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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2022

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

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 definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

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

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

As of May 2, 2022, 146,687,251 shares of the issuer's common stock, par value $0.01 per share, were outstanding.

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SANGAMO THERAPEUTICS, INC.

Unless otherwise indicated or the context suggests otherwise, references in this Quarterly Report on Form 10-Q, or Quarterly Report, to "Sangamo," "the Company," "we," "us," and "our" refer to Sangamo Therapeutics, Inc. and our subsidiaries, including Sangamo Therapeutics France S.A.S. and Sangamo Therapeutics UK Ltd.

Any third-party trade names, trademarks and service marks appearing in this Quarterly Report are the property of their respective holders.

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 use of future dates or by terms such as: “aim,” “anticipates,” “assume,” “believes,” “continues,” “could,” “estimates,” “expects,” “forecast,” “goal,” “guidance,” “intends,” “likely,” “may,” “objective,” “ongoing,” “plans,” “project,” “seeks,” “should,” “target,” “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 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. These risks and uncertainties include, without limitation:

- 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 and increases in employee attrition across the United States resulting from the “great resignation”.
- 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. 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 and durability of therapeutic effects to the satisfaction of regulatory authorities. Obtaining positive clinical trial results and regulatory approvals is expensive, lengthy, challenging and unpredictable and may be subject to significant delays or never occur for any product candidates.

Additional discussion of the risks, uncertainties and other factors described above, as well as other risks and uncertainties material to our business, can be found under “Risk Factors” in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on February 24, 2022, as supplemented by the risks described under “Risk Factors” in Part II, Item 1A of this Quarterly Report on Form 10-Q, and we encourage you to refer to that additional discussion. Given these risks, uncertainties and other factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our plans, objectives, estimates, expectations and intentions only as of the date of this filing. You should read this report completely and with the understanding that our actual future results and the timing of events may be materially different from what we expect, and we cannot otherwise guarantee that any forward-looking statement will be realized. We hereby qualify all of our forward-looking statements by these cautionary statements.

Except as required by law, we undertake no obligation to update or supplement any forward-looking statements publicly, or to update or supplement the reasons that actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. You are advised, however, to consult any further disclosures we make on related subjects.

This report includes discussion of certain clinical studies and trials relating to various product candidates. These studies typically are part of a larger body of clinical data relating to such product candidates, and the discussion herein should be considered in the context of the larger body of data. In addition, clinical data are subject to differing interpretations, and even if we view data as sufficient to support the safety and/or effectiveness of a product candidate, regulatory authorities may not share our views and may require additional data or may deny approval altogether.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

SANGAMO THERAPEUTICS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited; in thousands)

	March 31, 2022	December 31, 2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 120,257	$ 178,872
Marketable securities	197,539	197,676
Interest receivable	356	349
Accounts receivable	6,938	6,013
Prepaid expenses and other current assets	14,975	15,859
Total current assets	340,065	398,769
Marketable securities, non-current	82,515	88,169
Property and equipment, net	51,600	51,523
Intangible assets	52,679	53,760
Goodwill	38,935	39,702
Operating lease right-of-use assets	70,899	73,181
Other non-current assets	16,117	15,319
Restricted cash	1,500	1,500
Total assets	$ 654,310	$ 721,923
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 11,147	$ 9,759
Accrued compensation and employee benefits	12,493	20,840
Other accrued liabilities	14,103	11,577
Deferred revenues	80,783	85,711
Total current liabilities	118,526	127,887
Deferred revenues, non-current	150,700	166,776
Long-term portion of lease liabilities	42,815	44,055
Deferred income tax	6,511	6,645
Other non-current liabilities	1,236	1,217
Total liabilities	319,788	346,580
Commitments and contingencies		
Stockholders' equity:		
Preferred stock	—	—
Common stock	1,467	1,459
Additional paid-in capital	1,340,254	1,334,138
Accumulated deficit	(1,000,244)	(956,267)
Accumulated other comprehensive loss	(6,955)	(3,987)
Total stockholders' equity	334,522	375,343
Total liabilities and stockholders' equity	$ 654,310	$ 721,923

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited; in thousands, except per share amounts)

