant shall give Landlord notice in case of a fire or accident in the Premises promptly after Tenant is aware of such event.

ARTICLE 17
WAIVER OF CLAIMS AND INDEMNITY

17.1 WAIVER OF CLAIMS

To the extent permitted by Law, Tenant hereby releases the Indemnitees from, and waives all claims for, damage to person or property sustained by Tenant or any occupant of the Premises or the Property resulting directly or indirectly from any existing or future condition, defect, matter or thing in and about the Premises or the Property or any part of either or any equipment or appurtenance therein, or resulting from any accident in or about the Premises or the Property, or resulting directly or indirectly from any act or neglect of any tenant or occupant of the Property or of any other person, including Landlord's agents and servants, except to the extent caused by the gross negligence or willful and wrongful act of any of the Indemnitees or their agents, employees, or representatives, or the breach of this Lease by Landlord. To the extent permitted by Law, Tenant hereby waives any consequential damages, compensation or claims for inconvenience or loss of business, rents, or profits as a result of such injury or damage. If any such damage, whether to the Premises or the Property or any part of either, or whether to Landlord or to other tenants in the Property, results from any act or neglect of Tenant, its employees, servants, agents, contractors, invitees or customers, Tenant shall be liable therefor and Landlord may, at Landlord's option, repair such damage and Tenant shall, upon demand by Landlord, as payment of additional Rent hereunder, reimburse Landlord within ten (10) days after demand for the total cost of such repairs, in excess of amounts, if any, paid to Landlord under insurance covering such damages. Tenant shall not be liable for any such damage caused by its acts or neglect if Landlord or a tenant has recovered the full amount of the damage from proceeds of insurance policies and the insurance company has waived its right of subrogation against Tenant.

17.2 INDEMNITY

(a) To the extent permitted by Law, Tenant hereby indemnifies, and agrees to protect, defend and hold the Indemnitees harmless, against any and all actions, claims, demands, liability, costs and expenses, including attorneys' fees and expenses for the defense thereof, arising from Tenant's occupancy of the Premises, from the undertaking of any Tenant Additions or repairs to the Premises, from the conduct of Tenant's business on the Premises, or from any breach or

default on the part of Tenant in the performance of any covenant or agreement on the part of Tenant

to be performed pursuant to the terms of this Lease, or from any willful act or negligence of Tenant, its agents, contractors, servants, employees, customers or invitees, in or about the Premises or the Property or any part of either. In case of any action or proceeding brought against the Indemnitees by reason of any such claim, upon notice from Landlord, Tenant covenants to defend such action or proceeding by counsel reasonably selected by Tenant. The foregoing indemnity shall not operate to relieve Indemnitees of liability to the extent such liability is caused by the gross negligence or willful and wrongful act of Indemnitees. Further, the foregoing indemnity is subject to and shall not diminish any waivers in effect in accordance with Section 16.4 by Landlord or its insurers to the extent of amounts, if any, paid to Landlord under its "All Risks" property insurance or that would have been paid to Landlord had Landlord maintained the insurance it was required to maintain under this Lease, plus deductibles paid by Landlord under such policies. This Article 17 shall survive the expiration or earlier termination of this Lease.

(b) Subject to the provisions of Sections 17.1 and 17.2(a) above, Landlord shall indemnify, defend and protect Tenant (and its partners, officers, shareholders, directors, members, managers, trustees, beneficiaries, employees, transferees, principals, contractors, servants, agents and representatives (Tenant and such other parties being referred to herein each as a "Tenant Indemnitee"), and hold Tenant Indemnitees harmless of and from any and all claims, proceedings, loss, cost, damage, causes of action, liabilities, injury or expense arising out of or related to claims of injury to or death of persons, damage to property occurring or resulting directly or indirectly from (i) the condition or design of the Common Areas (only to the extent that such indemnity obligations of Landlord hereunder would be covered by the proceeds of liability insurance maintained by Landlord), or (ii) the active negligence or willful misconduct of Landlord or its authorized agents, such indemnity to include, but without limitation, the obligation to provide all costs of defense against any such claims; provided, however, that the foregoing indemnity shall not be applicable to claims to the extent arising by reason of the active negligence or willful misconduct of Tenant or any Tenant Indemnitees. The foregoing notwithstanding, Landlord shall not be required to indemnify or defend Tenant Indemnitees from any claims, proceedings, loss, cost, damage, causes of action, liabilities, injury or expense arising out of or related to theft, fire, vandalism, assault, battery, act of God, breaches of security, acts of the public enemy, acts of terrorists or criminals, riot, strike, insurrection, war, court order, requisition or order of governmental body or authority, whether or not the negligence of Landlord or its agents or employees was a cause of, or in any way contributed to, such loss, damage, death or injury. This Section 17.2(b) shall survive the expiration or earlier termination of this Lease.

17.3 WAIVER OF CONSEQUENTIAL DAMAGES

Subject to Tenant's obligations under Section 7.1(f)(5) and Article 13, and except as otherwise provided in Section 11.2(b), to the extent permitted by law, each party hereby waives and releases the other party from any consequential damages, compensation or claims for inconvenience or loss of business, rents or profits as a result of any injury or damage, whether or not caused by the willful and wrongful act of such party.

ARTICLE 18
RULES AND REGULATIONS

18.1 RULES

Tenant agrees for itself and for its subtenants, employees, agents, and invitees to comply with the rules and regulations listed on Exhibit C-2 attached hereto and with all reasonable modifications and additions thereto which Landlord may make from time to time, provided that Landlord gives Tenant reasonable advance notice of such modifications and additions.

18.2 ENFORCEMENT

Landlord shall use reasonable efforts to enforce the rules and regulations of the Project in a uniform and non-discriminatory manner.

ARTICLE 19
LANDLORD'S RESERVED RIGHTS

Landlord shall have the following rights exercisable without notice to Tenant and without liability to Tenant for damage or injury to persons, property or business and without being deemed an eviction or disturbance of Tenant's use or possession of the Premises or giving rise to any claim for offset or abatement of Rent: (1) to change the Building's name or street address upon thirty (30) days' prior written notice to Tenant (provided, that if Landlord changes the Building's name or street address, Landlord shall reimburse Tenant for Tenant's actual costs of obtaining new stationary, letterhead, and similar materials that identified the Building's name or street address); (2) to install, affix and maintain all signs on the exterior and/or interior of the Building, provided that it does not materially and adversely impact Tenant's use of Premises or the Building; (3) to designate and/or approve prior to installation, all types of signs, window shades, blinds, drapes, awnings or other similar items, and all internal lighting that may be visible from the exterior of the Premises; (4) upon reasonable notice to Tenant, to display the Premises to prospective purchasers and lenders during Standard Operating Hours at any time during the Term and to prospective tenants at Standard Operating Hours during the last nine (9) months of the Term and subject to execution of the Confidentiality Agreement; (5) to grant to any party the exclusive right to conduct any business or render any service in or to the Building, provided such exclusive right shall not operate to prohibit Tenant from or interfere with Tenant using the Premises for the purpose permitted hereunder; (6) to change the arrangement and/or location of entrances or passageways, doors and doorways, corridors, elevators, stairs, washrooms or public portions of the Building, and to close entrances, doors, corridors, elevators or other facilities, provided that such action shall not materially and adversely interfere with Tenant's access to the Premises or the Building; (7) to have access for Landlord and other tenants of the Building to any mail chutes and boxes located in or on the Premises as required by any applicable rules of the United States Post Office; and (8) to close the Building after Standard Operating Hours, except that Tenant and its employees and invitees shall be entitled to admission at all times, under such reasonable regulations as Landlord prescribes for security purposes.

ARTICLE 20
ESTOPPEL CERTIFICATE

20.1 IN GENERAL

Within ten (10) business days after written request therefor by either party (the "Requesting Party"), the other party (the "Certifying Party") agrees as directed in such request to execute the proposed form of estoppel certificate (an "Estoppel Certificate") (which may require that such instrument be notarized), binding upon the Certifying Party, certifying (i) that this Lease is unmodified and in full force and effect (or if there have been modifications, a description of such modifications and that this Lease as modified is in full force and effect); (ii) the dates to which Rent has been paid; (iii) if Tenant is the Certifying Party, that Tenant is in the possession of the Premises if that is the case; (iv) that, to the Certifying Party's knowledge, the Requesting Party is not in default under this Lease, or, if the Certifying Party believes the Requesting Party is in default, the nature thereof in detail; (v) that the Certifying Party has no offsets or defenses to the performance of its obligations under this Lease (or if the Certifying Party believes there are any offsets or defenses, a full and complete explanation thereof); (vi) that, if Tenant is the Certifying Party, the Premises have been completed in accordance with the terms and provisions hereof or

Party, the Premises have been completed in accordance with the terms and provisions hereof of the Work Letter, that Tenant has accepted the Premises and the condition thereof and of all improvements thereto and has no claims against Landlord or any other party with respect thereto, if that is the case; (vii) if Tenant is the Certifying Party, that if an assignment of rents or leases has been served upon Tenant by a Mortgagee, Tenant will acknowledge receipt thereof and agree to be bound by the provisions thereof; (viii) if Tenant is the Certifying Party that Tenant will give to the Mortgagee copies of all notices required or permitted to be given by Tenant to Landlord; and (ix) to any other information reasonably requested.

20.2 ENFORCEMENT

In the event that Tenant fails to timely deliver an Estoppel Certificate within five (5) business days after receiving a second written request (which second written request may not be delivered by Landlord until ten (10) business days after the first written request), then such failure shall be a Default for which there shall be no cure or grace period. In addition to any other remedy available to Landlord, Landlord may impose a charge equal to $500.00 for each day that Tenant fails to deliver an Estoppel Certificate; and (i) Tenant shall be bound to, and deemed to have irrevocably agreed to, the accuracy and truthfulness of the Estoppel Certificate delivered to Tenant, and (ii) Landlord, and any third party receiving such form of Estoppel Certificate, including a Mortgagee or purchaser, may rely upon the accuracy and truthfulness thereof.

ARTICLE 21
RELOCATION OF TENANT

[Intentionally omitted.]

ARTICLE 22
REAL ESTATE BROKERS

Tenant represents that, except for the broker(s) listed in Section 1.1, Tenant has not dealt with any real estate broker, salesperson, or finder in connection with this Lease, and no such person

initiated or participated in the negotiation of this Lease, or showed the Premises to Tenant. Tenant hereby agrees to indemnify, protect, defend and hold Landlord and the Indemnitees, harmless from and against any and all liabilities and claims for commissions and fees arising out of a breach of the foregoing representation, as well as from any claim or claims for any commission or fee by any broker or other party claiming to represent Tenant in connection with any future extensions or renewals of the Term. Landlord agrees to pay any commission to which the brokers listed in Section 1.1 are entitled in connection with this Lease pursuant to Landlord's written agreement with such broker.

ARTICLE 23
MORTGAGEE PROTECTION

23.1 SUBORDINATION AND ATTORNMENT

(a) Subject to Tenant's rights under Section 23.1(b) below regarding the SNDA (as defined in Section 23.1(b) below), this Lease is and shall be expressly subject and subordinate at all times to (i) any ground or underlying lease of the Real Property, now or hereafter existing, and all amendments, extensions, renewals and modifications to any such lease, and (ii) the lien of any mortgage or trust deed now or hereafter encumbering fee title to the Real Property and/or the leasehold estate under any such lease, and all amendments, extensions, renewals, replacements and modifications of such mortgage or trust deed and/or the obligation secured thereby, unless such ground lease or ground lessor, or mortgage, trust deed or Mortgagee, expressly provides or elects that this Lease shall be superior to such lease or mortgage or trust deed . If any such mortgage or trust deed is foreclosed (including any sale of the Real Property pursuant to a power of sale), or if any such lease is terminated, upon request of the Mortgagee or ground lessor, as the case may be, Tenant shall attorn to the purchaser at the foreclosure sale or to the ground lessor under such lease, as the case may be, provided, however, that except as set forth in the applicable subordination, non-disturbance and attornment agreement, such purchaser or ground lessor shall not be (i) bound by any payment of Rent for more than one month in advance except payments in the nature of security for the performance by Tenant of its obligations under this Lease; (ii) subject to any offset, defense or damages arising out of a default of any obligations of any preceding Landlord, except to the extent such default constitutes a continuing default by Landlord; or (iii) liable for any security deposits not actually received in cash by such purchaser or ground lessor. The terms of this paragraph shall survive any termination of this Lease by reason of foreclosure.

