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 September 30, 2021

OR

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

For the transition period from _____ to _____

Commission file number 000-30171

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

Delaware	**68-0359556**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

7000 Marina Blvd., Brisbane, California, 94005
(Address of principal executive offices) (Zip Code)

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

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

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

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 November 1, 2021, 145,674,591 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

This report contains "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. 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 and 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, our 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;
- 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 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 rights to the gene transfer 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: "anticipates," "believes," "continues," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should," "will," "likely," "ongoing," "project," "assume," "target," "forecast," "guidance," "objective," "aim," "goal" 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 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.

- 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 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 expire or terminate for any reason, our revenues and product development efforts would be negatively impacted.
- Biotechnology and genomic medicine are highly competitive businesses. Our competitors are developing rival technologies and products that may be 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.
- Our success depends on hiring, integrating and retaining additional highly qualified skilled employees and retaining current key executives and employees, which has been and may continue to be challenging given the intense competition for these individuals.
- The evolving COVID-19 pandemic has adversely affected and could continue to adversely impact our business and operations and the business and operations of our collaborators, manufacturers and other business partners.
- 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

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, 2020 as filed with the Securities and Exchange Commission on February 24, 2021, 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)

	September 30, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 176,954	$ 131,329
Marketable securities	246,459	510,094
Interest receivable	620	1,035
Accounts receivable	7,967	5,224
Prepaid expenses and other current assets	15,396	11,986
Total current assets	447,396	659,668
Marketable securities, non-current	95,631	50,530
Property and equipment, net	50,816	41,324
Intangible assets	54,928	58,128
Goodwill	40,530	42,798
Operating lease right-of-use assets	66,227	71,045
Other non-current assets	15,370	13,557
Restricted cash	1,500	1,500
Total assets	$ 772,398	$ 938,550
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 7,982	$ 12,553
Accrued compensation and employee benefits	18,646	20,738
Other accrued liabilities	14,816	18,612
Deferred revenues	90,454	91,644
Total current liabilities	131,898	143,547
Deferred revenues, non-current	183,943	245,045
Long-term portion of lease liabilities	36,121	38,396
Deferred income tax	6,789	7,185
Other non-current liabilities	7,631	7,011
Total liabilities	366,382	441,184
Commitments		
Stockholders' equity:		
Preferred stock	—	—
Common stock	1,455	1,421
Additional paid-in capital	1,323,955	1,269,375
Accumulated deficit	(918,771)	(777,981)
Accumulated other comprehensive (loss) income	(623)	5,419
Total Sangamo Therapeutics, Inc. stockholders' equity	406,016	498,234
Non-controlling interest	—	(868)
Total stockholders' equity	406,016	497,366
Total liabilities and stockholders' equity	$ 772,398	$ 938,550

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 September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenues	$ 28,563	$ 57,763	$ 82,715	$ 92,392
Operating expenses:				
Research and development	62,498	45,287	179,018	128,289
General and administrative	14,501	16,177	47,135	50,223
Total operating expenses	76,999	61,464	226,153	178,512
Loss from operations	(48,436)	(3,701)	(143,438)	(86,120)
Interest and other income, net	834	2,430	3,010	5,910
Loss before taxes	(47,602)	(1,271)	(140,428)	(80,210)
Income tax expense	86	237	373	237
Net loss	(47,688)	(1,508)	(140,801)	(80,447)
Net income (loss) attributable to non-controlling interest	—	42	(11)	(55)
Net loss attributable to Sangamo Therapeutics, Inc. stockholders	$ (47,688)	$ (1,550)	$ (140,790)	$ (80,392)
Basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	$ (0.33)	$ (0.01)	$ (0.98)	$ (0.61)
Shares used in computing basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	145,399	141,100	144,173	132,079

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Net loss	$ (47,688)	$ (1,508)	$ (140,801)	$ (80,447)
Foreign currency translation adjustment, net of tax	(2,565)	3,839	(6,006)	3,989
Unrealized (loss) gain on marketable securities, net of tax	(45)	(633)	(36)	13
Comprehensive (loss) income	(50,298)	1,698	(146,843)	(76,445)
Comprehensive income (loss) attributable to non-controlling interest	—	42	(11)	(55)
Comprehensive (loss) income attributable to Sangamo Therapeutics, Inc.	$ (50,298)	$ 1,656	$ (146,832)	$ (76,390)

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 September 30, 2021						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balances at June 30, 2021	145,106,901	$ 1,451	$ 1,313,102	$ (871,083)	$ 1,987	$ —	$ 445,457
Issuance of common stock in connection with at-the-market offering, net of offering expenses	202,705	2	2,365	—	—	—	2,367
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	206,970	2	615	—	—	—	617
Stock-based compensation	—	—	7,873	—	—	—	7,873
Foreign currency translation adjustment	—	—	—	—	(2,565)	—	(2,565)
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(45)	—	(45)
Net loss	—	—	—	(47,688)	—	—	(47,688)
Balances at September 30, 2021	145,516,576	$ 1,455	$ 1,323,955	$ (918,771)	$ (623)	$ —	$ 406,016

	Nine Months Ended September 30, 2021						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2020	142,063,203	$ 1,421	$ 1,269,375	$ (777,981)	$ 5,419	$ (868)	$ 497,366
Issuance of common stock in connection with at-the-market offering, net of offering expenses	2,007,932	20	27,079	—	—	—	27,099
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	1,200,871	12	1,582	—	—	—	1,594
Issuance of common stock under employee stock purchase plan	244,570	2	2,052	—	—	—	2,054
Stock-based compensation	—	—	24,880	—	—	—	24,880
Acquisition of additional shares of Sangamo France	—	—	(70)	—	—	(64)	(134)
Foreign currency translation adjustment	—	—	—	—	(6,006)	—	(6,006)
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(36)	—	(36)
Buy-out of non-controlling interest	—	—	(943)	—	—	943	—
Net loss	—	—	—	(140,790)	—	(11)	(140,801)
Balances at September 30, 2021	145,516,576	$ 1,455	$ 1,323,955	$ (918,771)	$ (623)	$ —	$ 406,016

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 September 30, 2020						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balances at June 30, 2020	140,973,277	$ 1,410	$ 1,247,527	$ (735,827)	$ (1,653)	$ (251)	$ 511,206
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	239,553	2	1,614	—	—	—	1,616
Stock-based compensation	—	—	6,682	—	—	—	6,682
Acquisition of additional shares of Sangamo France	—	—	—	—	—	(321)	(321)
Foreign currency translation adjustment	—	—	—	—	3,839	—	3,839
Net unrealized loss on marketable securities, net of tax	—	—	—	—	(633)	—	(633)
Net (loss) income	—	—	—	(1,550)	—	42	(1,508)
Balances at September 30, 2020	141,212,830	$ 1,412	$ 1,255,823	$ (737,377)	$ 1,553	$ (530)	$ 520,881

	Nine Months Ended September 30, 2020						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2019	115,972,708	$ 1,160	$ 1,090,828	$ (656,985)	$ (2,449)	$ 185	$ 432,739
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	648,660	6	2,462	—	—	—	2,468
Issuance of common stock under employee stock purchase plan	171,305	2	1,185	—	—	—	1,187
Issuance of common stock in connection with the Biogen collaboration agreement, net of issuance costs	24,420,157	244	142,282	—	—	—	142,526
Stock-based compensation	—	—	19,066	—	—	—	19,066
Acquisition of additional shares of Sangamo France	—	—	—	—	—	(660)	(660)
Foreign currency translation adjustment	—	—	—	—	3,989	—	3,989
Net unrealized gain on marketable securities, net of tax	—	—	—	—	13	—	13
Net loss	—	—	—	(80,392)	—	(55)	(80,447)
Balances at September 30, 2020	141,212,830	$ 1,412	$ 1,255,823	$ (737,377)	$ 1,553	$ (530)	$ 520,881

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Nine Months Ended September 30,	
	2021	2020
Operating Activities:		
Net loss	$ (140,801)	$ (80,447)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	6,675	3,999
Amortization of premium (discount) on marketable securities	2,394	(1,344)
Amortization and other changes in operating lease right-of-use assets	6,104	5,706
Gain on free shares	(18)	(31)
Stock-based compensation	24,880	19,066
(Gain) loss on disposal of property and equipment	(30)	197
Net changes in operating assets and liabilities:		
Interest receivable	415	(140)
Accounts receivable	(2,743)	(2,578)
Prepaid expenses and other assets	(6,467)	(9,098)
Accounts payable and other accrued liabilities	(4,699)	1,336
Accrued compensation and employee benefits	(1,932)	4,186
Deferred revenues	(62,292)	235,551
Long-term portion of lease liabilities	(3,227)	(2,760)
Other non-current liabilities	1,204	527
Net cash (used in) provided by operating activities	(180,537)	174,170
Investing Activities:		
Purchases of marketable securities	(300,387)	(335,002)
Maturities of marketable securities	509,620	205,039
Sales of marketable securities	6,870	—
Purchases of property and equipment	(20,420)	(10,703)
Purchase of additional shares of Sangamo France	(119)	(503)
Net cash provided by (used in) investing activities	195,564	(141,169)
Financing Activities:		
Proceeds from at-the-market offering, net of offering expenses	27,099	—
Proceeds from issuance of common stock in connection with the Biogen collaboration agreement, net of issuance costs	—	142,526
Taxes paid related to net share settlement of equity awards	(2,988)	(573)
Proceeds from exercise of stock options and restricted stock units	4,582	3,041
Proceeds from issuance of common stock under employee stock purchase plan	2,053	1,187
Net cash provided by financing activities	30,746	146,181
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	(148)	(217)
Net increase in cash, cash equivalents, and restricted cash	45,625	178,965
Cash, cash equivalents, and restricted cash, beginning of period	132,829	81,928
Cash, cash equivalents, and restricted cash, end of period	$ 178,454	$ 260,893
Supplemental cash flow disclosures:		
Property and equipment included in unpaid liabilities	$ 650	$ 899
Right-of-use assets obtained in exchange for lease obligations	$ 1,349	$ —
Buy-out of non-controlling interest	$ 943	$ —

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

Business Overview

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 and nine months ended September 30, 2021 are not necessarily indicative of the results that may be expected for the year ending December 31, 2021. The Condensed Consolidated Balance Sheet data at December 31, 2020 was derived from the audited Consolidated Financial Statements included in Sangamo's Annual Report on Form 10-K for the year ended December 31, 2020 (the "2020 Annual Report") as filed with the SEC on February 24, 2021.