	Three Months Ended March 31,	
	2022	2021
Revenues	$ 28,231	$ 26,280
Operating expenses:		
Research and development	58,584	56,434
General and administrative	14,908	16,148
Total operating expenses	73,492	72,582
Loss from operations	(45,261)	(46,302)
Interest and other income, net	1,342	625
Loss before income taxes	(43,919)	(45,677)
Income tax expense	58	262
Net loss	(43,977)	(45,939)
Net loss attributable to non-controlling interest	—	(6)
Net loss attributable to Sangamo Therapeutics, Inc. stockholders	$ (43,977)	$ (45,933)
Basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	$ (0.30)	$ (0.32)
Shares used in computing basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	146,218	143,112

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited; in thousands)

	Three Months Ended March 31,	
	2022	2021
Net loss	$ (43,977)	$ (45,939)
Foreign currency translation adjustment	(1,904)	(4,749)
Net pension gains	19	—
Unrealized (loss) gain on marketable securities, net of tax	(1,083)	44
Comprehensive loss	(46,945)	(50,644)
Comprehensive loss attributable to non-controlling interest	—	(6)
Comprehensive loss attributable to Sangamo Therapeutics, Inc.	$ (46,945)	$ (50,638)

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited; in thousands, except share amounts)

	Three Months Ended March 31, 2022					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balances at December 31, 2021	145,921,530	$ 1,459	$ 1,334,138	$ (956,267)	$ (3,987)	$ 375,343
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	743,230	8	(1,575)	—	—	(1,567)
Stock-based compensation	—	—	7,691	—	—	7,691
Foreign currency translation adjustment	—	—	—	—	(1,904)	(1,904)
Net pension gains	—	—	—	—	19	19
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(1,083)	(1,083)
Net loss	—	—	—	(43,977)	—	(43,977)
Balances at March 31, 2022	146,664,760	$ 1,467	$ 1,340,254	$ (1,000,244)	$ (6,955)	$ 334,522

	Three Months Ended March 31, 2021						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
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	1,034,762	10	15,641	—	—	—	15,651
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	615,800	6	(422)	—	—	—	(416)
Stock-based compensation	—	—	7,524	—	—	—	7,524
Acquisition of additional shares of Sangamo France	—	—	—	—	—	(64)	(64)
Foreign currency translation adjustment	—	—	—	—	(4,749)	—	(4,749)
Net unrealized gain on marketable securities, net of tax	—	—	—	—	44	—	44
Net loss	—	—	—	(45,933)	—	(6)	(45,939)
Balances at March 31, 2021	143,713,765	$ 1,437	$ 1,292,118	$ (823,914)	$ 714	$ (938)	$ 469,417

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited; in thousands)

	Three Months Ended March 31,	
	2022	2021
Operating Activities:		
Net loss	$ (43,977)	$ (45,939)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	2,832	1,875
Amortization of premium on marketable securities	164	824
Amortization and other changes in operating lease right-of-use assets	2,106	2,023
Loss on free shares	—	27
Stock-based compensation	7,691	7,524
Net changes in operating assets and liabilities:		
Accounts receivable	(925)	(1,522)
Prepaid expenses and other assets	(248)	(1,680)
Accounts payable and other accrued liabilities	3,609	(3,829)
Accrued compensation and employee benefits	(8,270)	(7,561)
Deferred revenues	(21,004)	(20,047)
Long-term portion of lease liabilities	(972)	(1,045)
Other non-current liabilities	19	800
Net cash used in operating activities	(58,975)	(68,550)
Investing Activities:		
Purchases of marketable securities	(65,756)	(97,935)
Maturities of marketable securities	70,300	144,369
Sales of marketable securities	—	6,870
Purchases of property and equipment	(2,839)	(7,950)
Purchase of additional Sangamo France shares	—	(65)
Net cash provided by investing activities	1,705	45,289
Financing Activities:		
Proceeds from at-the-market offering, net of offering expenses	—	15,651
Taxes paid related to net share settlement of equity awards	(1,641)	(2,234)
Proceeds from exercise of stock options and restricted stock units	74	1,818
Net cash (used in) provided by financing activities	(1,567)	15,235
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	222	(328)
Net decrease in cash, cash equivalents, and restricted cash	(58,615)	(8,354)
Cash, cash equivalents, and restricted cash, beginning of period	180,372	132,829
Cash, cash equivalents, and restricted cash, end of period	$ 121,757	$ 124,475
Supplemental cash flow disclosures:		
Property and equipment included in unpaid liabilities	$ 2,257	$ 2,953
Right-of-use assets obtained in exchange for lease obligations	$ —	$ 1,356

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

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 unaudited Condensed Consolidated Financial Statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("U.S. GAAP") for interim financial information and pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for complete financial statements. In the opinion of management, all adjustments (consisting of normal recurring adjustments) considered necessary for a fair presentation of these financial statements for the periods presented have been included. Operating results for the three months ended March 31, 2022 are not necessarily indicative of the results that may be expected for the year ending December 31, 2022. The Condensed Consolidated Balance Sheet data at December 31, 2021 was derived from the audited Consolidated Financial Statements included in Sangamo's Annual Report on Form 10-K for the year ended December 31, 2021 (the "2021 Annual Report") as filed with the SEC on February 24, 2022.