(b) Tenant's obligation to subordinate to any Mortgagee shall be conditioned on Landlord causing such Mortgagee to sign and deliver to Tenant a non-disturbance agreement in substantially the form attached as Exhibit D hereto (the "SNDA"); provided, however, that (i) delivery of the SNDA in a form appropriate for recordation, executed by such Mortgagee shall be deemed satisfaction of the condition set forth in this Section 23.1(b), and (ii) Tenant shall be responsible for any fees charged by Mortgagee, and its own attorney's fees, in connection with the SNDA. Landlord shall make best efforts to deliver a fully-executed and acknowledged SNDA to Tenant within ninety (90) days after the date of full execution and delivery of this Lease; provided, however, Landlord's failure to do so shall in no event modify any of Tenant's obligations under this Lease. Notwithstanding the foregoing to the contrary, if Landlord fails to deliver a fully-executed and acknowledged SNDA to Tenant within ninety (90) days after the date of full execution and delivery of this Lease, then as Tenant's sole remedy, commencing as of the 91st day

after such date, Tenant may defer payment of one-half (½) of the Monthly Base Rent otherwise

due under this Lease, with such deferment continuing until the date of such delivery (the "Deferred Monthly Base Rent"). Upon such delivery, the Deferred Monthly Base Rent shall be immediately due and payable. In no event shall Landlord be liable for special or consequential damages as a result of any such delay in delivering the SNDA.

23.2 MORTGAGEE PROTECTION

[Intentionally omitted.]

ARTICLE 24
NOTICES

(a) All notices, demands or requests provided for or permitted to be given pursuant to this Lease must be in writing and shall be personally delivered, sent by Federal Express or other reputable overnight courier service, or mailed by first class, registered or certified United States mail, return receipt requested, postage prepaid.

(b) All notices, demands or requests to be sent pursuant to this Lease shall be deemed to have been properly given or served by delivering or sending the same in accordance with this Section, addressed to the parties hereto at their respective addresses listed in Section 1.1.

(c) Notices, demands or requests sent by mail or overnight courier service as described above shall be effective upon delivery or, if delivery is refused, upon the first attempted delivery. However, except with respect to a notice given under Code of Civil Procedure Section 1161 et seq., the time period in which a response to any such notice, demand or request must be given shall commence to run from (i) in the case of delivery by mail, the date of receipt on the return receipt of the notice, demand or request by the addressee thereof, or (ii) in the case of delivery by Federal Express or other overnight courier service, the date of acceptance of delivery by an employee, officer, director or partner of Landlord or Tenant. Rejection or other refusal to accept or the inability to deliver because of changed address of which no notice was given, as indicated by advice from Federal Express or other overnight courier service or by mail return receipt, shall be deemed to be receipt of notice, demand or request sent. Notices may also be served by personal service upon any officer, director or partner of Landlord or Tenant, and shall be effective upon such service.

(d) By giving to the other party at least thirty (30) days written notice thereof, either party shall have the right from time to time during the term of this Lease to change their respective addresses for notices, statements, demands and requests, provided such new address shall be within the United States of America.

ARTICLE 25
MISCELLANEOUS

25.1 LATE CHARGES

(a) All payments required hereunder (other than the Monthly Base Rent, Rent Adjustments, and Rent Adjustment Deposits, which shall be due as hereinbefore provided) to

Landlord shall be paid within fifteen (15) business days after Landlord's demand therefor. All such amounts (including Monthly Base Rent, Rent Adjustments, and Rent Adjustment Deposits) not paid when due shall bear interest from the date due until the date paid at the Default Rate in effect on the date such payment was due.

(b) In the event Tenant is more than five (5) days late in paying any installment of Rent due under this Lease, Tenant shall pay Landlord a late charge equal to five percent (5%) of the delinquent installment of Rent. The parties agree that (i) such delinquency will cause Landlord to incur costs and expenses not contemplated herein, the exact amount of which will be

difficult to calculate, including the cost and expense that will be incurred by Landlord in processing each delinquent payment of rent by Tenant, (ii) the amount of such late charge represents a reasonable estimate of such costs and expenses and that such late charge shall be paid to Landlord for each delinquent payment in addition to all Rent otherwise due hereunder. The parties further agree that the payment of late charges and the payment of interest provided for in subparagraph (a) above are distinct and separate from one another in that the payment of interest is to compensate Landlord for its inability to use the money improperly withheld by Tenant, while the payment of late charges is to compensate Landlord for its additional administrative expenses in handling and processing delinquent payments.

(c) Payment of interest at the Default Rate and/or of late charges shall not excuse or cure any default by Tenant under this Lease, nor shall the foregoing provisions of this Article or any such payments prevent Landlord from exercising any right or remedy available to Landlord upon Tenant's failure to pay Rent when due, including the right to terminate this Lease.

25.2 ARBITRATION

Except as otherwise set forth below, any dispute between Landlord and Tenant arising under or relating to the Lease, shall be resolved through arbitration in accordance with the Comprehensive Arbitration Rules and Procedures of Judicial Arbitration and Mediation Services ("JAMS"), as amended from time to time. The arbitration shall take place in San Francisco, California. Notwithstanding any JAMS rules to the contrary, the arbitration shall be conducted by a single arbitrator. The arbitrator shall not have the power, jurisdiction, or authority to commit errors of law. The arbitrator's decision will be final and binding, will not be subject to appeal, and may be entered as a final judgment in any court of competent jurisdiction; provided, however, that the decision may be vacated or corrected pursuant to California Code of Civil Procedure Sections 1286.2 or 1286.6, including without limitation, on the grounds that the arbitrator exceeded his or her authority by committing an error of law. All arbitration proceedings shall be confidential, and neither the parties nor the arbitrator may disclose the content or results of any arbitration hereunder without the written consent of all parties to the dispute, except as necessary to confirm or vacate the arbitrator's award. Notwithstanding anything contained in this Article 34, either Landlord or Tenant shall be entitled to (A) commence legal proceedings seeking any injunctive or other provisional relief as may be necessary to define or protect the rights and enforce the obligations contained in the Lease pending the resolution of a dispute in accordance with the arbitration procedures set forth in this Section 25.2, (B) join any arbitration proceeding arising out of this Lease with any other arbitration proceeding arising out of this Lease, or (C) for Landlord, commence an action in Superior Court to recover possession of the Premises.

WE HAVE READ AND UNDERSTAND THE FOREGOING SECTION AND AGREE TO SUBMIT THE DISPUTES DESCRIBED ABOVE TO ARBITRATION UNDER THE DESCRIBED PROCEDURES.

_____ _____

Landlord Tenant

25.3 NO DISCRIMINATION

Tenant agrees for Tenant and Tenant's heirs, executors, administrators, successors and assigns and all persons claiming under or through Tenant, and this Lease is made and accepted upon and subject to the following conditions: that there shall be no discrimination against or segregation of any person or group of persons on account of race, color, creed, religion, sex, marital status, national origin or ancestry (whether in the leasing, subleasing, transferring, use, occupancy, tenure or enjoyment of the Premises or otherwise) nor shall Tenant or any person claiming under or through Tenant establish or permit any such practice or practices of discrimination or segregation with reference to the use or occupancy of the Premises by Tenant or any person

segregation with reference to the use or occupancy of the Premises by Tenant or any person claiming through or under Tenant.

25.4 FINANCIAL STATEMENTS

Within ten (10) business days after written request from Landlord (which request Landlord shall make not more often than once per calendar year and then only in connection with a sale or refinance of the Project), Tenant shall provide Landlord with current financial statements setting forth Tenant's financial condition and net worth for the most recent quarter, including balance sheets and statements of profits and losses, to the extent such statements are prepared in accordance with Tenant's ordinary business practices. Landlord shall keep such financial information confidential and shall only disclose such information to Landlord's lenders, consultants, purchasers or investors, or other agents (who shall be subject to the same confidentiality obligations) on a need to know basis in connection with the administration of this Lease. Tenant need not provide the financial statements required under this Section 25.4 so long as same are publicly available free of charge.

25.5 OPTION

This Lease shall not become effective as a lease or otherwise until executed and delivered by both Landlord and Tenant. The submission of this Lease to Tenant does not constitute a reservation of or option for the Premises, but when executed by Tenant and delivered to Landlord, this Lease shall constitute an irrevocable offer by Tenant in effect for five (5) days to lease the Premises on the terms and conditions herein contained.

25.6 AUTHORITY

Tenant represents and warrants to Landlord that it has full authority and power to enter into and perform its obligations under this Lease, that the person executing this Lease is fully empowered to do so, and that no consent or authorization is necessary from any third party.

Landlord may request that Tenant provide Landlord evidence of Tenant's authority. Landlord represents and warrants to Tenant that it has full authority and power to enter into and perform its obligations under this Lease, that the person executing this Lease is fully empowered to do so, and that no consent or authorization is necessary from any third party. Tenant may request that Landlord provide Tenant evidence of Landlord's authority.

25.7 ENTIRE AGREEMENT

This Lease, the Exhibits, and Riders attached hereto contain the entire agreement between Landlord and Tenant concerning the Premises and there are no other agreements, either oral or written, and no other representations or statements, either oral or written, on which Tenant has relied. This Lease shall not be modified except by a writing executed by Landlord and Tenant.

25.8 RESERVED

25.9 EXCULPATION

Tenant agrees, on its behalf and on behalf of its successors and assigns, that any liability or obligation under this Lease shall only be enforced against Landlord's equity interest in the Property and/or interest in the proceeds from the Property (including a sale or financing thereof), and in no event against any other assets of Landlord, or Landlord's members, officers, directors or partners, and that any liability of Landlord with respect to this Lease shall be so limited and Tenant shall not be entitled to any judgment in excess of such amount.

25.10 ACCORD AND SATISFACTION

No payment by Tenant or receipt by Landlord of a lesser amount than any installment or payment of Rent due shall be deemed to be other than on account of the amount due, and no endorsement or statement on any check or any letter accompanying any check or payment of Rent shall be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment or payment of Rent or pursue any other remedies available to Landlord. No receipt of money by Landlord from Tenant after the termination of this Lease or Tenant's right of possession of the Premises shall reinstate, continue or extend the Term. Receipt or acceptance of payment from anyone other than Tenant, including an assignee of Tenant, is not a waiver of any breach of Article 10, and Landlord may accept such payment on account of the amount due without prejudice to Landlord's right to pursue any remedies available to Landlord.

25.11 LANDLORD'S OBLIGATIONS ON SALE OF BUILDING

In the event of any sale or other transfer of the Building, Landlord shall be entirely freed and relieved of all agreements and obligations of Landlord hereunder accruing or to be performed after the date of such sale or transfer, and any remaining liability of Landlord with respect to this Lease shall be limited to the dollar amount specified in Section 25.9 and Tenant shall not be entitled to any judgment in excess of such amount.

25.12 BINDING EFFECT

Subject to the provisions of Article 10, this Lease shall be binding upon and inure to the

benefit of Landlord and Tenant and their respective heirs, legal representatives, successors and permitted assigns.

25.13 CAPTIONS

The Article and Section captions in this Lease are inserted only as a matter of convenience and in no way define, limit, construe, or describe the scope or intent of such Articles and Sections.

25.14 TIME; APPLICABLE LAW; CONSTRUCTION

Time is of the essence of this Lease and each and all of its provisions. This Lease shall be construed in accordance with the Laws of the State of California. If more than one person signs this Lease as Tenant, the obligations hereunder imposed shall be joint and several. If any term, covenant or condition of this Lease or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term, covenant or condition to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each item, covenant or condition of this Lease shall be valid and be enforced to the fullest extent permitted by Law. Wherever the term "including" or "includes" is used in this Lease, it shall have the same meaning as if followed by the phrase "but not limited to". The language in all parts of this Lease shall be construed according to its normal and usual meaning and not strictly for or against either Landlord or Tenant.

25.15 ABANDONMENT

In the event Tenant vacates or abandons the Premises but is otherwise in compliance with all the terms, covenants and conditions of this Lease, Landlord shall (i) have the right to enter into the Premises in order to show the space to prospective tenants, and (ii) have the right to reduce the services provided to Tenant pursuant to the terms of this Lease to such levels as Landlord reasonably determines to be adequate services for an unoccupied premises. Tenant expressly acknowledges that in the absence of written notice pursuant to Section 11.2(b) or pursuant to California Civil Code Section 1951.3 terminating Tenant's right to possession, none of the foregoing acts of Landlord or any other act of Landlord shall constitute a termination of Tenant's right to possession or an acceptance of Tenant's surrender of the Premises, and this Lease shall continue in effect.

25.16 LANDLORD'S RIGHT TO PERFORM TENANT'S DUTIES

If Tenant fails timely to perform any of its duties under this Lease beyond any applicable notice and cure periods, Landlord shall have the right (but not the obligation), to perform such duty on behalf and at the expense of Tenant without prior notice to Tenant, and all sums expended, or expenses incurred by Landlord in performing such duty shall be deemed to be additional Rent under this Lease and shall be due and payable upon demand by Landlord.