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 are exposed to less than 100% of the economics, the Company records net loss attributable to non-controlling interests on the Company's 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, 2020, included in the 2020 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 September 30, 2021 and expected revenues 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.

In September 2021, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Sanofi S.A. ("Sanofi") as a result of an increase in the project costs for its beta thalassemia program and the increase in project scope and the corresponding costs for its sickle cell disease program, both of which resulted in a decrease in the measure of proportional cumulative performance.

This adjustment decreased revenue by $2.5 million, increased net loss by $2.5 million and increased the Company's basic and diluted net loss per share by $0.02 for the three and nine months ended September 30, 2021.

During the first quarter of 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Sanofi as a result of a decision made by the joint steering committee of Sanofi and Sangamo to increase the project scope and related project cost, which resulted in a decrease in the measure of proportional cumulative performance. Also during the first quarter of 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the hemophilia A collaboration agreement with Pfizer Inc. ("Pfizer"). This adjustment was a direct result of the decision to decrease the project scope and the corresponding costs after the successful investigational new drug application ("IND") transfer of the SB-525 product candidate to Pfizer, both of which resulted in an increase in the measure of proportional cumulative performance.

In September 2020, the Company recorded adjustments to revenue related to changes in estimates in connection with the C9ORF72 research collaboration and license agreement with Pfizer. These adjustments were a direct result of the decision to decrease the project scope and the corresponding costs due to advancement of the program, which resulted in an increase in the measure of proportional cumulative performance.

The Pfizer-related adjustment in September 2020 increased revenue by $5.8 million, decreased net loss by $5.8 million and decreased the Company's basic net loss per share by $0.04 for the three months ended September 30, 2020.

The Pfizer and Sanofi-related adjustments in the first quarter of 2020 increased revenue by $8.9 million, decreased net loss by $8.9 million and decreased the Company's basic net loss per share by $0.06 for the nine months ended September 30, 2020.

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 September 30,				Nine Months Ended September 30,			
	2021		2020		2021		2020	
Novartis Institutes for BioMedical Research, Inc.	40	%	—	%	35	%	—	%
Biogen MA, Inc.	38	%	16	%	39	%	19	%
Kite Pharma, Inc.	22	%	13	%	23	%	24	%
Sanofi S.A.	(3)	%	3	%	2	%	4	%
Pfizer Inc.	—		68	%	—		51	%

Receivables from collaborations are typically unsecured and are concentrated in the biopharmaceutical industry. Accordingly, the Company may be exposed to credit risk generally associated with biopharmaceutical companies or specific to its collaboration agreements. As of September 30, 2021, the Company had not incurred any losses related to these receivables.

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.

Business Combinations

The Company accounts for acquisitions using the acquisition method of accounting, which requires that assets acquired, including in-process research and development ("IPR&D") projects, liabilities assumed and any non-controlling interests in the acquired target in an acquisition, be recorded at their fair values as of the acquisition date on the Company's Consolidated Balance Sheets. Any excess of purchase price over the fair value of net assets acquired is recorded as goodwill. The determination of fair value requires the Company to make significant estimates and assumptions. As a result, the Company may record adjustments to the fair values of assets acquired and liabilities assumed within the measurement period (up to one year from the acquisition date) with the corresponding offset to goodwill. Transaction costs associated with business combinations are expensed as they are incurred.

Goodwill and Intangible Assets

Goodwill represents the excess of the consideration transferred over the fair values of assets acquired and liabilities assumed in a business combination. Intangible assets with indefinite useful lives are related to purchased IPR&D projects and are measured at their respective fair values as of the acquisition date. Goodwill and intangible assets with indefinite useful lives are not amortized. Intangible assets related to IPR&D projects are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time. The Company tests goodwill and indefinite-lived intangible assets for impairment on an annual basis and between annual tests if the Company becomes aware of any events occurring or changes in circumstances that would indicate the fair values of the assets are below their respective carrying amounts. As of September 30, 2021, no impairment of goodwill or indefinite-lived intangible assets was identified.

Valuation of Long-Lived Assets

Long-lived assets, including property and equipment and finite-lived intangible assets, are reviewed for impairment whenever facts or circumstances either internally or externally may suggest that the carrying value of an asset may not be recoverable. Recoverability of these assets is measured by comparison of the carrying amount of each asset to the future undiscounted cash flows expected to result from the use of the asset and its eventual disposition. If the asset is considered to be impaired, the amount of any impairment is measured as the difference between the carrying value and the fair value of the impaired asset. As of September 30, 2021, no impairment of long-lived assets was identified.

Fair Value Measurements

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

Cash, Cash Equivalents, and Restricted Cash

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

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

	September 30, 2021	December 31, 2020	September 30, 2020	December 31, 2019
Cash and cash equivalents	$ 176,954	$ 131,329	$ 259,393	$ 80,428
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	$ 178,454	$ 132,829	$ 260,893	$ 81,928

Marketable Securities

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

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

Concentrations of Credit Risk and Other Risks

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

Certain materials and key components that the Company utilizes in its operations are obtained through single suppliers. Since the suppliers of key components and materials must be named in an investigational new drug application (“IND”) filed with

the U.S. Food and Drug Administration for a product, significant delays can occur if the qualification of a new supplier is required. If delivery of material from the Company's suppliers were interrupted for any reason, the Company may be unable to supply any of its product candidates for clinical trials.

Leases

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

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

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

Foreign Currency Translation

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

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, marketable securities, and the free shares asset are identified at the following levels within the fair value hierarchy (in thousands):

	September 30, 2021			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 124,592	$ 124,592	$ —	$ —
Total	124,592	124,592	—	—
Marketable securities:				
U.S. government-sponsored entity debt securities	87,167	—	87,167	—
Commercial paper securities	98,065	—	98,065	—
Corporate debt securities	33,694	—	33,694	—
Asset-backed securities	74,326	—	74,326	—
Certificates of deposit	48,838	—	48,838	—
Total	342,090	—	342,090	—
Total cash equivalents and marketable securities	$ 466,682	$ 124,592	$ 342,090	$ —

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

Cash Equivalents and Marketable Securities

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

Free Shares Asset

As a result of the July 20, 2018 Share Purchase Agreement ("Sangamo France SPA") to acquire Sangamo France (see Note 10 — Acquisition of Sangamo Therapeutics France S.A.S.), the Company entered into arrangements with the holders of approximately 477,000 "free shares" of Sangamo France pursuant to which the Company has the right to purchase such shares from the holders (a call option) and such holders have the right to sell to the Company such shares from time to time through

mid-2021 (a put option). As of September 30, 2021, the Company had purchased all 477,000 free shares for an aggregate cash payment of approximately $1.1 million, upon exercise of the put options. As of September 30, 2021, there were no free shares outstanding subject to purchase by the Company. The fair value of the free shares' asset was zero at September 30, 2021 and immaterial at December 31, 2020.

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

NOTE 3—CASH EQUIVALENTS AND MARKETABLE SECURITIES

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

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
September 30, 2021				
Assets				
Cash equivalents:				
Money market funds	$ 124,592	$ —	$ —	$ 124,592
Total	124,592	—	—	124,592
Marketable securities:				
U.S. government-sponsored entity debt securities	87,159	12	(4)	87,167
Commercial paper securities	98,046	24	(5)	98,065
Corporate debt securities	33,697	3	(6)	33,694
Asset-backed securities	74,350	7	(31)	74,326
Certificate of deposits	48,828	11	(1)	48,838
Total	342,080	57	(47)	342,090
Total cash equivalents and marketable securities	$ 466,672	$ 57	$ (47)	$ 466,682
December 31, 2020				
Assets				
Cash equivalents:				
Money market funds	$ 53,165	$ —	$ —	$ 53,165
Total	53,165	—	—	53,165
Marketable securities:				
U.S. government-sponsored entity debt securities	257,284	19	(5)	257,298
Commercial paper securities	213,500	41	(8)	213,533
Corporate debt securities	59,575	16	(17)	59,574
Asset-backed securities	17,905	10	(7)	17,908
Certificate of deposits	12,311	—	—	12,311
Total	560,575	86	(37)	560,624
Total cash equivalents and marketable securities	$ 613,740	$ 86	$ (37)	$ 613,789

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

	September 30, 2021	December 31, 2020
Maturing in one year or less	$ 246,460	$ 510,094
Maturing after one year through five years	95,630	50,530
Total	$ 342,090	$ 560,624

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 and nine months ended September 30, 2021 and 2020.