The accompanying Condensed Consolidated Financial Statements include the accounts of the Company and its subsidiaries. All intercompany balances and transactions have been eliminated in the Condensed 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 Condensed Consolidated Statements of Operations equal to the percentage of the economic or ownership interest retained in such entities by the respective non-controlling parties.

The accompanying Condensed Consolidated Financial Statements and related financial information should be read together with the audited Consolidated Financial Statements and footnotes for the year ended December 31, 2021, included in the 2021 Annual Report.

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 March 31, 2022, 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 Condensed 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 Condensed Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the Condensed 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.

There have been no changes in estimates during the three months ended March 31, 2022 and 2021.

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:

	Three Months Ended March 31,			
	2022		2021	
Biogen MA, Inc.	40	%	40	%
Novartis Institutes for BioMedical Research, Inc.	32	%	30	%
Kite Pharma, Inc.	22	%	24	%
Sanofi S.A.	5	%	4	%

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.

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, deposits in demand money market accounts and U.S. government-sponsored entity debt securities. 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 Condensed Consolidated Balance Sheets to the amounts reported within the accompanying Condensed Consolidated Statements of Cash Flows is as follows (in thousands):

	March 31, 2022	December 31, 2021	March 31, 2021	December 31, 2020
Cash and cash equivalents	$ 120,257	$ 178,872	$ 122,975	$ 131,329
Non-current restricted cash	1,500	1,500	1,500	1,500
Cash, cash equivalents, and restricted cash as reported within the accompanying Condensed Consolidated Statements of Cash Flows	$ 121,757	$ 180,372	$ 124,475	$ 132,829

Recently Adopted 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 and marketable securities are identified at the following levels within the fair value hierarchy (in thousands):

	March 31, 2022			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 49,827	$ 49,827	$ —	$ —
U.S. government-sponsored entity debt securities	15,008	—	15,008	—
Total	64,835	49,827	15,008	—
Marketable securities:				
U.S. government-sponsored entity debt securities	24,441	—	24,441	—
Commercial paper securities	117,325	—	117,325	—
Corporate debt securities	17,373	—	17,373	—
Asset-backed securities	67,515	—	67,515	—
U.S. treasury bills	2,995	—	2,995	—
Certificates of deposit	50,405	—	50,405	—
Total	280,054	—	280,054	—
Total cash equivalents and marketable securities	$ 344,889	$ 49,827	$ 295,062	$ —

	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	—
Asset-backed securities	70,701	—	70,701	—
Certificates of deposit	45,091	—	45,091	—
Total	285,845	—	285,845	—
Total cash equivalents and marketable securities	$ 405,764	$ 119,919	$ 285,845	$ —

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.

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
March 31, 2022				
Assets				
Cash equivalents:				
Money market funds	$ 49,827	$ —	$ —	$ 49,827
U.S. government-sponsored entity debt securities	15,009		(1)	15,008
Total	64,836	—	(1)	64,835
Marketable securities:				
U.S. government-sponsored entity debt securities	24,788	—	(347)	24,441
Commercial paper securities	117,709	—	(384)	117,325
Corporate debt securities	17,522	—	(149)	17,373
Asset-backed securities	67,890	—	(375)	67,515
U.S. treasury bills	2,995	—	—	2,995
Certificate of deposits	50,526	—	(121)	50,405
Total	281,430	—	(1,376)	280,054
Total cash equivalents and marketable securities	$ 346,266	$ —	$ (1,377)	$ 344,889
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
Asset-backed securities	70,807	1	(107)	70,701
Certificate of deposits	45,116	1	(26)	45,091
Total	286,138	11	(304)	285,845
Total cash equivalents and marketable securities	$ 406,057	$ 11	$ (304)	$ 405,764

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

	March 31, 2022	December 31, 2021
Maturing in one year or less	$ 212,547	$ 197,676
Maturing after one year through five years	82,515	88,169
Total	$ 295,062	$ 285,845

Realized gains and losses on the sales of investments were insignificant during the three months ended March 31, 2022 and 2021.