25.17 SECURITY SYSTEM

Landlord shall continue to operate and maintain, throughout the term of this Lease, the security systems, monitoring, programs, and patrol that it operates and maintains as of the date of

this Lease, subject to such changes as may be necessary due to changes in technology or standard industry practices. Landlord shall not be responsible for the quality of any such patrol or system which may be provided hereunder or for damage or injury to Tenant, its employees, invitees or others due to the failure, action or inaction of such patrol or system.

25.18 NO LIGHT, AIR OR VIEW EASEMENTS

Any diminution or shutting off of light, air or view by any structure which may be erected on lands of or adjacent to the Project shall in no way affect this Lease or impose any liability on Landlord.

Landlord.

25.19 RECORDATION

Neither this Lease, nor any notice nor memorandum regarding the terms hereof, shall be recorded by Tenant. Any such unauthorized recording shall be a Default for which there shall be no cure or grace period. Tenant agrees to execute and acknowledge, at the request of Landlord, a memorandum of this Lease, in recordable form.

25.20 SURVIVAL

The waivers of the right of jury trial, the other waivers of claims or rights, the releases and the obligations of each party under this Lease to indemnify, protect, defend and hold harmless the other party shall survive the expiration or termination of this Lease, and so shall all other obligations or agreements which by their terms survive expiration or termination of this Lease.

25.21 OFAC

(a) Tenant hereby represents, warrants and covenants to Landlord, either that (i) Tenant is regulated by the SEC, FINRA or the Federal Reserve (a "Regulated Entity") or (ii) neither Tenant nor, to Tenant's knowledge, any person or entity that directly or indirectly (A) controls Tenant or (B) has an ownership interest in Tenant of twenty-five percent (25%) or more, appears on the list of Specially Designated Nationals and Blocked Persons ("OFAC List") published by the Office of Foreign Assets Control ("OFAC") of the U.S. Department of the Treasury.

(b) If, in connection with this Lease, there is one or more Guarantors of Tenant's obligations under this Lease, then Tenant further represents, warrants and covenants either that (i) any such Guarantor is a Regulated Entity or (ii) neither Guarantor nor, to Tenant's knowledge, any person or entity that directly or indirectly (A) controls such Guarantor or (B) has an ownership interest in such Guarantor of twenty-five percent (25%) or more, appears on the OFAC List.

(c) Landlord advises Tenant hereby that the purpose of this Section is to provide to Landlord information and assurances to enable Landlord to comply with the Laws relating to OFAC.

(d) Tenant acknowledges that the breach of any of the representations, warranties and/or covenants by Tenant under this Section 25.21 shall be an immediate Default

under this Lease.

(e) Landlord represents, warrants, and covenants to Tenant that either (i) Landlord is a Regulated Entity or (ii) neither Landlord nor any person or entity that directly or indirectly (A) controls Landlord or (B) has a twenty-five percent (25%) or greater ownership interest in Landlord, appears on the OFAC List.

25.22 INSPECTION BY A CASP IN ACCORDANCE WITH CIVIL CODE SECTION 1938.

Landlord discloses that to Landlord's knowledge, neither the Building nor the Premises have undergone inspection by a Certified Access Specialist. Furthermore, pursuant to Section 1938 of the California Civil Code, Landlord notifies Tenant of the following: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although California state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the

time and manner of any such CASp inspection, the payment of the costs and fees for the CASp inspection and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the Premises." Tenant agrees that (a) Tenant may, at its option and at its sole cost, cause a CASp to inspect the Premises and determine whether the Premises complies with all of the applicable construction-related accessibility standards under California law, (b) the parties shall mutually coordinate and reasonably approve of the timing of any such CASp inspection so that Landlord may, at its option, have a representative present during such inspection, and (c) Tenant shall be solely responsible for the cost of any repairs necessary to correct violations of construction-related accessibility standards within the Premises and Building identified by any such CASp inspection, any and all such alterations and repairs within the Premises to be performed by Tenant shall be subject to Landlord's consent and in accordance with this Lease. Landlord and Tenant hereby agree that if Tenant elects to perform a CASp inspection of the Premises, Tenant will provide written notice to Landlord, and Landlord may elect, in Landlord's sole discretion, to retain a CASp to perform the inspection. If Landlord does not so elect, the time and manner of the CASp inspection is subject to the prior written approval of Landlord. In either event, the payment of the fee for the CASp inspection shall be borne by Tenant.

25.23 COUNTERPARTS

This Lease may be executed in any number of counterparts, each of which shall be deemed an original, but all of which, together, shall constitute one and the same instrument. Telecopied signatures or signatures transmitted by electronic mail in so-called "pdf" format or via DocuSign or similar electronic means, may be used in place of original signatures on this Lease. Landlord and Tenant intend to be bound by the signatures on the telecopied or e-mailed document, are aware that the other party will rely on the telecopied or e-mailed signatures, and hereby waive any defenses to the enforcement of the terms of this Lease based on such telecopied or e-mailed signatures. Promptly following request by either party, the other party shall provide the requesting party with original signatures on this Lease.

25.24 EXHIBITS AND RIDERS

All exhibits, riders and/or addenda referred to in this Lease as an exhibit, rider, or addenda hereto, or attached hereto, are hereby incorporated into and made a part of this Lease.

[Signatures on Following Page]

IN WITNESS WHEREOF, this Lease has been executed as of the date set forth in Section

1.1 hereof.

LANDLORD: POINT RICHMOND R&D ASSOCIATES II, LLC,
a California limited liability company

By: Wareham-NZL, LLC, its Manager

By:_____
Richard K. Robbins
Its Manager

TENANT: SANGAMO THERAPEUTICS, INC.,
a Delaware corporation

By:_____
Name:_____
Title: _____

EXHIBIT A

OUTLINE OF PREMISES

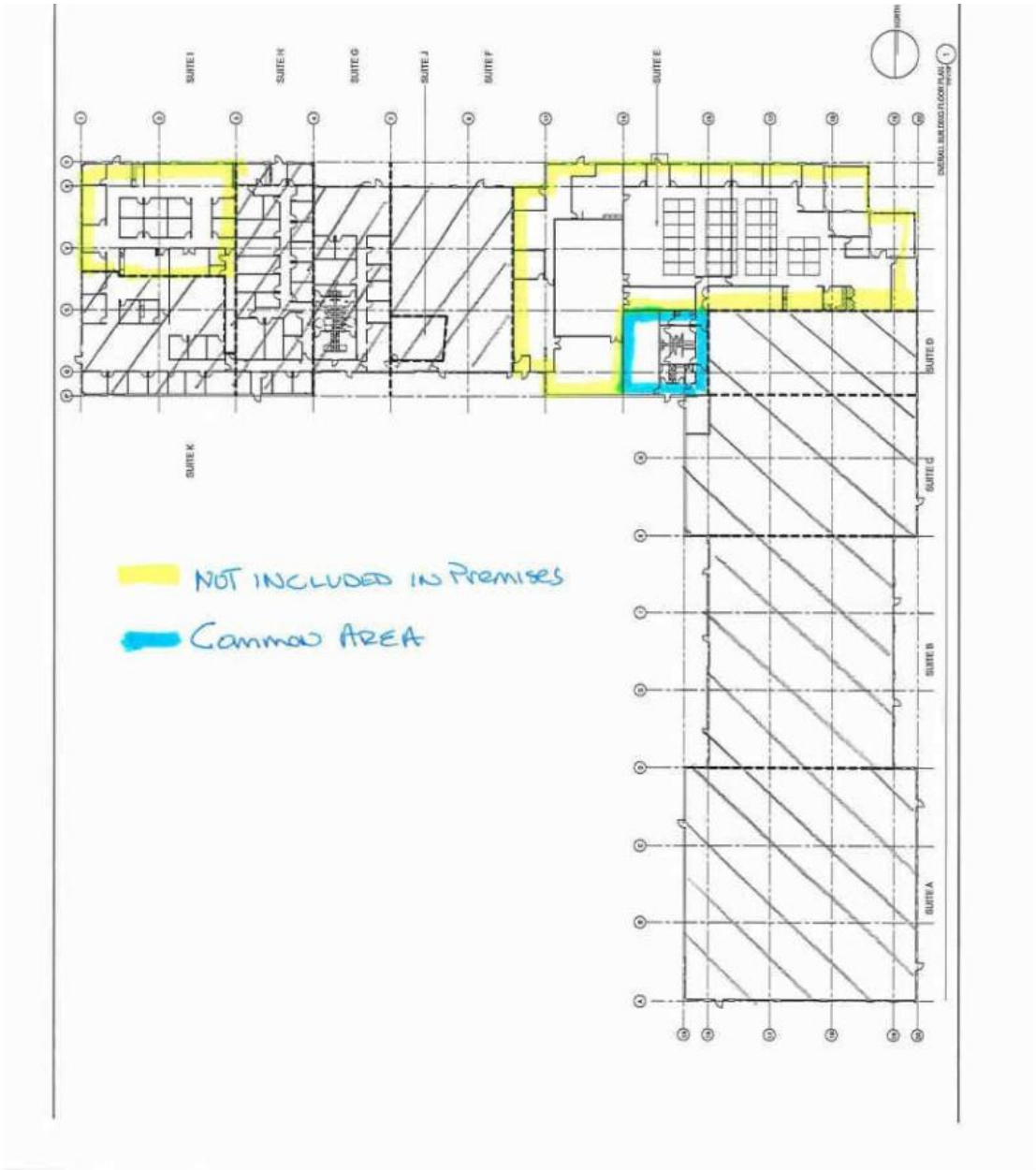
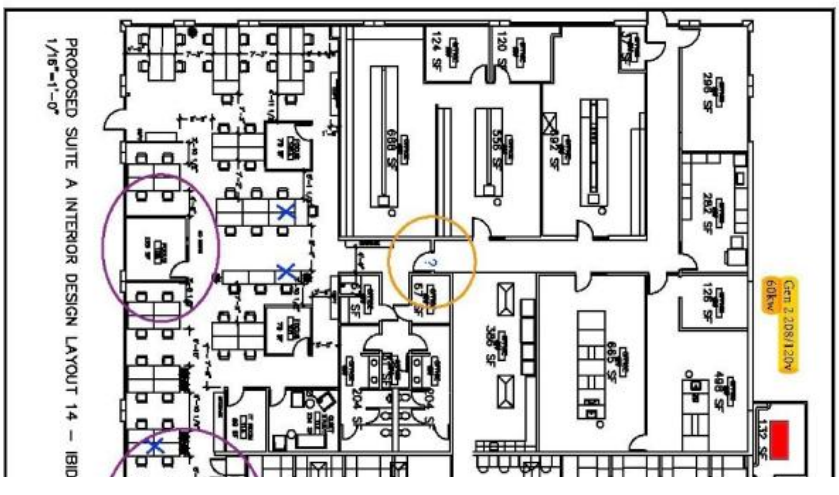


EXHIBIT A-1

EMERGENCY GENERATOR SITE



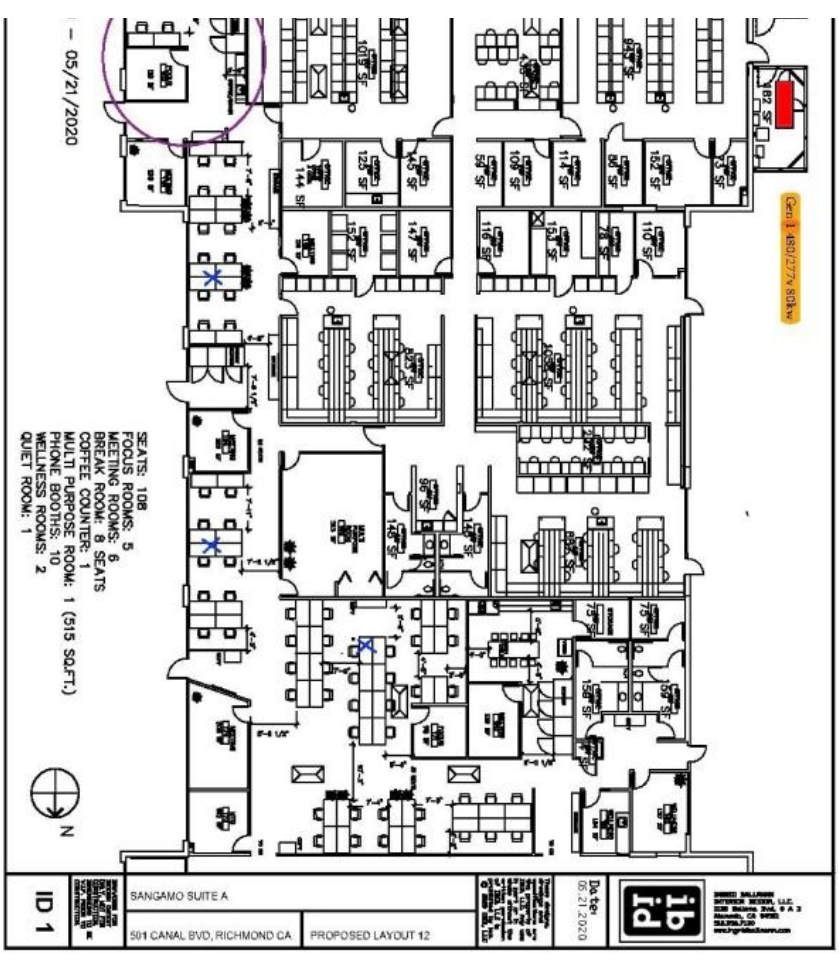

– 05/21/2020
SEATS: 108
FOCUS ROOMS: 5
MEETING ROOMS: 6
BREAK ROOM: 8 SEATS
COFFEE COUNTER: 1
MULTI PURPOSE ROOM: 1 (515 SQ.FT.)
PHONE BOOTHS: 10
WELLNESS ROOMS: 2
QUIET ROOM: 1
N
ID 1
SANGAMO SUITE A
501 CANAL BVD, RICHMOND CA
PROPOSED LAYOUT 12
Date:
05.21.2020