The Company had unrealized losses related to its marketable securities for the three and nine months ended September 30, 2021 and 2020. These unrealized losses were not attributed to credit risk and were associated with changes in market conditions. The Company periodically reviews its marketable securities for indications of credit losses. The Company considers factors such as the duration, the magnitude and the reason for the decline in value, the potential recovery period, creditworthiness of the issuers of the securities and its intent to sell. For marketable securities, it also considers whether (i) it is more likely than not that the Company will be required to sell the debt securities before recovery of their amortized cost basis, and (ii) the amortized cost basis cannot be recovered as a result of credit losses. No significant facts or circumstances have arisen to

indicate that there has been any significant deterioration in the creditworthiness of the issuers of the securities held by the Company. Based on the Company's review of these securities, including the assessment of the duration and severity of the unrealized losses and the Company's ability and intent to hold the investments until maturity, the Company determined that no allowance for credit losses related to its marketable securities was required at either September 30, 2021 or December 31, 2020.

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 September 30, 2021 and 2020 totaled 15,838,002 and 14,768,646, 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 will perform early research activities over the collaboration period for each gene target and manufacture the ZPF-TFs required for such research, costs of which will be funded by Novartis. Novartis is responsible for additional research activities, IND-enabling studies, clinical development, regulatory approvals, manufacturing of preclinical, clinical and approved products, and global commercialization. Subject to certain exceptions set forth in the agreement, the Company is prohibited from developing, manufacturing or commercializing any therapeutic product targeting any of the three genes that are the subject of the collaboration. Novartis also has the option to license certain of the Company's proprietary adeno-associated viruses ("AAVs") for the sole purpose of developing, manufacturing and commercializing licensed products arising from the collaboration.

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

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

The Company assessed the agreement with Novartis in accordance with ASC Topic 606 and concluded that Novartis is a customer. The Company has identified a single performance obligation within this arrangement as a license to the technology and ongoing research services. The Company concluded that the license is not discrete as it does not have stand-alone value to Novartis apart from the research services to be performed pursuant to the agreement. As a result, the Company recognizes revenue from the upfront payment based on proportional performance of the ongoing research services through the estimated research period. The estimation of progress towards the satisfaction of performance obligation and project cost is reviewed quarterly and

adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its performance obligation. As of September 30, 2021 and December 31, 2020, the Company had deferred revenue of $48.0 million and $70.9 million, respectively, related to this agreement.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenue related to Novartis agreement:				
Recognition of upfront license fee	$ 9,093	$ —	$ 22,852	$ —
Research services	2,421	—	6,104	—
Total	$ 11,514	$ —	$ 28,956	$ —

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 $0.2 million and $0.5 million during the three and nine months ended September 30, 2021, respectively. No amounts were amortized during the three and nine months ended September 30, 2020.

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 $2.37 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 $1.45 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 12 neurological disease gene targets selected by Biogen. Biogen has already selected four of these: ST-501 for tauopathies including Alzheimer's disease, ST-502 for synucleinopathies including Parkinson's disease, a neuromuscular disease target and a fourth neurological disease gene target. Biogen has exclusive rights to nominate up to nine additional targets over a target selection period of five years. For each gene target selected by Biogen, the Company performs early research activities, costs of which are shared by the companies, aimed at the development of the combination of proprietary central nervous system delivery vectors and ZFP-TFs (or potential other ZFP products) targeting therapeutically relevant genes. Biogen has assumed responsibility and costs for the IND-enabling studies, clinical development, related regulatory interactions, and global commercialization. The Company is responsible for manufacturing activities for the initial clinical trials for the first three products of the collaboration and plans to leverage its in-house manufacturing capacity, where appropriate, which is currently in development. Biogen is responsible for manufacturing activities beyond the first clinical trial for each of the first three products. The Company's research activities for any targets will be performed over the period not to exceed seven years from the effective date of the agreement (i.e., through April 2027). Subject to certain exceptions set forth in the collaboration agreement, the Company is prohibited from developing, manufacturing or commercializing any therapeutic product directed to the targets selected by Biogen.

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

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

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

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

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

The Company has identified a single performance obligation within the Biogen collaboration agreement, which is a stand-ready obligation consisting of a series of distinct days of research services, during which Biogen obtains access to the Company's license and research resources. Revenue from the upfront license fee relates to access to the license and Company's obligation to stand-ready to perform such research services corresponding to the targets selected by Biogen. As a result of this obligation to perform research services when and if requested throughout the duration of the contract, the upfront license fee and the excess consideration from the stock purchase will be recognized over time on a straight-line basis consistent with the resources expected to be dedicated to providing the research services through April 2027, the estimated period of the obligation. The estimated period of performance is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverable. Revenue from the reimbursement by Biogen of shared costs of early research activities performed by Sangamo is recognized as the research services are performed. As of September 30, 2021 and December 31, 2020, the Company had deferred revenue of $161.3 million and $183.2 million, respectively, related to this agreement.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenue related to Biogen agreement:				
Recognition of license and stand-ready fee	$ 7,306	$ 7,306	$ 21,918	$ 14,050
Research services	3,661	2,315	10,266	3,749
Total	$ 10,967	$ 9,621	$ 32,184	$ 17,799

The Company paid $7.0 million for financial advisory fees during the year ended December 31, 2020, equal to 2% of $225.0 million received for the sale of shares and 2% of $125.0 million received for the upfront fee. The fees incurred related to both the collaboration agreement with Biogen and to the stock purchase agreement for the sale of shares. The Company believes that the allocation of fees on a relative fair value basis between the two agreements is reasonable. The Company recognized $4.1 million, which represents 2% of the transaction price of $204.6 million, as a contract asset. This balance is amortized and included in general and administrative expenses on a systematic basis consistent with the transfer of the services to Biogen in accordance with ASC Topic 340. The Company amortized $0.1 million and $0.4 million during the three and nine months ended September 30, 2021, respectively. The Company amortized $0.1 million and $0.3 million during the three and nine months ended September 30, 2020, respectively. The Company recognized $2.9 million, which represented 2% of the $145.4 million estimated fair value of the equity issued, as a share issuance cost and recorded this amount in equity as a reduction in proceeds.

Kite Pharma, Inc.

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

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

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

Following the effective date, the Company received a $150.0 million upfront payment from Kite. 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 $3.01 billion if all of the specified milestones set forth in this agreement are achieved. Of this amount, approximately $1.26 billion relates to the achievement of specified research, clinical development, regulatory and first commercial sale milestones, and approximately $1.75 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 of the agreement 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 estimated reimbursable service costs. 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 September 30, 2021 and December 31, 2020, the Company had deferred revenue of $62.8 million and $81.4 million, respectively, related to this agreement.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenue related to Kite agreement:				
Recognition of license and stand-ready fee	$ 6,296	$ 6,296	$ 18,682	$ 18,750
Research services	113	998	339	3,185
Total	$ 6,409	$ 7,294	$ 19,021	$ 21,935

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 and nine months ended September 30, 2021. The Company recognized $0.2 million and $2.7 million of upfront license fee and research services revenue during the three and nine months ended September 30, 2020, respectively, and $29.9 million and $31.0 million milestone achievement revenue during the three and nine months ended September 30, 2020, respectively.

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

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

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

The Company satisfied the deliverables and research services responsibilities within the arrangement in September 2020, and as a result, 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 and nine months ended September 30, 2021. The Company recognized $4.2 million and $8.0 million of upfront license fee and research services as revenue related to this agreement during the three and nine months ended September 30, 2020, respectively, and $5.0 million of milestone achievement revenue during the three and nine months ended September 30, 2020.

Sanofi S.A.

In January 2014, the Company entered into an exclusive worldwide collaboration and license agreement to develop therapeutics for hemoglobinopathies, focused on beta thalassemia and sickle cell disease ("SCD"). The agreement was originally signed with BIMA, who subsequently assigned it to Bioverativ Inc., which was later acquired by Sanofi. Under the agreement, the Company is jointly conducting two research programs: the beta thalassemia program and the SCD program. In the beta thalassemia program, the Company is responsible for all discovery, research and development activities through the first human clinical trial. In the SCD program, both parties are responsible for research and development activities through the submission of an IND application for ZFP therapeutics intended to treat SCD.

Under both programs, Sanofi is responsible for subsequent worldwide clinical development, manufacturing and commercialization of licensed products developed under the agreement. At the end of the specified research terms for each program or under certain specified circumstances, Sanofi has the right to step in and take over any of the Company's remaining activities. Furthermore, the Company has an option to co-promote in the U.S. any licensed products to treat beta thalassemia and SCD developed under the agreement, and Sanofi will compensate the Company for such co-promotion activities. Subject to the terms of the agreement, the Company has 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 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.

The agreement may be terminated by (i) the Company or Sanofi for the uncured material breach of the other party, (ii) the Company or Sanofi for the bankruptcy or other insolvency proceeding of the other party; (iii) Sanofi, upon 180 days' advance written notice to the Company and (iv) Sanofi, for certain safety reasons upon written notice to, and after consultation with, the Company. As a result, actual future milestone payments could be lower than the amounts stated above.

Under the agreement, the Company received an upfront license fee of $20.0 million and is 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, is up to $276.3 million. In addition, the Company will receive royalty payments for each licensed product that are a tiered double-digit percentage of annual net sales of each product. Sanofi reimburses Sangamo for agreed upon costs incurred in connection with research and development activities conducted by Sangamo. To date, a $6.0 million milestone has been achieved related to ST-400 for beta thalassemia and another $7.5 million milestone has been achieved related to SCD, however no products have been approved and therefore no royalty fees have been earned under the Sanofi agreement.