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 three months ended March 31, 2022 and 2021.

The Company had unrealized losses related to its marketable securities for the three months ended March 31, 2022 and 2021. 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 March 31, 2022 and December 31, 2021. 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 accumulated other comprehensive income were not material for the three months ended March 31, 2022. The 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 March 31, 2022 or December 31, 2021.

NOTE 4—BASIC AND DILUTED 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 and potential dilutive securities outstanding during the period.

The total number of shares subject to stock options and restricted stock units ("RSUs") outstanding and the employee stock purchase plan ("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 March 31, 2022 and 2021 totaled 19,128,238 and 17,614,376, respectively.

NOTE 5—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 ZFP-TFs required for such research, costs of which is funded by Novartis. Novartis is responsible for additional research activities, studies enabling investigational new drug applications ("INDs"), 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 March 31, 2022 and December 31, 2021, the Company had a receivable of $1.9 million for both periods and deferred revenue of $33.9 million and $40.9 million, respectively, related to this agreement.

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

	Three Months Ended March 31,	
	2022	2021
Revenue related to Novartis agreement:		
Recognition of upfront license fee	$ 7,018	$ 6,200
Research services	1,877	1,661
Total	$ 8,895	$ 7,861

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 will be 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 $0.1 million during each of the three months ended March 31, 2022 and 2021.

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 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 March 31, 2022 and December 31, 2021, the Company had a receivable of $3.4 million and $2.8 million, respectively, and deferred revenue of $146.7 million and $154.0 million, respectively, related to this agreement.

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

	Three Months Ended March 31,	
	2022	2021
Revenue related to Biogen agreement:		
Recognition of license and stand-ready fee	$ 7,306	$ 7,306
Research services	3,887	3,145
Total	$ 11,193	$ 10,451

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 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 $0.1 million during each of the three months ended March 31, 2022 and 2021. 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. subsidiary, 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 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 March 31, 2022 and December 31, 2021, the Company had a receivable of $0.1 million for both periods, and deferred revenue of $50.3 million and $56.5 million, respectively, related to this agreement.

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

	Three Months Ended March 31,	
	2022	2021
Revenue related to Kite agreement:		
Recognition of license and stand-ready fee	$ 6,159	$ 6,159
Research services	149	129
Total	$ 6,308	$ 6,288

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 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.

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.

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.

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 pursuant to the agreement. 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 March 31, 2022 and December 31, 2021, the Company had a receivable of $1.0 million and $0.6 million, respectively, and deferred revenue of $0.6 million and $1.1 million, respectively, related to this agreement.

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

	Three Months Ended March 31,	
	2022	2021
Revenue related to Sanofi agreement:		
Recognition of upfront fee	$ 311	$ 227
Research services	978	679
Milestone achievement	210	154
Total	$ 1,499	$ 1,060

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 revenues have been recognized during the three months ended March 31, 2022 and 2021.

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) 15 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 in 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 Company satisfied the deliverables and research services responsibilities within the arrangement in September 2020, and as a result, earned a $5.0 million milestone, which the Company recognized on a cumulative basis during the year ended December 31, 2020. In addition, the Company recognized the remaining deferred revenue from the upfront payment in September 2020 and no revenues have been recognized during the three months ended March 31, 2022 and 2021.

NOTE 6—STOCK-BASED COMPENSATION

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

	Three Months Ended March 31,	
	2022	2021
Research and development	$ 4,670	$ 4,252
General and administrative	3,021	3,272
Total stock-based compensation expense	$ 7,691	$ 7,524

NOTE 7—STOCKHOLDERS' EQUITY

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. During the three months ended March 31, 2021, the Company sold 1,034,762 shares of its common stock for net proceeds of approximately $15.7 million. No shares were sold during the three months ended March 31, 2022.

ITEM 2. 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 of 1933, as amended, and Section 21E of the Exchange Act of 1934, 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 our Annual Report on Form 10-K for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on February 24, 2022, or the 2021 Annual Report, as supplemented by the risks described under "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q. You should also read the following discussion and analysis in conjunction with our Condensed Consolidated Financial Statements and accompanying notes included in this report and the Consolidated Financial Statements and accompanying notes thereto included in our 2021 Annual Report.