EXHIBIT B

WORK LETTER AGREEMENT
(Tenant Build / Allowance)

THIS WORK LETTER AGREEMENT (this "Work Agreement") is attached to and made a part of that certain Lease (the "Lease") between POINT RICHMOND R&D ASSOCIATES II, LLC ("Landlord") and SANGAMO THERAPEUTICS, INC. ("Tenant"). All capitalized terms used but not defined herein shall have the respective meanings given such terms in the Lease. This Work Agreement sets forth the terms and conditions relating to the construction of Tenant Work (defined below) in the Premises.

1. Allowance; Tenant Work.

(a) Allowance. Tenant shall be entitled to the Tenant Improvement Allowances set forth in Section 1.1 of the Lease for the costs relating to the design, permitting and construction of any of Tenant's improvements to the Premises (collectively, the "Tenant Work"); provided, however, notwithstanding anything in this Work Letter or the Lease to the contrary, the Suite D Tenant Improvement Allowance may only be used for the costs associated with the Tenant Work for Suite D (the "Suite D Tenant Work").

In no event will Landlord be obligated to make disbursements pursuant to this Work Agreement in a total amount which exceeds the Tenant Improvement Allowances. Tenant must complete all Tenant Work and have submitted all Payment Request Supporting Documentation (defined below) for such work no later than June 30, 2023, which date shall not be extended, even if a portion of the Tenant Work is delayed because of a Force Majeure event.

(b) Tenant Improvement Allowance Items; Disbursement of Tenant Improvement Allowances.

(i) Tenant Improvement Allowance Items. Except as otherwise set forth in this Work Agreement, the Tenant Improvement Allowances shall be disbursed by Landlord only for the following items and costs (collectively the "Tenant Improvement Allowance Items"):

(A) Payment of the fees of the Architect and the Building Consultants (as those terms are defined below) and payment of fees and costs reasonably incurred by Landlord for the review of the Construction Drawings (defined below) by Landlord or by Landlord's third party consultants;

(B) The payment of plan check, permit and license fees relating to the Tenant Work;

(C) The cost of construction of the Tenant Work, including, without limitation, after hours charges, testing and inspection costs, freight elevator usage, trash removal costs, and contractors' fees and general conditions;

(D) The cost of any changes to the Building when such changes are required by the Construction Drawings, such cost to include all direct architectural and/or engineering fees and expenses incurred in connection therewith;

(E) The cost of any changes to the Construction Drawings (defined below) or Tenant Work required by applicable building codes (collectively, "Code"); and

(F) The Coordination Fee (defined below).

(ii) Disbursement of Tenant Improvement Allowances. During the design and construction of the Tenant Work, Landlord shall make periodic disbursements of the Tenant Improvement Allowances to reimburse Tenant for Tenant Improvement Allowance Items, as follows:

(A) From time to time at the discretion of Tenant, Tenant shall deliver to Landlord: (i) a request for payment from Tenant's Contractor (defined below) approved by Tenant, in a commercially reasonable form, including a schedule of values and showing the percentage of completion, by trade, of the applicable Tenant Work; (ii) invoices from all of Tenant's Agents (defined below) for labor rendered and materials delivered to the Premises with respect to the subject request for payment; and (iii) executed conditional mechanic's lien releases from the Contractor and subcontractors who have established the right to lien with respect to the subject request for payment (along with unconditional mechanics' lien releases with respect to payments made pursuant to submissions made by Tenant hereunder more than sixty (60) days prior to the subject request for payment) in compliance with all applicable laws (collectively, the "Payment Request Supporting Documentation"). All Payment Request Supporting Documentation shall clearly delineate which Tenant Improvement Allowance each payment request relates to.

(B) Within thirty (30) days after Tenant's delivery to Landlord of Payment Request Supporting Documentation, Landlord shall deliver to Tenant payment in an amount equal to the lesser of: (x) the amount so requested by Tenant, as set forth above, less a ten percent (10%) retention on amounts payable to the Contractor and subcontractors (the aggregate amount of such retentions to be known as the "Final Retention"), and (y) the balance of any remaining available portion of the applicable Tenant Improvement Allowances (not including the Final Retention), provided that if Landlord, in good faith, disputes any item in a request for payment based on non-compliance of any work with the Approved Working Drawings (defined below) or due to any substandard work and delivers a written objection to such item setting forth with reasonable particularity Landlord's reasons for its dispute (a "Draw Dispute Notice") within ten (10) days following Tenant's submission of its Payment Request Supporting Documentation, Landlord may deduct the amount of such disputed item from the payment. Landlord and Tenant shall, in good faith, endeavor to diligently resolve any such dispute. Landlord's payment of such amounts shall not be deemed Landlord's approval or acceptance of the work furnished or materials supplied as set forth in Tenant's payment request.

(C) Subject to the provisions of this Work Agreement, following the final completion of construction of the Tenant Work, Landlord shall deliver to Tenant a check made payable to Tenant, or a check or checks made payable to another party or parties as reasonably requested by Tenant, in the amount of the Final Retention, provided that (A) Tenant delivers to Landlord properly executed unconditional mechanics' lien releases from all of Tenant's Agents in compliance with all applicable laws, as reasonably determined by Landlord; (B) Landlord has determined in good faith that no substandard work exists which adversely affects the mechanical, electrical, plumbing, heating, ventilating and air conditioning, life-safety or other systems of the Building, the curtain wall of the Building, the structure or exterior appearance of the Building; (C) Architect delivers to Landlord a certificate, in a form reasonably acceptable to

Landlord, certifying that the construction of the Tenant Work has been finally completed; (D) Tenant supplies Landlord with evidence that all governmental approvals required for an occupant to legally occupy the Premises has been obtained; and (E) Tenant has complied with Landlord's standard "close-out" requirements regarding city approvals, closeout tasks, closeout documentation regarding the general contractor, financial close-out matters, and Tenant's vendors.

2. Construction Drawings

(a) Selection of Architect; Construction Drawings.

(i) Tenant shall retain an architect approved in writing, in advance by Landlord

(i) Tenant shall retain an architect approved in writing, in advance by Landlord, such approval not to be unreasonably withheld (the "Architect") to prepare the Construction Drawings. It is agreed that Dan McCauley of High Tech Construction Management and Design is so approved. Tenant shall retain engineering consultants approved in writing, in advance by Landlord, such approval not to be unreasonably withheld (the "Building Consultants") to prepare all plans and engineering working drawings and perform all work relating to mechanical, electrical and plumbing ("MEP"), HVAC/Air Balancing, life-safety, structural, sprinkler and riser work.

(ii) The plans and drawings to be prepared by Architect and the Building Consultants hereunder (i.e., both the Space Plan and the Working Drawings, as each term is defined below) shall be known collectively as the "Construction Drawings." All Construction Drawings shall comply with the drawing format and specifications determined or approved by Landlord and shall be subject to Landlord's prior written approval, not to be unreasonably withheld, conditioned or delayed. All MEP drawings must be fully engineered or prepared on a "design-build-assist" basis with a Landlord-approved MEP basis of design ("BOD"), as prepared by an approved MEP engineer consultant. The MEP drawings cannot be prepared on a strictly "design-build" basis. Landlord's review of the Construction Drawings shall be for its sole purpose and shall not obligate Landlord to review the same, for quality, design, Code compliance or other like matters. Accordingly, notwithstanding that any Construction Drawings are reviewed by Landlord or its space planner, architect, engineers and consultants, and notwithstanding any advice or assistance which may be rendered to Tenant by Landlord or Landlord's space planner, architect, engineers, and consultants, Landlord shall have no liability whatsoever in connection therewith and shall not be responsible for any omissions or errors contained in the Construction Drawings.

(b) Space Plan. Tenant shall supply Landlord for Landlord's review and approval with four (4) copies signed by Tenant of its space plan for the Premises ("Space Plan") before any architectural working drawings or engineering drawings have been commenced. The Space Plan shall include a layout and designation of all laboratory facilities, offices, rooms and other partitioning, their intended use, and equipment to be contained therein. Landlord may request clarification or more specific drawings for special use items not included in the Space Plan. Landlord shall advise Tenant within ten (10) days after Landlord's receipt of the Space Plan (or, if applicable, such additional information requested by Landlord pursuant to the provisions of the immediately preceding sentence) if the same is approved or is unsatisfactory or incomplete in any respect. If Landlord disapproves the Space Plan, Landlord's disapproval shall set forth with reasonable particularity Landlord's reasonable basis for such disapproval. If Landlord fails to so respond to any request for approval of the Space Plan within such ten (10) day period, and such failure continues for five (5) days following a second written notice to Landlord, then Landlord shall be deemed to have approved the Space Plan. Upon any disapproval by Landlord, Tenant shall promptly cause the Space Plan to be revised to correct any deficiencies identified in Landlord's

disapproval and resubmit the revised Space Plan to Landlord. Landlord shall review the revised Space Plan pursuant to the procedure set forth above; provided, however, Landlord shall only be permitted to disapprove the revised Space Plan if it fails to address the basis for Landlord's disapproval of the previous Space Plan.

(c) Working Drawings. After the Space Plan has been approved by Landlord, Tenant shall supply the Architect and the Building Consultants with a complete listing of standard and non-standard equipment and specifications, including, without limitation, B.T.U. calculations, electrical requirements and special electrical receptacle requirements, to enable the Architect and the Building Consultants to complete the Working Drawings and shall cause the Architect and the Engineers to promptly complete the architectural and engineering drawings, and Architect shall compile a fully coordinated set of drawings, including but not limited to architectural, structural, mechanical, electrical, plumbing, fire sprinkler and life safety in a form which is complete to allow subcontractors to bid on the work and to obtain all applicable permits (collectively, the "Working Drawings") and shall submit the same to Landlord for Landlord's review and approval. Tenant shall supply Landlord with four (4) copies signed by Tenant of the Working Drawings. Landlord shall advise Tenant within ten (10) business days after Landlord's receipt of the Working Drawings if Landlord, in good faith, determines that the same are approved or are unsatisfactory or incomplete. If Landlord disapproves the Working Drawings, Landlord's disapproval shall set forth

incomplete. If Landlord disapproves the Working Drawings, Landlord's disapproval shall set forth with reasonable particularity Landlord's reasonable basis for such disapproval. If Landlord fails to so respond to any request for approval of the Working Drawings within such ten (10) business day period, and such failure continues for five (5) business days following a second written notice to Landlord, then Landlord shall be deemed to have approved the Working Drawings. Upon any disapproval by Landlord, Tenant shall promptly cause the Working Drawings to be revised to correct any deficiencies identified in Landlord's disapproval and resubmit the revised Working Drawings to Landlord. Landlord shall review the revised Working Drawings pursuant to the procedure set forth above. Landlord shall only be permitted to disapprove the revised Working Drawing if they fail to address the basis for Landlord's disapproval of the previous Working Drawings or the revised Working Drawings contain a material error or omission.

(d) Landlord's Approval. Tenant acknowledges that it shall be deemed reasonable for Landlord to disapprove the Space Plan and any subsequent Working Drawings unless, at a minimum, the same are prepared on the basis that the sprinkler systems shall be designed in compliance with the specifications provided by FM Global. Additionally, Landlord's approval of any matter under this Work Agreement may be withheld if Landlord reasonably determines that the same would violate any provision of the Lease or this Work Agreement or would adversely affect the mechanical, electrical, plumbing, heating, ventilating and air conditioning, life-safety or other systems of the Building, the curtain wall of the Building, the structure or exterior appearance of the Building. The final Working Drawings, as approved by Landlord, are referred to herein as the "Approved Working Drawings".