All contingent payments under the agreement, when earned, will be non-refundable and non-creditable. The transaction price of $98.1 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 $64.6 million for identified research projects over the estimated performance period, as all unachieved milestone amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur. None of the constrained clinical or regulatory milestones have been included in the transaction price.

The Company assessed the agreement with Sanofi in accordance with ASC Topic 606 and concluded that Sanofi is a customer. The Company has identified the performance obligations within this arrangement as a license to the technology and ongoing research services activities. The Company concluded that the license is not discrete as it does not have stand-alone value to Sanofi apart from the research services to be performed pursuant to the agreement. As a result, the Company recognizes revenue from the upfront payment based on proportional performance of the ongoing research services through 2022, the estimated period the Company will perform research services. The estimation of progress towards the satisfaction of performance obligation and project cost is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables. Related costs and expenses under these arrangements have historically approximated the revenues recognized. As of September 30, 2021 and December 31, 2020, the Company had deferred revenue of $2.3 million and $1.2 million, respectively, related to this agreement.

In August 2019, the Company achieved a $6.0 million milestone with Sanofi upon dosing of the third subject in the ST-400 beta thalassemia Phase 1 clinical trial. The cumulative revenue recognized in connection with this milestone was approximately $5.6 million as of September 30, 2021 and a revenue reversal of $0.3 million and $0.2 million during the three and nine months ended September 30, 2021, respectively, related to a change in project costs.

In December 2019, the Company achieved a $7.5 million milestone with Sanofi upon dosing of the first subject in the SCD Phase 1 clinical trial. The cumulative revenue recognized in connection with this milestone was approximately $7.0 million as of September 30, 2021 and a revenue reversal of $0.4 million and $0.3 million during the three and nine months ended September 30, 2021, respectively, related to a change in project scope and the corresponding estimated total costs.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenue related to Sanofi agreement:				
Recognition of upfront fee	$ (1,125)	$ 321	$ (692)	$ (28)
Research services	1,125	961	2,417	3,836
Milestone achievement	(759)	216	(467)	(19)
Total	$ (759)	$ 1,498	$ 1,258	$ 3,789

In September 2021, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Sanofi. This adjustment was a result of an increase in the project costs for its beta thalassemia

program and the increase in project scope and the corresponding costs for its SCD program, both of which resulted in a decrease in the measure of proportional cumulative performance. This adjustment decreased revenue by $2.5 million, increased net loss by $2.5 million and increased the Company's basic and diluted net loss per share by $0.02 for the three and nine months ended September 30, 2021.

California Institute for Regenerative Medicine

In May 2018, the California Institute for Regenerative Medicine (“CIRM”) granted a Strategic Partnership Award for $8.0 million to fund the clinical studies of a potentially curative ZFP therapeutic for the treatment of beta thalassemia based on the application of Sangamo’s ZFN genome editing technology. The grant exists through December 31, 2022 and provides matching funds to support the evaluate ST-400, a gene-edited cell therapy candidate for people with transfusion-dependent beta thalassemia. As of September 30, 2021, the Company had received $5.2 million under the award.

Under the terms of the CIRM grants, the Company is obligated to pay royalties and licensing fees based on a low single digit royalty percentage on net sales of CIRM-funded product candidates or CIRM-funded technology. The Company has the option to decline any and all amounts awarded by CIRM and as an alternative to revenue sharing, the Company has the option to convert the award to a loan. No such election has been made as of the date of the issuance of these financial statements. If the Company terminates a CIRM-funded clinical trial, it is obligated to repay any unused CIRM funds received. Therefore, as of September 30, 2021 and December 31, 2020, $7.0 million and $6.4 million, respectively, including interest, related to this award are recorded as a loan in other long-term liabilities on the accompanying Condensed Consolidated Balance Sheets as the Company does not expect to repay these amounts within the next 12 months.

NOTE 6—INCOME TAXES

The Company’s provision for income taxes for interim periods is determined using an estimate of its annual effective tax rate, adjusted for discrete items, if any, that arise during the period. Each quarter, the Company updates its estimate of the annual effective tax rate, and if the estimated annual effective tax rate changes, the Company makes a cumulative adjustment in such period. In the three and nine months ended September 30, 2021, the Company recorded income tax expense of $0.1 million and $0.4 million, respectively. In the three and nine months ended September 30, 2020, the Company recorded income tax expense of $0.2 million and $0.2 million, respectively. The Company continues to maintain a full valuation allowance on its U.S. federal and state net deferred tax assets and on the Sangamo France net deferred tax assets, as the Company believes it is not more likely than not that these benefits will be realized. The tax expense for the three and nine months ended September 30, 2021 was due to foreign income tax expense, and the tax expense for the three and nine months ended September 30, 2020 was due to foreign and state income tax. The Company accounts for income taxes in accordance with ASC 740, Income Taxes, which requires that the Company recognizes deferred tax liabilities and assets based on the differences between the financial statement carrying amounts and the tax basis of assets and liabilities by using enacted tax rates expected to apply to taxable income in the periods in which the deferred tax liability or asset is expected to be settled or realized. The Company had a deferred tax liability of $6.8 million primarily related to basis difference in foreign intangible assets as of September 30, 2021. The net deferred tax impact was included in deferred tax assets on the Company’s condensed consolidated balance sheets.

NOTE 7—COMMITMENTS

Leases

Sangamo occupies approximately 87,700 square feet of office and research and development laboratory facilities in Brisbane, California, pursuant to a lease that expires in May 2029. Sangamo also occupies approximately 59,200 square feet of research and office space in Richmond, California, pursuant to leases that expire in August 2026. In addition, the Company leases approximately 25,600 square feet of office, and research and development space in Valbonne, France, subject to leases that expire beginning in June 2025 through January 2030.

Cash paid for amounts included in the measurement of operating lease liabilities for the nine months ended September 30, 2021 and 2020, was $5.2 million and $4.7 million, respectively, and was included in net cash (used in) provided by operating activities in the Company’s Condensed Consolidated Statements of Cash Flows.

Our lease obligations primarily consist of operating leases for our offices, research and development laboratory and facilities in Brisbane and Richmond, California and Valbonne, France, with lease periods expiring between fiscal years 2025 and 2030.

As of September 30, 2021, the maturities of the Company's operating lease liabilities were as follows (in thousands):

	Total
Three months ending December 31, 2021:	$ 1,155
2022	6,987
2023	7,085
2024	7,233
2025	7,305
Thereafter	20,030
Total lease payments	49,795
Less:	
Imputed interest	(9,686)
Total	$ 40,109

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

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

Contractual Commitments

The following table sets forth the non-cancelable material contractual commitments under manufacturing-related supplier arrangements as of September 30, 2021 (in thousands):

Party	Total commitments	Expiry date
Brammer Bio MA - a Thermo Fisher Scientific Inc. subsidiary	$ 3,000	December 2022
Lonza Netherlands, B.V.	9,281	December 2022
Total contractual commitments	$ 12,281	

The Company also had $0.8 million of license obligations related to its intellectual property as of September 30, 2021.

NOTE 8—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 September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Research and development	$ 4,935	$ 3,573	$ 14,645	$ 9,990
General and administrative	2,938	3,109	10,235	9,076
Total stock-based compensation expense	$ 7,873	$ 6,682	$ 24,880	$ 19,066

NOTE 9—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

and nine months ended September 30, 2021, the Company sold 202,705 and 2,007,932 shares of its common stock for net proceeds of approximately $2.4 million, and $27.1 million, respectively.

NOTE 10—ACQUISITION OF SANGAMO THERAPEUTICS FRANCE S.A.S.

In 2018, Sangamo entered into various agreements with the goal of eventually acquiring 100% of Sangamo France's share capital, including arrangements with the holders of approximately 477,000 free shares of Sangamo France pursuant to which the Company had the right to purchase such shares from the holders, and such holders had the right to sell to the Company such shares from time to time through mid-2021. As of September 30, 2021, the Company acquired all of the 477,000 free shares, resulting in 100% ownership of Sangamo France.

The acquisition of Sangamo France was accounted for as a business combination in accordance with ASC Topic 805, Business Combinations, in exchange for total consideration of approximately $45.9 million at the October 2018 acquisition date. The operating results of Sangamo France after the October 2018 acquisition date have been included in the Company's Condensed Consolidated Statements of Operations.

There was no goodwill impairment during any of the periods presented and, as noted below, all of the non-controlling interest on the October 2018 acquisition date was subsequently acquired by the Company.

Non-Controlling Interest

Prior to the acquisition of all the free shares, the fair value of the remaining non-controlling interest was determined based on the number of outstanding free shares comprising the non-controlling interest and the $2.99 acquisition price per share as of the October 2018 acquisition date. The non-controlling interest was presented as a component of stockholders' equity on the Company's Condensed Consolidated Balance Sheets. As of September 30, 2021, upon acquisition of 100% of ordinary shares of Sangamo France, the carrying amount of the non-controlling interest was recorded as additional paid-in capital on the Company's Condensed Consolidated Balance Sheets.

Non-controlling interest as of September 30, 2021 was as follows (in thousands):

	Total
Balance at December 31, 2020	$ (868)
Fair value of additional shares acquired	(64)
Loss attributable to non-controlling interest	(11)
Buy-out of non-controlling interest	943
Balance at September 30, 2021	$ —

NOTE 11—SUBSEQUENT EVENTS

In October 2021, the Company entered into an agreement to extend the lease of its research and office space in Richmond, California comprised of 51,488 square feet for a term of 60 months from September 1, 2026 through August 31, 2031. The Company will also lease an additional 7,997 square feet of office space at the same location from November 1, 2021 through August 31, 2031. The total estimated future undiscounted cash payments for this lease are approximately $19.6 million.