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.

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 the 2021 Annual Report.

Business Updates

- *Fabry Disease*: We recently dosed three additional patients in our Phase 1/2 STAAR study evaluating isaralgagene civaparvovec for the treatment of Fabry disease. One of these patients was the third patient treated in Cohort 3 at the dose of 3e13 vg/kg and the other two patients were treated in Cohort 4 at the dose of 5e13 vg/kg. This brings the total number of patients dosed in the STAAR study to nine and completes the dose escalation portion of this Phase 1/2 study. Enzyme replacement therapy, or ERT, withdrawal was completed for a second patient, with no reports to date that the resumption of ERT is required in either patient. We expect to present updated data from the STAAR study in the second half of 2022. We are currently preparing to dose patients in the expansion cohorts of the STAAR study. We also continue to actively plan for a potential pivotal Phase 3 trial and are engaging with health authorities, patient advocacy groups and investigators.
- *Sickle Cell Disease*: We recently dosed the fifth patient in the Phase 1/2 PRECIZN-1 study of SAR445136 for the treatment of sickle cell disease that is under development with Sanofi. This product candidate was the first in the study manufactured using improved methods that have been shown in internal experiments to increase the number of long-term progenitor cells in the final product. We plan to complete dosing of patients in this study in the third quarter of 2022 and expect to present updated data in the second half of 2022. We are undertaking enabling activities for a potential Phase 3 trial. We continue to collaborate with Sanofi on an orderly transition of Sanofi’s rights and obligations related to this product candidate to us on June 28, 2022.
- *Hemophilia A*: Pfizer recently announced that, in March 2022, the U.S. Food and Drug Administration, or FDA, lifted the clinical hold that it had placed on the Phase 3 AFFINE trial of giroctocogene fitelparvovec, which the FDA had instituted following the announcement by Pfizer and us that Pfizer had voluntarily paused screening and dosing of additional patients in the trial following the observation of Factor VIII, or FVIII, levels greater than 150% in some treated patients. Despite the lifting of the FDA clinical hold, Pfizer has announced that the trial remains on a voluntary pause until all necessary conditions are met, including approval of updated trial protocols by regulatory authorities. In addition, Pfizer announced that a treated patient with elevated FVIII levels reported a below-the-knee deep vein thrombosis. This patient had a history of thrombotic events prior to participation in the trial, which is both a known risk factor for subsequent events as well as an exclusion criterion for participation in the AFFINE trial. The case was assessed to understand all potential contributing factors, including missed doses of investigator-prescribed direct oral anti-coagulants. This patient continues to be under the care of their physician and is reported to be doing well. This information has been shared with study investigators and health authorities, and the independent external Data Monitoring Committee is reviewing the data. All participants in the AFFINE trial continue to be closely monitored, and there have been no other thrombotic events reported in the trial at this time. Pfizer has announced that it expects to resume the AFFINE trial in the third quarter of 2022, with a pivotal data readout estimated in the second half of 2023.
- *Renal Transplant Rejection*: In March 2022, we dosed the first patient in our Phase 1/2 STEADFAST clinical study evaluating TX200, a 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 from a living donor. No adverse events related to treatment have been reported to date. We expect to dose the second patient in the STEADFAST study around the middle of 2022, based on the patient's transplant schedule. We expect to complete dosing of the first cohort, comprised of three patients, by the end of 2022.

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. 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.

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. Our timelines for this study could be adjusted 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 March 31, 2022, we had $400.3 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 the 2021 Annual Report 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

The accompanying management's discussion and analysis of our financial condition and results of operations are based upon our Condensed Consolidated Financial Statements and the related disclosures, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these Condensed Consolidated Financial Statements requires us to make estimates, assumptions and judgments that affect the reported amounts in our Condensed 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 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 Condensed Consolidated Financial Statements.

There have been no significant changes in our critical accounting policies and estimates during the three months ended March 31, 2022, as compared to the critical accounting policies and estimates disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Part II, Item 7 of the 2021 Annual Report.

Results of Operations for the Three Months Ended March 31, 2022 and 2021

Revenues

	Three Months Ended March 31, (in thousands, except percentage values)			
	2022	2021	Change	%
Revenues	$ 28,231	$ 26,280	$ 1,951	7%

Total revenues primarily consisted of revenues from collaboration agreements. 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 increase of $2.0 million in revenues for the three months ended March 31, 2022, compared to the same period in 2021, was primarily attributed to an increase of $1.0 million related to our collaboration agreement with Novartis, an increase of $0.7 million in revenue related to our collaboration agreement with Biogen, and an increase of $0.4 million in revenue related to our collaboration agreement with Sanofi.