3. Construction of the Tenant Work

(a) Tenant's Selection of Contractors.

(i) The Contractor. Tenant shall retain a general contractor approved in writing, in advance by Landlord, such approval not to be unreasonably withheld, to construct the Tenant Work ("Contractor"). It is agreed by Landlord that Dome Construction is so approved.

(ii) Tenant's Agents. All subcontractors, laborers, materialmen, and suppliers used by Tenant, along with the Contractor, shall be known collectively as "Tenant's Agents". All of Tenant's Agents shall be licensed in the State of California and capable of being bonded. Notwithstanding anything herein to the contrary, in connection with Tenant's construction of the Tenant Work, any of Tenant's Agents that are (A) to be reimbursed to Tenant through the Tenant Improvement Allowances, and/or (B) involved in principal construction trades, shall be union-affiliated and in compliance with all then existing master labor agreements.

(b) Construction of Tenant Work by Tenant's Agents.

(i) Construction Contract. Within five (5) business days after Tenant's execution of the construction contract and general conditions with Contractor (the "Contract"), Tenant shall provide a copy of the Contract to Landlord. Notwithstanding anything set forth herein to the contrary, construction of the Tenant Work shall not commence until Tenant has procured and delivered to Landlord a copy of all Permits for the applicable Tenant Work.

(ii) Construction Requirements.

(A) Landlord's General Conditions for Tenant's Agents and Tenant Improvement Work. The Tenant Work shall be constructed in material accordance with the Approved Working Drawings and Landlord's construction guidelines, which are attached as Schedule 1 to this Work Agreement (in the event of a conflict between the construction guidelines and this Work Agreement, this Work Agreement shall control); and (2) Tenant shall abide by all reasonable rules made by Landlord and provided to Tenant in writing, including with respect to the use of contractor parking, materials delivery, freight and loading dock, any required shutdown of utilities (including life-safety systems), storage of materials, coordination of work with the contractors of Landlord, and any other matter in connection with this Work Agreement, including, without limitation, the construction of the Tenant Work, provided that such rules do not materially adversely affect construction of the Tenant Work. Tenant shall pay an oversight and supervisory fee (the "Coordination Fee") to Landlord in an amount equal to the following percentages based upon the "hard costs" of the Tenant Work: (i) costs up to $1.5 million: 3%; (ii) portion of costs over $1.5 million up to $2.5 million: 2%; and (iii) portion of costs over $2.5 million: 1.5%.

(B) Indemnity. Tenant's indemnity of Landlord as set forth in the Lease shall also apply with respect to any and all costs, losses, damages, injuries and liabilities related in any way to any act or omission of Tenant or Tenant's Agents, or anyone directly or indirectly employed by any of them, or in connection with Tenant's non-payment of any amount arising out of the Tenant Work and/or Tenant's disapproval of all or any portion of any request for payment. Such indemnity by Tenant, as set forth in the Lease, shall also apply with respect to any and all costs, losses, damages, injuries and liabilities related in any way to Landlord's performance of any ministerial acts reasonably necessary (1) to permit Tenant to complete the Tenant Work, and (2) to enable Tenant to obtain any related building permit or certificate of occupancy.

(C) Requirements of Tenant's Agents. The Contract shall include a warranty to Tenant and for the benefit of Landlord that the portion of the Tenant Work covered by the Contract shall be free from any defects in workmanship and materials for a period of not less than one (1) year from the date of completion thereof. The Contractor shall be responsible for the replacement or repair, without additional charge, of all work done or furnished in accordance with its contract that shall become defective within one (1) year after the completion of the work

performed by such contractor or subcontractor. The correction of such work shall include, without additional charge, all additional expenses and damages incurred in connection with the removal or

replacement of all or any part of the Tenant Work, and/or the Building and/or common areas that are damaged or disturbed thereby. All such warranties or guarantees as to materials or workmanship of or with respect to the Tenant Work shall be contained in the Contract and shall be written such that such guarantees or warranties shall inure to the benefit of both Landlord and Tenant, as their respective interests may appear, and can be directly enforced by either. Tenant covenants to give to Landlord any assignment or other assurances as may be necessary to effect such right of direct enforcement.

(iii) Insurance Requirements.

(A) General Coverages. The Contractor shall carry employer's liability and worker's compensation insurance covering all of their respective employees, and shall also carry commercial general liability insurance, including personal and bodily injury, property damage and completed operations liability, all with limits, in form and with companies as are required to be carried by Tenant as set forth in the Lease. All of Tenant's Agents (other than Contractor) shall carry employer's liability of $1 million per occurrence; worker's compensation insurance covering all of their respective employees, up to the required statutory amount; commercial general liability insurance, including personal and bodily injury, property damage and completed operations liability, with limits of $1,000,000 per occurrence and $2,000,000 aggregate; and umbrella/excess liability of $5,000,000 per occurrence and $5,000,000 aggregate.

(B) Special Coverages. Tenant or Contractor shall carry "Builder's All Risk" insurance in an amount approved by Landlord covering the construction of the Tenant Work, it being understood and agreed that the Tenant Work shall be insured by Tenant pursuant to the Lease immediately upon completion thereof. Such insurance shall be in amounts and shall include such extended coverage endorsements as may be reasonably required by Landlord, and shall be in form and with companies as are required to be carried by Tenant as set forth in the Lease.

(C) General Terms. Certificates for all of the foregoing insurance coverage shall be delivered to Landlord before the commencement of construction of the Tenant Work and before the Contractor's equipment is moved onto the site. In the event that the Tenant Work are damaged by any cause during the course of the construction thereof, Tenant shall immediately repair the same at Tenant's sole cost and expense. Tenant's Agents shall maintain all of the foregoing insurance coverage in force until the Tenant Work is fully completed and accepted by Landlord, except for any Products and Completed Operations Coverage insurance required by Landlord, which is to be maintained for one (1) year following completion of the work and acceptance by Landlord and Tenant. All policies carried hereunder shall insure Landlord, Wareham Property Group as Landlord's manager, and Tenant, as their interests may appear, as well as Tenant's Agents. All insurance, except Workers' Compensation, maintained by Tenant's Agents shall preclude subrogation claims by the insurer against anyone insured thereunder. Such insurance shall provide that it is primary insurance as respects Landlord and Tenant and that any other insurance maintained by Landlord or Tenant is excess and noncontributing with the insurance required hereunder. The requirements for the foregoing insurance shall not derogate from the provisions for indemnification of Landlord by Tenant under the Lease and/or this Work Agreement.

(iv) Governmental Compliance. The Tenant Work shall comply in all respects

with the following: (A) the Code and other federal, state, city and/or quasi-governmental laws, codes, ordinances and regulations, as each may apply according to the rulings of the controlling public official, agent or other person or entity; (B) applicable standards of the American Insurance Association (formerly, the National Board of Fire Underwriters) and the National Electrical Code; and (C) building material manufacturer's specifications.

(v) Inspection by Landlord. Prior to the completion of the Tenant Work, Landlord shall have the right to inspect the same in accordance with the terms of the Lease, provided however, that Landlord's failure to inspect the Tenant Work shall in no event constitute a waiver of any of Landlord's rights hereunder nor shall Landlord's inspection of the Tenant Work

constitute Landlord's approval of the same. Should Landlord reasonably disapprove any portion of the Tenant Work, Landlord shall notify Tenant in writing of such disapproval and shall specify the items disapproved and the basis for such disapproval. Landlord may only disapprove any portion of the Tenant Work if it fails to comply with the Approved Working Drawings or the terms of this Work Letter. In the event Landlord determines that a defect or deviation exists or disapproves of any matter in connection with any portion of the Tenant Work in accordance with this Section and such defect, deviation or matter is reasonably likely to adversely affect the mechanical, electrical, plumbing, heating, ventilating and air conditioning or life-safety systems of the Building, the structure or exterior appearance of the Building or any other tenant's use of such other tenant's leased premises, Landlord may take such action as Landlord deems necessary, at Tenant's expense and without incurring any liability on Landlord's part, to correct any such defect, deviation and/or matter, including, without limitation, causing the cessation of performance of the construction of the Tenant Work until such time as the defect, deviation and/or matter is corrected to Landlord's satisfaction.

(vi) Meetings. Tenant shall hold periodic meetings at a reasonable time with the Architect and the Contractor regarding the progress of the preparation of the Construction Drawings and the construction of the Tenant Work, which meetings shall be held at a location reasonably approved by Landlord, and Landlord and/or its agents shall receive prior written notice of, and shall have the right to attend, all such meetings. Upon Landlord's request, Tenant shall use reasonable efforts to cause certain of Tenant's Agents shall attend such meetings. In addition, minutes shall be taken at all such meetings, and Landlord will be included in the distribution list for such minutes. One such meeting each month shall include the review of Contractor's current request for payment.

(c) Notice of Completion; Copy of Record Set of Plans. Within thirty (30) days after completion of construction of the Tenant Work, Tenant shall cause a Notice of Completion to be recorded in the office of the Recorder of Contra Costa County and shall furnish a copy thereof to Landlord upon such recordation, and shall timely give all notices required pursuant to the California Civil Code. If Tenant fails to do so, Landlord may execute and file such Notice of Completion and give such notices on behalf of Tenant as Tenant's agent for such purpose, at Tenant's sole cost and expense. Within thirty (30) days following the completion of construction, (i) Tenant shall cause the Architect or Contractor (A) to update the Approved Working Drawings as necessary to reflect all changes made to the Approved Working Drawings during the course of construction, and (B) to deliver to Landlord such updated drawings in accordance with Landlord's then-current CAD requirements, and (ii) Tenant shall deliver to Landlord a copy of all warranties, guaranties, and operating manuals and information relating to the improvements, equipment, and systems in the Premises. Tenant's obligations set forth in this Section are collectively referred to as the "Completion Obligations."

4. Miscellaneous.

(a) Tenant's Representative. Tenant has designated Katie Cary as its sole representative with respect to the matters set forth in this Work Agreement, until further notice to Landlord, who shall have full authority and responsibility to act on behalf of Tenant as required in this Work Agreement.

(b) Landlord's Representative. Landlord has designated Lisa Vogel as its sole representative with respect to the matters set forth in this Work Agreement, who, until further notice to Tenant, shall have full authority and responsibility to act on behalf of Landlord as required in this Work Agreement.

(c) Tenant's Default. Notwithstanding any provision to the contrary contained in the Lease, if a Default by Tenant under the Lease (including, without limitation, this Work Agreement) has occurred at any time on or before the substantial completion of the Tenant Work, then (i) in addition to all other rights and remedies granted to Landlord pursuant to the Lease, Landlord shall have the right to withhold payment of all or any portion of the Tenant Improvement Allowances, and (ii) all other obligations of Landlord under the terms of this Work Agreement shall be forgiven until such time as such default is cured pursuant to the terms of the Lease.

Schedule 1 to Exhibit B

Construction Guidelines

WAREHAM
DEVELOPMENT
Standards and Preferences

Wareham Standards

Update 07/20/2021

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GENERAL

PURPOSE

To provide Wareham Development with code compliant building standard installation, building preferred equipment/material, accurate/legal documentation, quality products/installation, energy efficiency, and a safe work environment.

Provide Wareham Development:

- Accurate documentation
- Building standardization
- Code compliancy
- Standard equipment availability
- Maintenance accessibility
- Minimal tenant impact
- Pro rata share usage of utilities and base building utilities
- Implementation of Wareham building preference

ACMS READER/CARD STANDARDS

STANDARDS FOR WAREHAM CAMPUS

Point Richmond R&D Associates - 1003 W/Cutting, Richmond

This campus currently uses Securitron

- Campuses cards function on a CK720 Network Controller. The readers can only perform one function at a time. They cannot authenticate during card recognition.
- PCMCIA cards Can be used for additional functionality.