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 Securities Exchange Act of 1934, as amended. These forward-looking 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. When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that could impact our business. In particular, we encourage you to review the risks and uncertainties summarized under "Special Note Regarding Forward-Looking Statements" that appears in the forepart of this report and as discussed in more detail under "Risk Factors" in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on February 24, 2021, or the 2020 Annual Report, as supplemented by the risks and uncertainties described under "Risk Factors" in Part II, Item 1A of this Quarterly Report. 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 2020 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 with serious diseases. We plan to deliver on this mission through development of our clinical and preclinical product candidates based on our novel science and our in-house manufacturing capabilities.

Our current clinical-stage product candidates are:

- Giroctocogene fitelparvovec, also known as SB-525, our lead product candidate, is a gene therapy for the treatment of 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;
- 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 ZFN, gene-edited cell therapy product candidate for the treatment of sickle cell disease, 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; and
- TX200, our wholly-owned Chimeric Antigen Receptor, or CAR, engineered regulatory T cell, or CAR-Treg, cell therapy product candidate for the treatment of HLA-A2 mismatched kidney transplant rejection, is currently being evaluated in our Phase 1/2 STEADFAST clinical study.

Moreover, we are focusing our preclinical development in two priority areas: (i) CAR-Treg cell therapies for autoimmune disorders such as inflammatory bowel disease and multiple sclerosis, and (ii) genome engineering therapies for central nervous system, or CNS, diseases such as Alzheimer's, autism spectrum disorder and amyotrophic lateral sclerosis, 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, and Pfizer.

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 zinc finger protein, or ZFP, 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 ZFP 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 the sale of our common stock to collaborators, and we are eligible to earn up to $6.9 billion in future milestone payments from our collaborations, in addition to potential product royalties.

We believe that our current and future in-house manufacturing capacity provides us a competitive advantage. We currently operate an in-house adeno-associated virus, or AAV, manufacturing facility in our Brisbane, California headquarters, and we recently completed and brought online a cell therapy manufacturing facility in Brisbane, California. We are also building another cell therapy manufacturing facility in Valbonne, France, which we expect to be operational by the end of 2021. We believe our manufacturing strategy, which leverages in-house manufacturing and the resources of our contracting manufacturing organizations, or CMOs, provides us flexibility, quality, control and the necessary capacity.

Business Updates

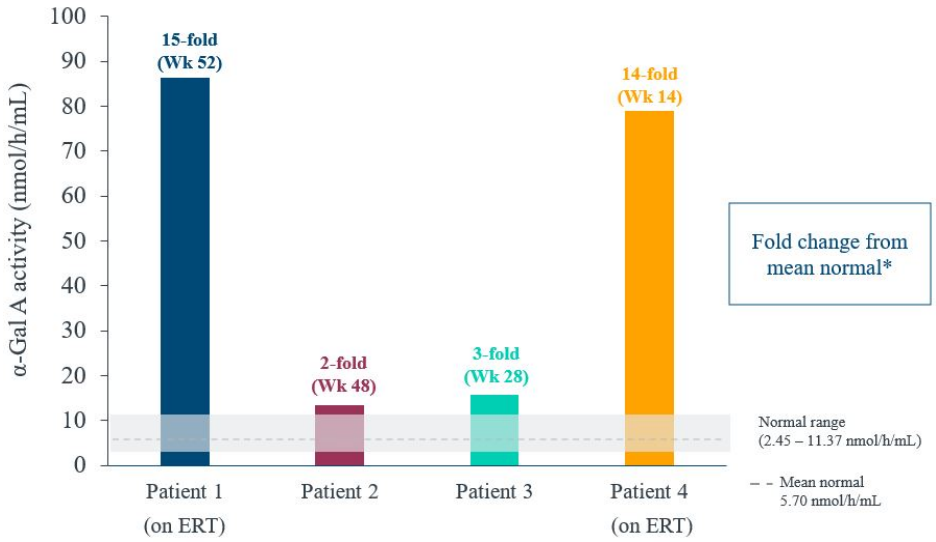
- We announced preliminary clinical data from the first four patients treated in our Phase 1/2 STAAR study evaluating isaralgagene civaparvovec for the treatment of Fabry disease. The data, a summary of which is located below, showed that, as of the September 17, 2021 cutoff date, isaralgagene civaparvovec was generally well tolerated in the four patients treated in the first two dose cohorts. All four patients exhibited above normal α-Gal A activity through 14 weeks for the most recently treated patient and one year for the first treated patient. Plasma Lyso-Gb3 levels decreased by approximately 40% in the one patient with elevated levels pre-treatment. In addition, we recently dosed the fifth patient in the study, who is the first patient in the third dose cohort. We are currently screening the sixth patient in the study. We expect to present updated clinical data from this study throughout 2022 and present data at a medical meeting. Based on the preliminary clinical data, we have initiated planning for a Phase 3 clinical trial of isaralgagene civaparvovec.
- We announced preliminary proof-of-concept clinical data from our Phase 1/2 PRECIZN-1 study of SAR445136 for the treatment of sickle cell disease, or SCD, that we are developing with Sanofi. The data, a summary of which is located below, showed that, as of the June 25, 2021 cutoff date, none of the four treated patients required blood transfusions post-engraftment or experienced adverse or serious adverse events related to treatment through 13 weeks of follow-up for the most recently treated patient and 65 weeks of follow-up for the first treated patient. The four treated patients all experienced increases in total hemoglobin, fetal hemoglobin and percent F cells. We and Sanofi will be presenting additional clinical data from this study at the 63rd Annual Meeting of the American Society of Hematology, or ASH, on December 12, 2021. Based on the preliminary proof-of-concept clinical data, we and Sanofi continue to advance the program forward. We recently obtained manufacturing requirements guidance from the U.S. Food and Drug Administration, or FDA, in preparation for further potential clinical studies.
- In order to prioritize the development of SAR445136, we and Sanofi have made the business decision to discontinue the development of ST-400, our cell therapy product candidate for the treatment of transfusion dependent beta thalassemia. ST-400 was developed with the support of a grant from the California Institute for Regenerative Medicine, or CIRM.
- We announced updated clinical data from our Phase 1/2 Alta study of giroctocogene fitelparvovec for the treatment of severe hemophilia A. The data, a summary of which is located below, showed that, as of the May 19, 2021 cutoff date, for the four patients in the highest dose 3e13vg/kg cohort who had reached 104 weeks of follow-up, the mean Factor VIII, or FVIII, activity was 30.9% at week 104 as measured by chromogenic assay. In this cohort, annualized bleeding rate was zero for the first year after treatment and 0.9 throughout total duration of follow-up. Giroctocogene fitelparvovec was generally well tolerated as of the cutoff date. We and Pfizer will be presenting additional clinical data from this study at ASH on December 12, 2021.
- 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. To date, none of these patients have experienced thrombotic events and some have been treated with direct oral anticoagulants to reduce thrombotic risk. Pfizer recently decided to voluntarily pause screening and dosing of additional patients in this trial to implement a proposed protocol amendment intended to provide guidelines for clinical management of elevated FVIII levels. Subsequent to the voluntary pause, we also recently learned that the FDA has put this trial on clinical hold. A clinical hold is an order issued by the FDA to the trial sponsor to suspend an ongoing clinical trial. We may not resume the AFFINE trial without FDA authorization. We and Pfizer plan to share the proposed protocol amendment with the FDA and other relevant review bodies and to respond to the clinical hold, after which we expect to provide an update on the trial. We anticipate pivotal data readouts for this trial to be based on full analyses of at least fifty patients. Over 50% of the patients have been enrolled in the Phase 3 AFFINE trial.
- We have enrolled the first patient in our Phase 1/2 STEADFAST clinical study of TX200 for the treatment of HLA-A2 mismatched kidney transplant rejection. We expect the first two patients in this study to be dosed in the middle of 2022 following kidney transplantation. We continue to open study sites and screen patients for this study.
- Biogen announced that the previously undisclosed neuromuscular pre-clinical target in our collaboration is type 1 myotonic dystrophy (DM1).
- We recently completed and brought online our in-house cell therapy manufacturing facility in our Brisbane, California headquarters and remain on track to complete our in-house cell therapy manufacturing facility in Valbonne, France by year-end.
- We appointed D. Mark McClung as Chief Operating Officer, who previously served as Chief Business Officer.

Summary of Preliminary Results from the Phase 1/2 STAAR study of Isaralgagene Civaparvovec

- STAAR is an ongoing Phase 1/2 multicenter, open-label, dose-ranging clinical study to assess the safety and tolerability of a single infusion of isaralgagene civaparvovec in Fabry disease patients ≥ 18 years of age.