Operating expenses

	Three Months Ended March 31, (in thousands, except percentage values)			
	2022	2021	Change	%
Operating expenses:				
Research and development	$ 58,584	$ 56,434	$ 2,150	4%
General and administrative	14,908	16,148	(1,240)	(8%)
Total operating expenses	$ 73,492	$ 72,582	$ 910	1%

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 $2.2 million in research and development expenses for the three months ended March 31, 2022, compared to the same period in 2021, was primarily driven by a $1.1 million increase in compensation and other personnel costs as a result of increased headcount to support our clinical trials and manufacturing, a $0.6 million increase in manufacturing and overhead costs as we ramp up our internal manufacturing operations, and a $0.5 million increase in other research and development expenses due to the timing of our trials and increased activity attributed to our Biogen and Novartis collaborations. Stock-based compensation expense included in research and development expenses was $4.7 million and $4.3 million for the three months ended March 31, 2022 and 2021, respectively.

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 the 2021 Annual Report, as supplemented by the risks described under “Risk Factors” in Part II, Item 1A of this Quarterly Report on Form 10-Q.

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 $1.2 million in general and administrative expenses for the three months ended March 31, 2022, compared to the same period in 2021, was primarily due to a $1.1 million decrease in allocated overhead costs and a decrease of $0.5 million due to reduced headcount and related compensation and other personnel costs. These decreases were partially offset by a $0.2 million increase in legal and professional fees. Stock-based compensation expense included in general and administrative expenses was $3.0 million and $3.3 million for the three months ended March 31, 2022 and 2021, respectively.

As we continue to build out our product portfolio and advance our product candidates into the clinic, we expect higher general and administrative expenses to support the growth of the business.

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 March 31, 2022, we had cash, cash equivalents, and marketable securities totaling $400.3 million compared to $464.7 million as of December 31, 2021. Our most significant use of capital was for employee compensation and external research and development expenses, including 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. No shares were sold during the three months ended March 31, 2022.

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 and strategic partnerships will be adequate to fund our currently planned operations through at least the next 12 months from the date the Condensed 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, war in Ukraine and otherwise, we will continue to monitor our liquidity.

Cash Flows

Operating activities

Net cash used in operating activities was $59.0 million for the three months ended March 31, 2022, primarily reflecting our net loss of $44.0 million, a decrease in deferred revenues of $21.0 million, a decrease in accrued compensation and employee benefits by $8.3 million mainly attributed to bonus pay-outs, a decrease in lease liabilities by $1.0 million, and an increase in accounts receivable by $0.9 million. These decreases were partially offset by $12.8 million of non-cash expenses related to stock-based compensation, depreciation and amortization, amortization of premium on marketable securities, and amortization of operating lease right-of-use assets and a $3.6 million increase in accounts payable and other accrued liabilities.

Net cash used in operating activities was $68.6 million for the three months ended March 31, 2021, primarily reflecting our net loss of $45.9 million, a decrease in deferred revenues of $20.0 million, a decrease in accrued compensation and employee benefits by $7.6 million mainly attributed to bonus pay-outs, and a decrease in accounts payable and accrued liabilities of $3.8 million due to timing of payments. These decreases were partially offset by $9.4 million of non-cash expenses related to stock-based compensation and depreciation.

Investing activities

Net cash provided by investing activities was $1.7 million for the three months ended March 31, 2022, mostly related to net maturities and purchases of marketable securities, partially offset by $2.8 million from purchases of property and equipment. Net cash provided by investing activities for the three months ended March 31, 2021 was $45.3 million, mostly related to net maturities, sales and purchases of marketable securities, partially offset by $8.0 million from purchases of property and equipment.

Financing activities

Net cash used in financing activities was $1.6 million for the three months ended March 31, 2022, mostly related to taxes paid related to net share settlement of equity awards of $1.6 million.

Net cash provided by financing activities was $15.2 million for the three months ended March 31, 2021, mostly related to $16.2 million proceeds from sales under our at-the-market offering program offset by the offering expenses of $0.5 million.