LOCKSET AND PANIC HARDWARE STANDARD

LOCK SPECIFICATIONS

Schlage, ND-Series

Schlage Finish (Colors): 626- Brushed Chrome

Schlage Functions (Key-In-Lever):

- ND53 - Entry Function
- ND80 - Storeroom Function
- ND70 - Classroom Function
- ND10 - Passage Function
- ND40 Restroom Privacy Function

Schlage Style (Handle):

- Sparta - ND Series Locksets
- #17 or #06 - L-Series (Mortise) Locksets / ADA / Antimicrobial

Schlage Key Way (C) "Primus"

Schlage Full Size Interchangeable Core (IC): Part No: SCH-23-030 (C) - Primus Core (IC is required) For

Ordering:

- Entry Function Lockset With (IC) This Would Be Your Part Number (**Example: ND-53-RD Spa (C) Keyway*).
- If we are having a GC general contractor order all these items all they need to know is to order the product with (IC) included and to have it "C" keyway. They will determine what function is going to what door and/or if the door is going to be cut out for a (ND) series lockset or a (L) series lockset "mortise".
- All the colors, functions, and styles are indicated above and it should make ordering a bit easier.
- If they are going to install any exit devices then they need to assure us that the device will come with and be compatible to Schlage IC cylinders.

PANIC EXIT DEVICE HARDWARE

Von Duprin, UL Listed, ANSI A156.3, Grade 1

Specs: Aluminum, Dull Chrome, Stainless, Brushed Stainless

WAREHAM DEVELOPMENT

HVAC STANDARD FOR OFFICE AND LABORATORY

BASE BUILDING HVAC CAPACITY AND PARAMETERS

- If the tenant HVAC requirements exceeds the pro-rata share of the base building HVAC. The tenant will be responsible to design and provide additional HVAC.
- When the tenant suite environment needs to be maintained outside the building standard parameters. The tenant will provide specifications to the Property Manager.
- The tenant will need to contact the Property Manager for HVAC operation during none business hours.
- All tenant HVAC modifications will need to be approved by the Property Manager.

HVAC ZONE (MINIMUM DESIGN)

- HVAC shall meet or exceed current ***ASHRAE Standards***.
- Heating will be provided on all exterior zones.
- Bottom floor office space exposure to a parking garage and spaces with roof are required heating for interior zones.
- Older existing reheating coils are rated at 40F degrees delta-T.

- All new reheat coils and condensing boiler system reheat coils will be rated at 30F degrees delta-T (EWT 140F – LWT 110F).
- Interior office and interior open area, minimum 0.75 CFM per sqft.
- Northern window exposure office/open space, minimum 1.0 CFM per sqft.
- Eastern window exposure office/open space, minimum 1.25 CFM per sqft.
- Southern and Western window exposure office/open space, minimum 1.75 CFM per sqft.
- Interior conference room, minimum 1.5 CFM per sqft.
- Exterior conference room, minimum 2.0 CFM per sqft.
- Common lobby and corridor, minimum 0.5 CFM per sqft.
- ***NFPA 45 ANSI 29.5*** rated minimum 6 air changes per hour.
- Restroom exhaust minimum 10 ACH.
- Restrooms shall have make-up air. For interior zones, transfer air is acceptable. For exterior zones, provide make-up air but do not provide separate zone.
- For items 2.6 thru 2.12, provide heating and cooling load calculations and provide Wareham for review.

BMS CONTROLS

- BMS front end design refer to Wareham BMS Standards.
- Projects are responsible for the cost of updating the BMS Graphics.
- Project deliverables: Point to Point check, print screen for sequence of operations, print screen for program logic.

DUCTWORK INSTALLATION

- Equipment installation will meet or exceed ***SMACNA Standards***.
- Exposed insulation inside air ducts are not acceptable.

- Follow 2019 CMC and local code requirements for installation of flexible ducts. Flexible ducts shall not be used as elbows.
- AlumaFlex duct only accepted for residential use.
- Dampers shall be installed at every Y-Branch connection. Damper handles are on the bottom and flagged.
- Diffusers outlets shall not be tapped at the bottom of ducts.
- No sidewall grilles shall be used lower than 12'. OBDs not allowed. Provide balancing damper as far away from air outlets

AIR BALANCE

- Third party air and hydronic balance report will be provided to Wareham Property Manager and included in the project close out documents.
- Office space CFM (+ or – 10%).
- Laboratory space (+ or - 5%).

COMMISSIONING

- BMS/Equipment sequence of operation will be witnessed by the Wareham Chief Engineer. Provide control support for commissioning.

BUILDING AUTOMATION CONTROL STANDARD

STARNDARDS

- Niagara AX frame work, Siemens, Trane and Pelican Wirless Zoning System
- Workstation: latest Windows version.
- Station Compatibility In: Open station data compatibility from the JACE, all brands.
- Station Compatibility Out: Local station will allow Niagara AX data to be shared.
- Tool Compatibility In: Station will allow connection to the engineering applications.
- Tool Compatibility out: Engineering can be connected and applied to the station.

Property	Value
STATION COMPATIBILITY IN	All
STATION COMPATIBILITY OUT	All
TOOL COMPATIBILITY IN	All
TOOL COMPATIBILITY OUT	All

VARIABLE FREQUENCY DRIVE STANDARD

MAKE AND MODEL

- Brand: ABB
- Model: ACH550
- Communication: BACnet

- Option: E-Clipse bypass, disconnect

START-UP

- Must have a certified warranty start-up.

DIRECT HARDWIRE OPERATION

- Stop/Start, Alarm output signal and Speed control signal.

ENCLOSURE

- For outdoor location, NEMA 3 minimum.

MOTOR DISCONNECT

- Line of sight / within 50 feet.

CLEARANCE

- 42 inches front clearance for 480vac.

GROUNDING

- Motor ground must be connected to the VFD chassis only.

CONTROL WIRING

- Communication cable shielding must only be grounded on one side **"Only".**
- *This is to eliminate the frequency noise that could disrupt the control signal.

PARAMETERS PROGRAMMING

- Motor parameters must be programmed before any attempted start-up.

ROTATION CHANGE

- Change terminal U2 and terminal V2 only.
- Do Not Megger the motor while the VFD is connected.

WAREHAM
DEVELOPMENT

BREAKER PANELS AND CIRCUITS

CONTRACTOR QUALIFICATIONS

- The Contractor must have a current C10 license and provide a current certificate of insurance.
- Installer must have a current California State General Electrician Certification.
- Apprentice and Electrician Helper must have a trainee card and OSHA 10 certification.

ADDING NEW BREAKER PANELS AND CIRCUITS

- In advance of adding a new breaker panel, a minimum five day electrical load evaluation must be performed on the electrical feeder. This must be coordinated with the Chief Engineer. Readings must be provided to the Property Manager for approval.
- In advance of adding a new circuit, a load reading must be taken on the line side of the breaker panel. The load reading must be verified by the Chief Engineer.
- Continuous circuit and breaker panel electrical load will not exceed 80% of the UL rating.

WIRE TYPES ACCEPTED

- THHN, TTHT, thermoplastic high heat resistant nylon coated wire, UL Standard 83 and 1063.
- MC Cable, metal clade, UL Standard 1569.
- SO/SOOW cord, extra hard use flexible cord, oil resistant jacket, UL Standard 62.
  - To be used for movable equipment connection.
  - To be used for temporary power.
- **NO *Romex*** cable is allowed.

DISTRIBUTION PANEL

Square D, Eton/Cutler-Hammer, Siemens and GE Panels Only.

- Bolt-in breakers panels only.
- Copper buss bars only.
- Panels must have a main breaker or a LOTO point within 50" and line of sight.
- Tandem or twin breakers will not exceed 25% of the standard breaker spaces per panel.
- Flush mount panels cannot be installed as surface mount panels.
- Surface mount panels cannot be flush mounted.
- Unused breaker spaces must have the correct blank cover.
- Dead front panel faces must be fully secured at all connection points.
- The middle of the highest breaker will not exceed 6' 7".

LABELLING

- Panel schedules must be fully updated.
- Circuit and panel identification labels on each receptacle face plate.

DOCUMENTATION

- Updated as-built drawings are to be provided to Wareham Property Manager.
- Updated facility single line drawing must be included.

KILOWATT HOUR SUB METERING

ELECTRICAL SUB METER

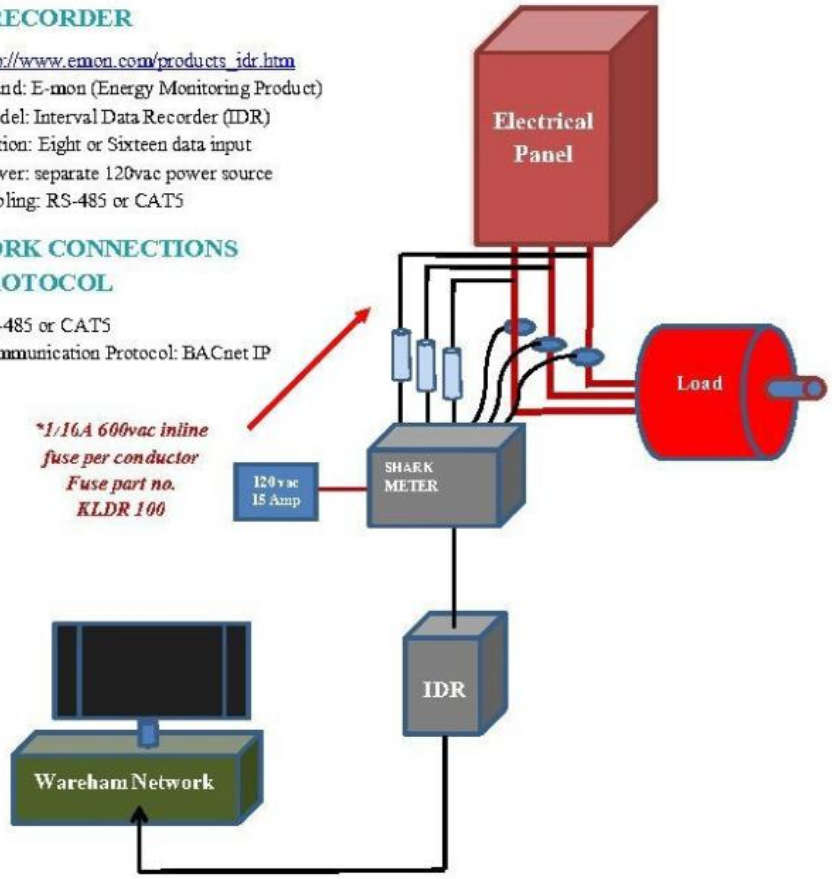
- http://www.electroind.com/
- Brand: Shark (Energy Monitoring Product)
- Model: Shark 250 (Switchgear) KWH/Demand Meter
- Model: Shark 270 (Revenue Metering) KWH/Demand Meter
- Specify: Voltage and amperage range

DATA RECORDER

- http://www.emon.com/products_idr.htm
- Brand: E-mon (Energy Monitoring Product)
- Model: Interval Data Recorder (IDR)
- Option: Eight or Sixteen data input
- Power: separate 120vac power source
- Cabling: RS-485 or CAT5

NETWORK CONNECTIONS AND PROTOCOL

- RS-485 or CAT5
- Communication Protocol: BACnet IP



LIGHTING OFFICE and LABORATORY

Light Fixtures

Description	Type	Brand	Model no.	Size	Color	Voltage

General office light fixture	LED recessed troffer	CREE ZR Series	ZR24-40L-40K-277V-10v	2' X 4'	4000K	277vac
General office emergency light fixture	LED recessed troffer with EM battery backup ballast	CREE ZR Series	ZR24-40L-40K-277V-EB14	2' X 4'	4000K	277vac
General office light fixture	LED recessed troffer	CREE ZR Series	ZR22-32L-40K-277V-10v	2' X 2'	4000K	277vac
General office emergency light fixture	LED recessed troffer with EM battery backup ballast	CREE ZR Series	ZR22-32L-40K-277V-EB14	2' X 2'	4000K	277vac
General Laboratory light fixture	LED recessed troffer	Cooper Metalux Encounter	24EN-LD1-54-UNV-L835-CD-1	2' X 4'	4000K	277vac
General Laboratory light fixture	LED recessed troffer with EM battery backup ballast	Cooper Metalux Encounter	24EN-LD1-54-UNV-L835-CD-1-EL14	2' X 4'	4000K	277vac

Lighting Controls

Description	Type	Brand	Model no.
Low Voltage Dimmer light switch	Digital dimming wall switch	WattStopper	LMDM-101
Occupancy sensor	Digital ceiling mount occupancy sensor	WattStopper	LMDC-100
Lighting Controller	Digital On/Off/0-10 volt dimming room controller	WattStopper	LMRC-210

Exit Sign

Description	Type	Brand	Model no.
Exit sign	LED exit sign with EM battery backup	Lithonia	LQM-S-W-3-R-120/277-ELN-SD

WAREHAM DEVELOPMENT

Insurance Requirements

Certificate of Insurance Requirements

CERTIFICATE OF INSURANCE MUST BE SUBMITTED TO:

Wareham Property Group
1120 Nye Street, Suite 400
San Rafael, CA 94901

CERTIFICATE HOLDER	ADDITIONAL INSURED

%Wareham Property Group 1120 Nye Street, Suite 400 San Rafael, CA 94901	Point Richmond R&D Associates (1001 and 1003 W.Cutting, Richmond) Point Richmond R&D Associates II, LLC (501/503 Canal, Richmond)

INSURANCE REQUIREMENTS

All Richmond/Marin vendors must have coverage at their own expense in the following minimum amounts:

A. Worker's Compensation – statutory amount in the state where the property is located;

B. Employer's Liability - $1M or such other higher limits imposed in accordance with the requirement, if any, of the laws of the state where the property is located;

C. Commercial General Liability - $1M per occurrence, $2M general aggregate with Products/Completed Operations coverage;

D. Business Auto Liability - $1M combined single limit including hired and non-owned auto coverage;

E. Umbrella/Excess - $4M.

EXHIBIT C-1

LABORATORY RULES AND REGULATIONS

1. Any laboratory equipment (glass and cage washers, sterilizers, centrifuges, etc.) being used during Standard Operating Hours must be properly insulated for noise to prevent interruption of other tenants' business. Should other tenants complain of noise, the laboratory tenant will be responsible for abating any commercially unreasonable noise issues, at the laboratory tenant's sole cost.