- Patients are infused intravenously with a single dose and followed for 52 weeks. A separate long-term follow-up study will follow this study. At least two subjects will be dosed in each dose cohort, with a potential expansion in each cohort.
- Patients who are on stable enzyme replacement therapy, or ERT, may withdraw ERT after treatment in a controlled and monitored fashion at the discretion of the patient and the investigator.
- The dose escalation phase includes males with classic Fabry disease. The study will later be expanded to include females, as well as patients with Fabry-associated cardiac and renal disease.
- The study's primary endpoint is incidence of treatment-emergent adverse events. Additional safety evaluations include routine hematology, chemistry and liver tests; vital signs; electrocardiogram; echocardiogram; serial alpha-fetoprotein testing and magnetic resonance imaging, or MRI, of liver to monitor for potential formation of any liver mass. Secondary endpoints include change from baseline at specific time points over the one-year study period in alpha-galactosidase A, or α-Gal A, activity, globotriaosylceramide, or Gb3, and lyso-Gb3 levels in plasma; frequency of ERT infusion; changes in renal function, cardiac function and left ventricular mass, measured by cardiac MRI and rAAV2/6 vector clearance. Key exploratory endpoints include quality of life, Fabry symptoms and neuropathic pain scores; and immune response to AAV6 capsid and α-Gal A.
- As of the September 17, 2021 cutoff date, four patients, ranging in age from 22 to 48 years, were treated with isaralgagene civaparvovec. Two patients were treated in Cohort 1 at the dose of 0.5e13 vg/kg and two patients were dosed in Cohort 2 at the dose of 1e13 vg/kg.
- As of the September 17, 2021 cutoff date, isaralgagene civaparvovec was generally well tolerated. One patient each in Cohorts 1 and 2 exhibited treatment-related adverse events for a total of five events (hemoglobin decreased, platelet count increased, rash and pyrexia), which were all classified as mild (Grade 1). No treatment-related serious adverse events were reported. No liver enzyme elevations requiring steroid treatment were recorded.
- Results of plasma a-Gal A activity for the four patients as of the cutoff date are shown in the table below. All four patients exhibited above normal levels of α-Gal A activity by Week 12 following treatment through 14 weeks for the most recently treated patient and 52 weeks for the first patient treated. α-Gal A activity ranged from a 2-fold to 15-fold increase above mean normal activity levels as of the last date of measurement. In the one patient with elevated levels pre-treatment, plasma lyso-gb3 levels decreased by approximately 40% from baseline within ten weeks after dosing through Week 32. The other three patients, with low baseline levels of lyso-Gb3, maintained steady lyso-Gb3 levels through the cutoff date.
- Prophylactic steroids were not administered per the study protocol, and as of the cutoff date, no patients had exhibited liver enzyme elevations requiring steroid treatment.
- Several of the patients reported subjective improvements in quality-of-life measures as of the cutoff date. Three of the four patients exhibited improvements in anhidrosis (inability to sweat) or hypohydrosis (reduced ability to sweat), a primary and common Fabry disease symptom.
- One of the four patients was on ERT, and one was formerly on ERT but had not received ERT in the prior six months. Following treatment of these patients with isaralgagene civaparvovec, investigators withdrew one of these patients from ERT after the cutoff date and are planning to withdraw the other patient from ERT based on the stability of α-Gal A activity.

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



Biomarker results were evaluated from the 4 patients in the first 2 dose cohorts (0.5e13 vg/kg and 1.0e13 vg/kg) as of the cutoff date of September 17, 2021.

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

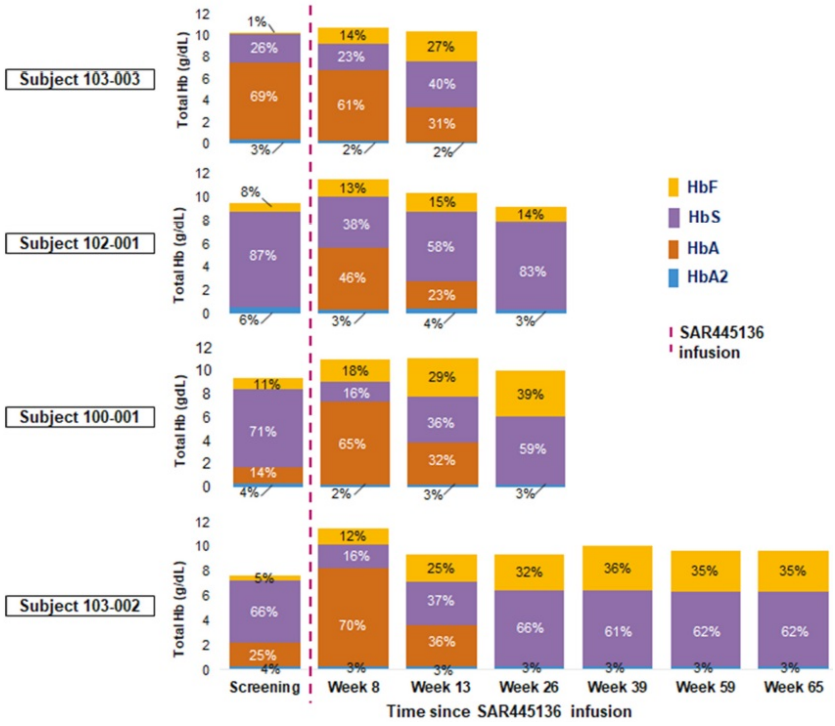
Summary of Preliminary Safety and Efficacy Results from the Phase 1/2 PRECIZN-1 Study of SAR415536

- PRECIZN-1 is an ongoing first-in-human, open label, single arm, multi-site study evaluating safety and tolerability of SAR445136 (n=8; aged 18-40 years), with severe SCD across six U.S. sites.
- Eligible subjects underwent mobilization and apheresis with plerixafor. Autologous hematopoietic stem and progenitor cells, or HSPCs, were transfected ex vivo with ZFN messenger ribonucleic acid to manufacture SAR445136. A single IV infusion was administered at least 72 hours after pre-conditioning with busulfan.
- Subjects were monitored for stem cell engraftment and hematopoietic recovery, adverse events, clinical and laboratory hemolysis markers, total hemoglobin and fetal hemoglobin, percentage of F cells and sickle-cell related events post-SAR445136 infusion.
- One subject failed to mobilize adequate cells. Of the seven subjects that underwent mobilization and apheresis through the June 25, 2021 cutoff date, five achieved successful target yields of HSPCs. One subject discontinued due to intercurrent cholangitis. Baseline patient characteristics of the four patients infused as of the cutoff date are in Table 1 below.
- All four patients improved clinically since SAR445136 infusion through the cutoff date. Total hemoglobin stabilized at 9-10 g/dL by week 26 post SAR445136 infusion along with improvements in the clinical markers of hemolysis in all four subjects. Percent fetal hemoglobin levels were 1–11% at screening, increasing to 15–29% by week 13 in all four subjects, to 14–39% by week 26 in the three subjects with at least 26 weeks of follow up, and persisting at 35% in one subject with 65 weeks of follow up (see Figure 1 below). Percent F cells increased to 49–94% in three subjects with at least 26 weeks of follow up, persisting at 90% in one subject with 65 weeks of follow up. The fourth subject had 87.5% F cells at 13 weeks of follow up.
- As of the June 25, 2021 cutoff date, SAR445136 was generally well tolerated with no infusion related reactions. The adverse events reported were consistent with plerixafor mobilization and busulfan myeloablation therapy. No adverse events or serious adverse events were reported as related to SAR445136.

Table 1. Baseline Characteristics and Clinical History

	Subject 103-002	Subject 100-001	Subject 102-001	Subject 103-003
Genotype	HbSB0	HbSS	HbSS	HbSS
Gender	Female	Female	Male	Male
Age at consent, years	35	20	18	26
Pain crises/2 years, n	10	22	0	6
Active chest syndrome events/2 years, n	2	0	4	0
Regular, chronic RBC transfusion therapy	None	Yes	Yes	Yes
Status as of the cutoff date	Week 65 completed No blood transfusions post engraftment	Week 26 completed No blood transfusions post engraftment	Week 26 completed No blood transfusions post engraftment	Week 13 completed No blood transfusions post engraftment

Figure 1. Total Hb and Hb Fractionation in all Patients After SAR445136 Infusion



HbF = Fetal hemoglobin, HbS = Sickle hemoglobin, HbA = Adult hemoglobin, HbA2 = Hemoglobin A2

Summary of Updated Results from the Phase 1/2 Alta Study of Giroctocogene Fitelparvovec

- Eleven male patients participated in the study overall, with five patients in the 3e13-vg/kg highest dose cohort. As of the May 19, 2021 cutoff date, one patient in the highest dose cohort had not completed two years (104 weeks) of follow up, resulting in patients having been followed for 95 to 195 weeks overall.
- As of the May 19, 2021 cutoff date, the most commonly reported treatment-related adverse events included elevated liver enzymes and infusion-related reactions: increased alanine aminotransferase, or ALT (5/11 (45.5%) overall; 3/5 (60.0%) in the highest dose cohort), increased aspartate aminotransferase, or AST (3/11 (27.3%) overall; 2/5 (40.0%) in the highest dose cohort), pyrexia (3/11 (27.3%) overall; 3/5 (60.0%) in the highest dose cohort), and tachycardia (2/11 (18.2%) overall; 2/5 (40.0%) in the highest dose cohort).
- Treatment-related serious adverse events were reported in one patient in the highest dose cohort who experienced hypotension and fever with onset approximately six hours after giroctocogene fitelparvovec infusion; the events fully resolved with treatment and did not delay post-infusion discharge the next day. ALT elevations requiring more than seven days of corticosteroid treatment were observed in four of the five patients in the highest dose cohort as of the May 19, 2021 cutoff date; elevations in ALT were managed with a tapering course of corticosteroids (median 58 days; range: 11–134 days), with maintenance of clinically meaningful levels of FVIII activity, as evidenced by a lack of bleeding events around the time of corticosteroid treatment and minimal bleeding events afterwards.
- As of the May 19, 2021 cutoff date, no patient in the study developed an inhibitor to FVIII, and there have been no thrombotic events and no hepatic masses detected.
- Patients in the highest dose cohort demonstrated FVIII activity as shown in the table below through week 104 for the four patients in this cohort with available data at week 104. In this cohort, the annualized bleeding rate, meaning the number of all bleeding episodes starting three weeks after study drug infusion divided by the observation period in years, was zero for the first year post-infusion and 0.9 throughout the total duration of follow up through week 104. In the highest dose cohort, two patients experienced a total of three bleeding events (two traumatic; one unknown) necessitating treatment with exogenous FVIII; one of these events occurred in a target joint. As of the May 19, 2021 cutoff date, no patients in this cohort have resumed prophylaxis.