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, war in Ukraine and other economic uncertainty and volatility 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

Our future minimum contractual obligations as of December 31, 2021 were reported in the 2021 Annual Report. During the three months ended March 31, 2022, there have been no other material changes outside the ordinary course of our business from the contractual obligations previously disclosed in our 2021 Annual Report.

ITEM 3. 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. Our market risks at March 31, 2022 have not changed materially from those discussed in Item 7A of our 2021 Annual Report.

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. Our foreign currency exchange risk at March 31, 2022 has not changed materially from that discussed in Item 7A of our 2021 Annual Report.

ITEM 4. 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 principal financial officer, we evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of March 31, 2022. Based on that evaluation, as of March 31, 2022, 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.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the quarter ended March 31, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

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

ITEM 1A. RISK FACTORS

Below we are providing, in supplemental form, changes to our risk factors from those previously disclosed in Part I, Item 1A of the 2021 Annual Report. Our risk factors disclosed in Part I, Item 1A of the 2021 Annual Report provide additional discussion about these supplemental risks and we encourage you to read and carefully consider the risk factors disclosed in Part I, Item 1A of the 2021 Annual Report for a more complete understanding of the risks and uncertainties material to our business.

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 and then in March 2022, the FDA lifted the clinical hold. While the FDA has lifted the clinical hold, the voluntary pause initiated by Pfizer will remain in place until all necessary conditions are met, including but not limited to the approval of updated clinical trial protocols by applicable regulatory authorities. Accordingly, although Pfizer has announced that it anticipates to resume the Phase 3 AFFINE trial in the third quarter of 2022, we cannot assure you that the conditions necessary to resume the Phase 3 AFFINE trial will be met in a timely manner, or at all, or that the dosing of additional patients in the trial will restart promptly following any approvals of the updated clinical trial protocols, or at all, or that the presentation of data from such trial will be published in a timely manner, if at all.

Continued delays or additional pauses to the Phase 3 AFFINE trial 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.

The ongoing military action by Russia in Ukraine could have a negative impact on the global economy and our operations, which could materially and adversely affect our business, financial condition, results of operations, prospects and market price of our common stock.

On February 24, 2022, Russian forces launched significant military action against Ukraine, and sustained conflict and disruption in the region is possible. The impact to Ukraine as well as actions taken by other countries, including new and stricter sanctions imposed by Canada, the United Kingdom, the European Union, the U.S. and other countries and companies and organizations against officials, individuals, regions, and industries in Russia and Ukraine, and actions taken by Russia in response to such sanctions, and each country's potential response to such sanctions, tensions, and military actions could adversely affect the global economy and financial markets and thus could affect our business, operations, operating results and financial condition as well as the price of our common stock and our ability to raise additional capital when needed on acceptable terms. In addition, any or all of these effects could disrupt our and our collaborators' supply chains and adversely affect our and our collaborators' ability to conduct ongoing and future clinical trials of our product candidates. The extent and duration of the military action, sanctions and resulting market and other disruptions are impossible to predict, but could be substantial. Any such disruptions caused by Russian military action or resulting sanctions may magnify the impact of the other risks described in the 2021 Annual Report.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

number	Description of Document
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).
31.1+	Rule 13a — 14(a) Certification of Principal Executive Officer.
31.2+	Rule 13a — 14(a) Certification of Principal Financial Officer.
32.1*	Certifications 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	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	The cover page from Sangamo's Quarterly Report on Form 10-Q for the three months ended March 31, 2022 is formatted in Inline XBRL and it is contained in Exhibit 101

* The certifications attached as Exhibit 32.1 accompany this Quarterly Report on Form 10-Q 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 Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

\# Indicates management contract or compensatory plan or arrangement.

\+ Filed herewith.

SIGNATURES

Pursuant to the requirements 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.

Dated: May 5, 2022

SANGAMO THERAPEUTICS, INC.

/s/ ALEXANDER D. MACRAE

Alexander D. Macrae
President and Chief Executive Officer
(Principal Executive Officer)

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATION

I, Alexander D. Macrae, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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: May 5, 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 quarterly report on Form 10-Q 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: May 5, 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") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), each of the undersigned hereby certifies in his or her capacity as an officer of Sangamo Therapeutics, Inc. (the "Company"), that, to the best of his or her knowledge:

(1) the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2022, 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: May 5, 2022

/s/ PRATHYUSHA DURAIBABU

Prathyusha Duraibabu
Senior Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Date: May 5, 2022

This certification accompanies the Quarterly Report on Form 10-Q 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-Q), 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.