2. Any damages to property due to leaks from laboratory equipment will be the sole responsibility of the laboratory tenant. Should damage occur in other tenant spaces, any and all damages and clean-up will be the responsibility of the laboratory tenant.

3. Animal activities are a recognized and necessary process in the biotech industry. Such activities may only be conducted by laboratory tenants pursuant to all the requirements of their respective lease (including any "Use" clause) and require specific, written approval by Landlord in advance. Any animal activities shall be conducted pursuant to all regulations, standards and best industry practices relating to them.

4. The Project is a mixed-use facility, and laboratory tenants share space with office tenants. To reduce the potential interaction with office tenants and their employees and visitors with any biotech animal operations, any animal testing performed, any deliveries of animals and any equipment, foods, cleaners, etc. associated with animal activities, must be coordinated through the loading dock after hours and with the cooperation of the building management and security personnel. The laboratory tenant should make every effort to handle any deliveries relating to animal activities outside of Standard Operating Hours. No cartons, containers or cardboard boxes bearing the nature of contents may be stored or left in common area spaces, including any garage/freight areas. Feed bags, animal carriers, and any and all other related containers must be disposed of properly and with discretion.

5. All exterior signage relating to laboratory operations (i.e., visible to common areas, including corridors) must be kept to the minimum required by Laws. All signs must have Landlord's approval prior to installation.

1. No sidewalks, entrance, passages, courts, elevators, vestibules, stairways, corridors or halls shall be obstructed or encumbered by Tenant or used for any purpose other than ingress and egress to and from the Premises and if the Premises are situated on the ground floor of the Project, Tenant shall further, at Tenant's own expense, keep the sidewalks and curb directly in front of the Premises clean and free from rubbish.

2. No new awning or other projection shall be attached to the outside walls or windows of the Project without the prior written consent of Landlord. Such awnings, projections, curtains, blinds, shades, drapes, screens and other fixtures must be of a quality, type, design, color, material and general appearance approved by Landlord, and shall be attached in the manner approved by Landlord.

3. No new sign, advertisement, notice, lettering, decoration or other thing shall be exhibited, inscribed, painted or affixed by Tenant on any part of the outside of the Premises or of the Project, without the prior written consent of Landlord, which consent shall not be unreasonable withheld, conditioned, or delayed. All signage of Tenant existing as of the date of the Lease is hereby approved by Landlord. In the event of the violation of the foregoing by Tenant, Landlord may remove same without any liability, and may charge the expense incurred by such removal to Tenant.

4. The sashes, sash doors, skylights, windows and doors that reflect or admit light or air into the halls, passageways or other public places in the Project shall not be covered or materially obstructed by Tenant.

5. No showcases or other articles shall be put in front of or affixed to any part of the exterior of the Project, nor placed in public portions thereof without the prior written consent of Landlord.

6. The water and wash closets and other plumbing fixtures shall not be used for any purposes other than those for which they were constructed, and no sweepings, rubbish, rags or other substances shall be thrown therein. All damages resulting from any misuse of the fixtures shall be borne by Tenant to the extent that Tenant or Tenant's agents, servants, employees, contractors, visitors or licensees shall have caused the same.

7. Tenant shall not mark, paint, drill into or in any way deface any part of the Premises or the Project. No boring, cutting or stringing of wires shall be permitted, except with the prior written consent of Landlord, and as Landlord may direct.

8. No animal or bird of any kind shall be brought into or kept in or about the Premises or the Project, except dogs that qualify as "service animals" under the ADA.

9. Tenant shall cooperate with Landlord's efforts to implement the Project's Sustainability Practices, including, but not limited to, complying with Landlord's then-current

energy saving efforts and participating in any recycling programs and occupant satisfaction and transportation surveys.

10. (Reserved)

11. Tenant shall regularly conduct cleaning and janitorial activities, especially in bathrooms, kitchens and janitorial spaces, to remove mildew and prevent moist conditions and shall comply with the Project's Sustainability Practices, if any.

12. Tenant shall not make, or permit to be made, any unseemly or disturbing noises or

12. Tenant shall not make, or permit to be made, any unseemly or disturbing noises or disturb or interfere with occupants of the Project, or neighboring buildings or premises, or those having business with them. Tenant shall not throw anything out of the doors, windows or skylights or down the passageways.

13. Except in the ordinary course of Tenant's business as a laboratory, neither Tenant nor any of Tenant's agents, servants, employees, contractors, visitors or licensees shall at any time bring or keep upon the Premises any flammable, combustible or explosive fluid, chemical or substance.

14. No additional locks, bolts or mail slots of any kind shall be placed upon any of the doors or windows by Tenant, nor shall any change be made in existing locks or the mechanism thereof without Landlord's prior written consent. Tenant must, upon the termination of the tenancy, restore to Landlord all keys of stores, offices and toilet rooms, either furnished to, or otherwise procured by Tenant, and in the event of the loss of any keys so furnished, Tenant shall pay to Landlord the cost thereof.

15. All removals, or the carrying in or out of any safes, freight, furniture, construction material, bulky matter or heavy equipment of any description must take place during the hours which Landlord or its agent may determine from time to time. Landlord reserves the right to prescribe the weight and position of all safes, which must be placed upon two-inch thick plank strips to distribute the weight. The moving of safes, freight, furniture, fixtures, bulky matter or heavy equipment of any kind must be made upon previous notice to the Building Manager and in a manner and at times prescribed by the Building Manager, and the persons employed by Tenant for such work are subject to Landlord's prior approval. Landlord reserves the right to inspect all safes, freight or other bulky articles to be brought into the Project and to exclude from the Project all safes, freight or other bulky articles which exceed the load bearing capacity of the floors of the Building or which violate any of these Rules and Regulations or the Lease of which these Rules and Regulations are a part.

16. Tenant shall not purchase janitorial or maintenance or other like service from any company or persons not approved by Landlord. Landlord shall approve a sufficient number of sources of such services to provide Tenant with a reasonable selection, but only in such instances and to such extent as Landlord in its judgment shall consider consistent with security and proper operation of the Project. Notwithstanding the foregoing, Landlord hereby approves all janitorial and maintenance service providers which Tenant contracts with as of the date of this Lease.

17. Landlord shall have the right to prohibit any advertising or business conducted by Tenant referring to the Project which, in Landlord's reasonable opinion, tends to impair the

reputation of the Project or its desirability for offices and/or commercial services and upon notice from Landlord, Tenant shall refrain from or discontinue such advertising.

18. Landlord reserves the right to exclude from the Project between the hours of 6:00 p.m. and 8:00 a.m. Monday through Friday, after 1:00 p.m. on Saturdays and at all hours Sundays and legal holidays, all persons who do not present a pass to the Project issued by Landlord. Landlord may furnish passes to Tenant so that Tenant may validate and issue same. Tenant shall safeguard said passes and shall be responsible for all acts of persons in or about the Project who possess a pass issued to Tenant.

19. Except with regard to Tenant's Agents (as defined in the Work Letter), Tenant's vendors and contractors shall, while in the Premises or elsewhere in the Project, be subject to and under the control and direction of the Building Manager (but not as agent or servant of said Building Manager or of Landlord) and, prior to commencing any work, shall be required to maintain and provide copies of such insurance coverage as is required of Tenant's Agents under the Work Letter.

20. If the Premises is or becomes infested with vermin as a result of the use or any

misuse or neglect of the Premises by Tenant, its agents, servants, employees, contractors, visitors or licensees, Tenant shall forthwith at Tenant's expense cause the same to be exterminated from time to time to the satisfaction of Landlord and shall employ such licensed exterminators as shall be approved in writing in advance by Landlord.

21. The requirements of Tenant will be attended to only upon application at the office of the Project. Project personnel shall not perform any work or do anything outside of their regular duties unless under special instructions from the office of Landlord.

22. Canvassing, soliciting and peddling in the Project are prohibited and Tenant shall cooperate to prevent the same.

23. No water cooler, air conditioning unit or system or other apparatus shall be installed or used by Tenant without the written consent of Landlord.

24. There shall not be used in any premises, or in the public halls, plaza areas, lobbies, or elsewhere in the Project, either by Tenant, Tenant's contractors or others, in the delivery or receipt of merchandise, any hand trucks or dollies, except those equipped with rubber tires and sideguards.

25. Tenant, Tenant's agents, servants, employees, contractors, licensees, or visitors shall not park any vehicles in any driveways, service entrances, or areas posted "No Parking" and shall comply with any other parking restrictions imposed by Landlord from time to time.

26. Tenant shall install and maintain, at Tenant's sole cost and expense, an adequate visibly marked (at all times properly operational) fire extinguisher next to any duplicating or photocopying machine or similar heat producing equipment, which may or may not contain combustible material, in the Premises.

27. (Reserved)

28. Tenant shall not use the name of the Project for any purpose other than as the address of the business to be conducted by Tenant in the Premises, nor shall Tenant use any picture of the Project in its advertising, stationery or in any other manner without the prior written permission of Landlord. Landlord expressly reserves the right at any time to change said name without in any manner being liable to Tenant therefor.

29. Tenant shall not prepare any food nor do any cooking, operate or conduct any restaurant, luncheonette or cafeteria for the sale of food or beverages to its employees or to others, except that food and beverage preparation by Tenant's employees using microwave ovens or coffee makers shall be permitted provided no odors of cooking or other processes emanate from the Premises.

30. The Premises shall not be used as an employment agency, a public stenographer or typist, a labor union office, a physician's or dentist's office, a dance or music studio, a school, a beauty salon, or barber shop, the business of photographic reproductions or offset printing, a restaurant or bar, an establishment for the sale of confectionery, soda, beverages, sandwiches, ice cream or baked goods, an establishment for preparing, dispensing or consumption of food or beverages of any kind in any manner whatsoever, or news or cigar stand, or a radio, television or recording studio, theatre or exhibition hall, or manufacturing, or the storage or sale of merchandise, goods, services or property of any kind at wholesale, retail or auction, or for lodging, sleeping or for any immoral purposes.

31. Business machines and mechanical equipment shall be placed and maintained by Tenant at Tenant's expense in settings sufficient in Landlord's reasonable judgment to absorb and prevent vibration, noise and annoyance. Tenant shall not install any machine or equipment which causes noise, heat, cold or vibration to be transmitted to the structure of the building in which the Premises are located without Landlord's prior written consent, which consent may be conditioned on such terms as Landlord may reasonably require. Tenant shall not place a load upon any floor of the Premises exceeding the floor load per square foot that such floor was designed to carry and which is allowed by Law.

32. Tenant shall not bring any Hazardous Materials onto the Premises except for those that (i) are in general commercial use and are incidental to Tenant's business office operations and only in quantities suitable for immediate use, or (ii) are required in connection with Tenant's laboratory use of the Premises.

33. Tenant shall not store any vehicle within the parking area. Tenant's parking rights are limited to the use of parking spaces for short-term parking, of up to twenty-four (24) hours, of vehicles utilized in the normal and regular daily travel to and from the Project. Tenants who wish to park a vehicle for longer than a 24-hour period shall notify the Building Manager for the Project and consent to such long-term parking may be granted for periods up to two (2) weeks. Any motor vehicles parked without the prior written consent of the Building Manager for the Project for longer than a 24-hour period shall be deemed stored in violation of this rule and regulation and shall be towed away and stored at the owner's expense or disposed of as provided by Law.

34. Smoking is prohibited in the Premises, the Building and all enclosed Common Areas of the Project, including all lobbies, all hallways, all elevators and all lavatories. "Smoking",

as used herein, shall be deemed to include the use of e-cigarettes, smokeless cigarettes and other

similar products. All rules and regulations set forth in this Exhibit C applicable to smoking also apply to the use of e-cigarettes, smokeless cigarettes and other similar products.