Table. Factor VIII Activity Levels by 1-Stage and Chromogenic Assay for the Giroctocogene Fitelparvovec 3e13-vg/kg Cohort

Factor VIII Activity, % Normal, Mean (SD)	**Study Week**				
Parameter	**Week 12**	**Week 24**	**Week 52**	**Week 78**	**Week 104**
1-stage clotting	110.9 (36.4)	107.5 (79.2)	97.9 (135.5)	79.4 (73.3)	46.4 (37.0)
Chromogenic	71.7 (24.6)	68.9 (48.2)	62.2 (84.2)	56.9 (55.1)	30.9 (28.1)
Patients, n	5	5	4[a]	4[a]	4[b]

[(a)] There was one patient each that was unable to attend visits at Weeks 52 and Week 78.

[(b)] One patient had not yet reached Week 104 of follow-up at the time of the data cut.

Estimated Impacts of Evolving COVID-19 Pandemic

We have experienced and continue to experience impacts from the 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, United Kingdom and locations of our clinical studies and trials. We continue to conduct business operations pursuant to a modified operating plan that includes enhanced workplace safety protocols and modified working schedules. These protocols and modifications have slowed our productivity and disrupted our business to a moderate degree and are likely to continue doing so through the remainder of 2021 and possibly in 2022. For example, we have experienced periodic short-term disruptions to our onsite operations while addressing positive cases of COVID-19 by onsite workers, and our operations could experience longer term disruptions in the future in the event of a significant outbreak of COVID-19 among our onsite workers. Moreover, from time to time, we have been required to reorganize and prioritize our resources to mitigate moderate COVID-19

impacts arising from travel restrictions, density restrictions and supply constraints. If our programs encounter longer-term disruptions, it could impact our ability to support our biopharmaceutical partners as contemplated in our collaboration agreements and could result in adjustments to our timelines, although we do not believe that the short-term disruptions to date have resulted in any such impacts.

Additionally, our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec has experienced and continues to experience delays in its timeline due in part to COVID-19 impacts and the diversion of healthcare resources to fight the pandemic. For example, we estimate that the opening of the first clinical trial site in the United Kingdom for this study experienced a delay of approximately one year due to the significant prevalence of COVID-19 in the United Kingdom. Additionally, we have experienced delays in recruiting, enrolling and dosing patients for this study, due in part to the hesitation of patients to travel by plane to trial sites not within driving distance and to enter medical facilities during the pandemic and also due in part to trial sites prioritizing COVID-19 clinical care over research activities such as the STAAR study. The study has also experienced delays when certain patients have decided to take the COVID-19 vaccine 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 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. We estimate that these challenges set back our clinical study timeline by approximately three months. While we have now enrolled the first patient in this study and expect to dose the first two patients in this study in the middle of 2022, this timeline could be revised if COVID-19 impacts result in additional delays.

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

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

We do not anticipate any material negative impact on our financial condition in 2021 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 September 30, 2021, we had $519.0 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, United Kingdom and other countries, business closures or business disruptions and the effectiveness and timeliness of actions taken in the United States, France, 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 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.

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 and Sanofi will be recognized as revenue as the related costs are incurred and collection is reasonably assured.

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 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 and nine months ended September 30, 2021, 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 our 2020 Annual Report.

Results of Operations for the Three and Nine Months Ended September 30, 2021 and 2020

Revenues

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2021	2020	Change	%	2021	2020	Change	%
Revenues	$ 28,563	$ 57,763	$ (29,200)	(51%)	$ 82,715	$ 92,392	$ (9,677)	(10%)

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

The decrease of $29.2 million in revenues for the three months ended September 30, 2021, compared to the same period in 2020, was primarily attributed to a decrease of $39.3 million of milestone fees and recognition of upfront license fees related to our giroctocogene fitelparvovec and *C9ORF72* collaboration agreements with Pfizer driven by completion of activities under these collaborations in the fourth quarter of 2020, and a decrease of $2.3 million in revenue related to our collaboration agreement with Sanofi, primarily due to a change in estimate regarding project costs, resulting in a decrease of proportional cumulative performance and a corresponding adjustment to revenue under the agreement. These decreases were partially offset by increases of $11.5 million related to our collaboration agreement with Novartis, which became effective in July 2020, and an increase of $1.3 million in revenue related to our collaboration agreement with Biogen.

The decrease of $9.7 million in revenues for the nine months ended September 30, 2021, compared to the same period in 2020, was primarily attributed to a decrease of $46.7 million of milestone fees and recognition of upfront license fees related to our giroctocogene fitelparvovec and *C9ORF72* collaboration agreements with Pfizer driven by completion of activities under these collaborations in the fourth quarter of 2020, a decrease of $2.9 million in research revenue related to our collaboration agreement with Kite, a decrease of $2.5 million in revenue related to our collaboration agreement with Sanofi, primarily due to a change in estimate regarding project costs, resulting in a decrease of proportional cumulative performance and a corresponding adjustment to revenue under the agreement, and a decrease of $1.3 million in revenue related to sublicense fees under our agreement with Dow AgroSciences LLC. These decreases were partially offset by increases of $29.0 million and $14.4 million

due to the recognition of upfront license fees and research revenue under our collaboration agreements with Novartis and Biogen, respectively.

Operating expenses

	Three Months Ended September 30, (in thousands, except percentage values)				Nine Months Ended September 30, (in thousands, except percentage values)			
	2021	2020	Change	%	2021	2020	Change	%
Operating expenses:								
Research and development	$ 62,498	$ 45,287	$ 17,211	38%	$ 179,018	$ 128,289	$ 50,729	40%
General and administrative	14,501	16,177	(1,676)	(10%)	47,135	50,223	(3,088)	(6%)
Total operating expenses	$ 76,999	$ 61,464	$ 15,535	25%	$ 226,153	$ 178,512	$ 47,641	27%

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 $17.2 million in research and development expenses for the three months ended September 30, 2021, compared to the same period in 2020, was primarily driven by a $7.6 million increase in preclinical, clinical and lab supply expenses due to the timing of our trials and increased activity attributed to our Biogen and Novartis collaborations, a $4.6 million increase in manufacturing and overhead costs as we ramp up our internal manufacturing operations, and a $3.3 million increase in compensation expense as a result of increased headcount to support our programs, clinical trials and manufacturing operations. Stock-based compensation expense included in research and development expenses was $4.9 million and $3.6 million for the three months ended September 30, 2021 and 2020, respectively.

The increase of $50.7 million in research and development expenses for the nine months ended September 30, 2021, compared to the same period in 2020, was primarily driven by a $21.3 million increase in preclinical, clinical and lab supply expenses due to the timing of our trials and increased activity attributed to our new collaborations, a $16.2 million increase in compensation expense as a result of increased headcount to support our programs, clinical trials and manufacturing operations, and a $12.6 million increase in manufacturing and overhead costs as we ramp up our internal manufacturing operations. Stock-based compensation expense included in research and development expenses was $14.6 million and $10.0 million for the nine months ended September 30, 2021 and 2020, 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 2020 Annual Report, as supplemented by the risks and uncertainties described under “Risk Factors” in Part II, Item 1A of this Quarterly Report.

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 $1.7 million in general and administrative expenses for the three months ended September 30, 2021, compared to the same period in 2020, was primarily due to a $0.9 million decrease in legal and professional fees, and a decrease of $0.8 million due to reduced headcount and related compensation costs. Stock-based compensation expense included in general and administrative expenses was $2.9 million and $3.1 million for the three months ended September 30, 2021 and 2020, respectively.

The decrease of $3.1 million in general and administrative expenses for the nine months ended September 30, 2021, compared to the same period in 2020, was primarily due to a $2.6 million decrease in legal and professional fees, and a $0.3 million decrease in allocated facility overhead costs. Stock-based compensation expense included in general and administrative expenses was $10.2 million and $9.1 million for the nine months ended September 30, 2021 and 2020, 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.

Interest and other income, net

Interest and other income, net, decreased by $1.6 million for the three months ended September 30, 2021, compared to the same period in 2020, primarily due to a decrease of $1.4 million as a result of fluctuations in foreign exchange rates, and a decrease of $0.7 million in interest income due to lower portfolio yields as a result of decrease in interest rates, partially offset by an increase of $0.5 million in research tax credits earned by Sangamo France.

Interest and other income, net, decreased by $2.9 million for the nine months ended September 30, 2021, compared to the same period in 2020, primarily due to a decrease of $3.2 million in interest income due to lower portfolio yields as a result of decrease in interest rates, and a decrease of $1.7 million as a result of fluctuations in foreign exchange rates, partially offset by an increase of $2.0 million in research tax credits earned by Sangamo France.