35. Tenant shall not store any items within 18 inches of a sprinkler head.

36. Building ladders including fixed ladders are not to be used by Tenant, Tenant's agents, servants, employees, contractors, licensees or visitors.

37. Electrical power strips (other than those used with standard office desktop computer equipment) and portable "space heaters" are not permitted.

38. Tenants are not permitted to open an electrical panel. Tenants are required to contact Landlord to reset a circuit breaker.

39. Tenant shall reimburse Landlord for the cost (plus an administrative charge at Landlord's then prevailing rate) of Landlord providing any special services or work requested by Tenant to the extent such services or work are not specifically set forth as a Landlord obligation in the Lease.

EXHIBIT D

FORM OF SNDA

After recording, please return to:
Wendy Harlan, Esq.
Investments, Mortgages and Real Estate Division
Unum Life Insurance Company of America
2211 Congress Street, B268
Portland, Maine 04122-0590

SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT

THIS SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT (this "Agreement") is made as of the_____day of_____, 2021, by and among POINT RICHMOND R&D ASSOCIATES II, LLC, a California limited liability company with a mailing address of _____ ("Landlord"), SANGAMO THERAPEUTICS, INC., a Delaware corporation, with a mailing address of 7000 Marina Blvd., Brisbane, CA 94005 ("Tenant"), and Unum Life Insurance Company of America, a Maine corporation, with a mailing address of 2211 Congress Street, B268, Portland, ME 04122 ("Lender").

RECITALS:

WHEREAS, Landlord is the owner and holder of fee simple title in and to the real property (the "Property") situated in Richmond, California and described in Exhibit A attached hereto and by this reference made a part hereof; and

WHEREAS, Landlord and Tenant have entered into that certain Amended and Restated Office/Laboratory Lease dated_____(the "Lease") whereby Tenant is leasing from Landlord a part of the Property (the "Leased Premises"); and

WHEREAS, Lender made a loan to Landlord, in the principal amount of $14,000,000.00 secured by a Deed of Trust, Security Agreement and Fixture Filing dated as of December 15, 2016 and recorded as Document No. 2016-0272513-00 in the real estate records for Contra Costa County, California. (as amended, replaced, extended, renewed, restated, or otherwise modified in writing from time to time, the "Security Instrument"), placing a first lien on the Property (the "Loan"); and

WHEREAS, the Lease is assigned by Landlord to Lender by an Assignment of Rents, Leases and Other Benefits dated as of December 15, 2016, from the Borrower to the Lender, recorded as Document No. 2016-0272514-00 in the real estate records for Contra Costa County, California (as amended, replaced, extended, renewed, restated, or otherwise modified in writing from time to time, the "Assignment"); and

WHEREAS, Tenant has requested Lender and Landlord to enter into this Agreement.

NOW, THEREFORE, in consideration of the mutual promises herein contained and other good and valuable consideration, the receipt and sufficiency whereof are hereby acknowledged, Tenant, Landlord, and Lender, intending to be legally bound, covenant and agree as follows:

1. Subject to the terms of this Agreement, the Lease and Tenant's leasehold estate created thereby, including all rights and options to purchase the Leased Premises, if any, shall be and are subject and subordinate to the lien of the Security Instrument and to all the terms, conditions and provisions thereof, to all advances made or to be made thereunder, and to any renewals, extensions, modifications or replacements thereof, provided, however, that at any time hereafter, at the election of the Lender, Lender shall have the right to declare the Lease superior to the lien, provisions, operation and effect of the Security Instrument.

2. Subject to the terms of this Agreement, if Lender or any person or entity obtains title to the Leased Premises through foreclosure or deed in lieu of foreclosure under the Security Instrument (each a "Successor Landlord"), Tenant shall recognize and attorn to the Successor Landlord, its successors and assigns, to the same extent and with the same force as if Successor

Landlord, its successors and assigns, to the same extent and with the same force as if Successor Landlord were the Landlord under the Lease. So long as Tenant is not in default under any provision to the Lease beyond any applicable notice or cure period, such that Landlord would be entitled to terminate the Lease, then (a) the right of possession of Tenant to the Leased Premises shall not be affected or disturbed, and (b) the Lease shall remain in full force and effect according to its terms. Tenant shall be bound to Successor Landlord and Successor Landlord shall be bound to Tenant under the terms of the Lease, and any extensions and renewals thereof, with the same force and effect as if Successor Landlord was the original landlord under the Lease.

3. By virtue of the Assignment, Lender shall be entitled, but not obligated, to exercise the claims, rights, powers, privileges, options and remedies of the Landlord under the Lease and shall be further entitled to the benefits of, and to receive and enforce performance of, all of the covenants to be performed by Tenant under the Lease as though Lender were named therein as the Landlord.

4. Lender shall not, by virtue of the Assignment or this Agreement, be or become subject to any liability or obligation to Tenant under the Lease or otherwise, until Lender shall have obtained title to the Leased Premises, by foreclosure or otherwise. Notwithstanding anything to the contrary in the Lease, the Successor Landlord shall not be liable for or bound by any of the following matters if Successor Landlord succeeds to the interest of Landlord under the Lease:

(i) any default or breach of the Lease by Landlord or any prior lessor except to the extent a non-monetary default or breach is continuing after the date Successor Landlord succeeds to the interest of Landlord under the Lease, provided that Lender received written notice of such default or breach prior to commencing the action to obtain title to the Property; or

(ii) any offsets or defenses which Tenant might have against Landlord or any prior lessor arising from a default or breach of the Lease by Landlord or any prior lessor (except those expressly permitted by the Lease, including abatement rights); or

(iii) any representations, warranties or indemnities made by Landlord or any prior lessor under the Lease to the extent the same relate to actions or events occurring prior to the date Successor Landlord succeeded to the interest of Landlord under the Lease; or

(iv) any amount in excess of the value of Lender's interest in the Property and/or interest in the proceeds from the Property (including a sale or financing thereof); or

(v) Security deposits or other refundable fees, unless paid over to Lender.

5. In the event of a default by Landlord under the Lease, Lender shall have the right (but not the obligation) to cure Landlord's defaults within the longer of (i) the time required for Landlord to cure the default under the Lease (if any), or (ii) thirty (30) days after receipt of written notice from Tenant of the default; provided, however, that the thirty (30) day period shall be extended by up to an additional sixty (60) days if the nature of such default is such that the default cannot be cured within the initial thirty (30) days, so long as within the initial thirty (30) day period Lender has commenced and is diligently pursuing the remedies necessary to cure such default.

6. Tenant shall not pay an installment of rent or any part thereof more than one month prior to the due date of such installment, and Lender shall be entitled to recover from Tenant as rent under the Lease any payment of rent or additional rent made by Tenant to Landlord for more than one month in advance. Lender shall not be bound or affected by any amendment or modification or assignment or sublease of the Lease that reduces the rent or shorten the term, or to adversely affects in any other respect to any material extent the rights of Landlord, nor shall this the Lease be canceled or surrendered (except as expressly permitted by the Lease), without the prior written consent, in each instance, of Lender. In the event consent to cancelation or surrender is given, Tenant shall deliver the buyout monies, if any, in full to Lender.

7. Reserved.

8. To the extent permitted by law, Tenant and Landlord agree that Lender shall be entitled to all payments made by Tenant under the federal Bankruptcy Code (and/or similar state creditor's rights law) as the result of Tenant rejecting the Lease. Such lease rejection payments shall be made by Tenant directly to Lender, which shall deposit the payments into an escrow account to be used for the operation and benefit of the Property.

9. After notice is given to Tenant by Lender, pursuant to the Assignment, that the rentals under the Lease should be paid to Lender, Tenant shall pay to Lender, or to its agent in accordance with the directions of Lender, all rentals and other monies due and to become due to the Landlord under the Lease, and Landlord hereby irrevocably authorizes Tenant to make such payment to Lender, or to its agent in accordance with the directions of Lender, and hereby releases and discharges Tenant of, and from any liability to Landlord on account of any such payments.

10. Each notice, demand, election or request provided for or permitted to be given pursuant to this Agreement must be in writing and shall be deemed to have been properly given or served by personal delivery or by sending the same by overnight courier or by depositing the same

in the United States Mail, postpaid and certified, return receipt requested, to the address set forth

in the preamble of this Agreement for the party to whom such notice, demand, election or request is intended.

11. This Agreement shall inure to the benefit of and shall be binding upon Tenant, Landlord and Lender, and their respective heirs, personal representatives, successors and assigns. In the event any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall, at the option of Lender, not affect any other provisions of this Agreement, but this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein. This Agreement shall be governed by and construed according to the laws of the State of California. Lender, Landlord and Tenant irrevocably, as an independent covenant, waive the right to jury trial in any action or proceeding in connection with this Agreement.

12. This Agreement may be executed in two or more counterparts, each of which (including those signed electronically) shall be deemed an original, but all of which together shall constitute one and the same instrument.

REMAINDER OF PAGE INTENTIONALLY BLANK
SIGNATURE PAGES FOLLOW

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed the day and year first above written.

WITNESS:

TENANT:

SANGAMO THERAPEUTICS, INC.

_____
Name:

By: _____
Name: _____
Title: _____

STATE OF _____
COUNTY OF_____, ss _____, 20____

Then personally appeared the above-named_____and acknowledged the foregoing instrument to be his/her free act and deed, in his/her said capacity, and the free act and deed of said_____.

_____
Notary Public

WITNESS:

_____
Name:

LANDLORD:

POINT RICHMOND R&D ASSOCIATES II, LLC

By: _____
Name: _____
Title: _____

STATE OF _____
COUNTY OF_____, ss _____, 20____

Then personally appeared the above-named_____and acknowledged the foregoing instrument to be his/her free act and deed, in his/her said capacity, and the free act and deed of said

deed of said_____.

_____
Notary Public

WITNESS:

_____
Name:

LENDER:

UNUM LIFE INSURANCE COMPANY OF AMERICA

By: _____
Name: _____
Title: _____

STATE OF MAINE
COUNTY OF CUMBERLAND, ss _____, 20____

Then personally appeared the above-named_____and acknowledged the foregoing instrument to be his/her free act and deed, in his/her said capacity, and the free act and deed of said corporation.

_____
Notary Public

EXHIBIT A

Exhibit 21.1

Subsidiaries of the Company

Gendaq Limited (U.K.)

Ceregene Inc. (Delaware)

Sangamo Therapeutics France S.A.S. (France)

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

1 Registration Statements (Forms S-8 No. 333-166220, 333-189621, 333-206173, 333-221827, 333-225552, 333-241033, and 333-249482) pertaining to the Amended and Restated 2013 Stock Incentive Plan, 2010 Employee Stock Purchase Plan, the Amended and Restated 2018 Equity Incentive Plan, and the 2020 Employee Stock Purchase Plan of Sangamo Therapeutics, Inc., and

2 Registration Statements (Form S-3 No. 333-224418 and 333-255892) and related prospectuses of Sangamo Therapeutics, Inc.;

of our reports dated February 24, 2022, with respect to the consolidated financial statements of Sangamo Therapeutics, Inc. and the effectiveness of internal control over financial reporting of Sangamo Therapeutics, Inc. included in this Annual Report (Form 10-K) of Sangamo Therapeutics, Inc. for the year ended December 31, 2021.

/s/ Ernst & Young LLP

Redwood City, California
February 24, 2022

Exhibit 31.1

CERTIFICATION

I, Alexander D. Macrae, certify that:

1. I have reviewed this annual report on Form 10-K of Sangamo Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: February 24, 2022

/s/ ALEXANDER D. MACRAE
Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Prathyusha Duraibabu, certify that:

1. I have reviewed this annual report on Form 10-K of Sangamo Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: February 24, 2022

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

Certifications Pursuant to 18 U.S.C. §1350, as Adopted
Pursuant to §906 of the Sarbanes-Oxley Act of 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, Alexander Macrae, President and Chief Executive Officer of Sangamo Therapeutics, Inc. (the "Company"), and Prathyusha Duraibabu, Senior Vice President and Chief Financial Officer of the Company, each hereby certifies in such capacity, that, to the best of his or her knowledge:

(1) the Company's Annual Report on Form 10-K for the year ended December 31, 2021, to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

/s/ ALEXANDER D. MACRAE
Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

Date: February 24, 2022

/s/ PRATHYUSHA DURAIBABU
Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Date: February 24, 2022

This certification accompanies the Annual Report on Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Sangamo Therapeutics, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing. A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to Sangamo Therapeutics, Inc. and will be retained by Sangamo Therapeutics, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.