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 September 30, 2021, we had cash, cash equivalents, and marketable securities totaling $519.0 million compared to $692.0 million as of December 31, 2020. Our most significant use of capital was for employee compensation and external research and development expenses, such as manufacturing, clinical trials and preclinical activity related to our therapeutic programs. Our cash and investment balances are held in a variety of interest-bearing instruments, including U.S. government-sponsored entity debt securities, commercial paper, 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, or Jefferies, providing for the sale of up to $150.0 million of our common stock from time to time in “at-the-market” offerings under an existing shelf registration statement. During the nine months ended September 30, 2021, we sold 2,007,932 shares of our common stock under the sales agreement for net proceeds of approximately $27.1 million.

While we expect our rate of cash usage to increase in the future, in particular to support our product development endeavors, we currently believe that our available cash, cash equivalents, and marketable securities and expected revenues from collaborations, strategic partnerships and research grants, will be adequate to fund our currently planned operations through at least the next 12 months from the date the Condensed Consolidated Financial Statements are issued. During this period of uncertainty and volatility related to the COVID-19 pandemic, we will continue to monitor our liquidity.

Cash Flows

Operating activities

Net cash used in operating activities was $180.5 million for the nine months ended September 30, 2021, primarily reflecting our net loss of $140.8 million, a decrease in deferred revenues of $62.3 million, an increase in prepaid expenses and other assets by $6.5 million, a decrease in accounts payable and other accrued liabilities by $4.7 million, a decrease in long term

portion of lease liabilities by $3.2 million, an increase in accounts receivable by $2.7 million, and a decrease in accrued compensation and employee benefits by $1.9 million. These decreases were partially offset by $40.1 million of non-cash expenses related to stock-based compensation, depreciation and amortization, amortization of premium (discount) on marketable securities, and amortization and other changes in operating lease right-of-use assets.

Net cash provided by operating activities was $174.2 million for the nine months ended September 30, 2020, primarily reflecting an increase in deferred revenues of $235.6 million due to cash received in connection with the Biogen collaboration agreement and the Novartis collaboration agreement, and $23.1 million of non-cash expenses related to stock-based compensation and depreciation, partially offset by our net loss of $80.4 million.

Investing activities

Net cash provided by investing activities was $195.6 million for the nine months ended September 30, 2021, mostly related to net maturities, sales and purchases of marketable securities, partially offset by $20.4 million purchases of property and equipment. Net cash used in investing activities for the nine months ended September 30, 2020 was $141.2 million, mostly related to net maturities and purchases of marketable securities, and purchases of property and equipment.

Financing activities

Net cash provided by financing activities was $30.7 million for the nine months ended September 30, 2021, mostly related to $27.9 million of proceeds from the at-the-market offering, net of offering expenses of $0.8 million. Net cash provided by financing activities for the nine months ended September 30, 2020 was $146.2 million, primarily reflecting the $145.4 million estimated fair value of the shares issued to Biogen offset by $2.9 million of issuance costs related to the issuance, and an increase of $4.2 million related to proceeds from the exercise of stock options and restricted stock units and purchases under the employee stock purchase plan.

Operating Capital and Capital Expenditure Requirements

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

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

- the initiation, progress, timing and completion of clinical trials for our product candidates and potential product candidates;
- the outcome, timing and cost of regulatory approvals;
- the success of our collaboration agreements;
- delays that may be caused by changing regulatory requirements;
- the number of product candidates that we pursue;
- the costs involved in filing and prosecuting patent applications and enforcing and defending patent claims;
- the timing and terms of future in-licensing and out-licensing transactions;
- the cost and timing of establishing sales, marketing, manufacturing and distribution capabilities;
- the cost of procuring clinical and commercial supplies of our product candidates;

- the extent to which we acquire or invest in businesses, products or technologies, including the costs associated with such acquisitions and investments; and
- the costs of potential disputes and litigation.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Contractual Obligations

Our future minimum contractual obligations as of December 31, 2020 were reported in the 2020 Annual Report. Other than as described below, during the nine months ended September 30, 2021, there have been no other material changes outside the ordinary course of our business from the contractual obligations previously disclosed in our 2020 Annual Report.

In January 2021, we also entered into a new lease to acquire approximately 5,800 square feet of research and office space in Valbonne, France that expires in January 2030. The contractual obligations during the lease term are approximately $0.8 million.

In October 2021, we entered into an agreement to extend the lease of our research and office space in Richmond, California. For further information on the lease, see Note 11 in the accompanying Notes to Condensed Consolidated Financial Statements.

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, 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 have a fixed interest rate and are carried at market value, which approximates cost. We do not use derivative financial instruments in our investment portfolio. We do not believe that a change in interest rates would have a material negative impact on the value of our investment portfolio. Our market risks at September 30, 2021 have not changed materially from those discussed in Item 7A of our 2020 Annual Report.

Volatile market conditions arising from the evolving COVID-19 pandemic may result in significant changes to exchange rates relative to the U.S. dollar and may affect our operating results as expressed in U.S. dollars.

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 September 30, 2021. Based on that evaluation, as of September 30, 2021, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were effective at the reasonable assurance level.

Inherent Limitations on Controls and Procedures

Our management, including the principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures and our internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well designed and operated, can only provide reasonable assurances that the objectives of the control system are met. The design of a control system reflects resource constraints; the benefits of controls must be considered relative to their costs. Because there are inherent limitations in all control systems, no evaluation of controls can provide absolute assurance

that all control issues and instances of fraud, if any, for our company have been or will be detected. As these inherent limitations are known features of the disclosure and financial reporting processes, it is possible to design into the processes safeguards to reduce, though not eliminate, these risks. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the control. The design of any system of controls is based in part upon certain assumptions about the likelihood of future events. While our disclosure controls and procedures and our internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives, there can be no assurance that any design will succeed in achieving its stated goals under all future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with the policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

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 September 30, 2021 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 2020 Annual Report. Our risk factors disclosed in Part I, Item 1A of the 2020 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 2020 Annual Report for a more complete understanding of the risks and uncertainties material to our business.

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

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

- delays in reaching a consensus with regulatory authorities on clinical trial design;
- delays in reaching agreement on acceptable terms with prospective clinical research organizations, or CROs, and clinical trial sites;
- delays in opening clinical trial sites or obtaining required institutional review board, or IRB, or independent ethics committee approval at each clinical trial site, such as the delays we have experienced opening the clinical trial sites in the United Kingdom for our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec, our wholly-owned gene therapy product candidate for the treatment of Fabry disease, due to the diversion of healthcare resources to address the evolving COVID-19 pandemic;
- delays or interruptions in recruiting, screening and enrolling suitable patients to participate in our clinical trials and dosing enrolled patients, such as (i) the delays we have recently experienced and continue to experience in recruiting, screening, enrolling and dosing patients for our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec due to challenges related to the COVID-19 pandemic and Brexit, patients reconsidering their participation in the study and the limited number of screening sites, among other reasons and (ii) suspension of screening and dosing of additional patients in the Phase 3 AFFINE trial of giroctocogene fitelparvovec, due to the voluntary pause in the trial implemented by Pfizer;
- the imposition of clinical holds by regulatory authorities on our clinical trials or those of our collaborators, such as the clinical hold imposed by the FDA on the Phase 3 AFFINE trial of giroctocogene fitelparvovec;
- delays in clinical trial activities due to the evolving COVID-19 global pandemic and the diversion of healthcare resources to fight the pandemic, such as the delays that have previously impacted clinical trial timelines for our Fabry and TX200 programs and delays associated with certain patients deciding to take COVID-19 vaccines prior to enrollment or dosing in the study;
- failure by us, any CROs we engage or any other third parties to adhere to clinical trial requirements;
- failure to perform in accordance with the Good Clinical Practice regulations of the FDA, or applicable regulatory guidelines in the EU and other countries;
- delays in the testing, validation, manufacturing and delivery of our product candidates to the clinical sites, including delays by third parties with whom we have contracted to perform certain of those functions, or as a result of manufacturing or formulation changes to our product candidates;
- delays in having patients complete participation in a trial or return for post-treatment follow-up;
- clinical trial sites or patients dropping out of a trial;
- selections of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- occurrences of serious adverse events or other safety concerns associated with product candidates that are viewed to outweigh their potential benefits, result in approval delays or other regulatory restrictions, or harm our reputation;
- occurrences of serious adverse events or other safety concerns in clinical trials of the same class of agents conducted by other sponsors;

- failures to demonstrate that product candidates are safe and effective for their proposed indication;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- unexpected costs and expenses and lack of sufficient funding to develop our product candidates; and
- losses of licenses to critical intellectual properties.

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

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

Even if a product candidate successfully obtains approval from the FDA and comparable foreign regulatory authorities, any approval might contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, or may be subject to burdensome post-approval study or risk management requirements. Also, any regulatory approval of our product candidates, once obtained, may be withdrawn. If we are unable to obtain and maintain regulatory approvals for our product candidates in one or more jurisdictions, or if any approval contains significant limitations, we would not be able to generate anticipated revenues and may struggle to become profitable, which would have an adverse effect on our business operations and financial condition.

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

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

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

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

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 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 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;
- 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 the COVID-19 pandemic and Brexit, patients reconsidering their participation in the study and the limited number of screening sites, among other reasons. 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 recently 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, we also recently learned that the FDA has put this trial on clinical hold. A clinical hold is an order issued by the FDA to the trial sponsor to suspend an ongoing clinical trial. As a result, the Phase 3 AFFINE trial may not resume without FDA authorization and then only under terms authorized by the FDA. While we and Pfizer plan to share the proposed protocol amendment with the FDA and other relevant review bodies and to respond to the FDA's clinical hold, we cannot assure you that the proposed protocol amendment will be accepted by the FDA and other relevant review bodies or implemented in a timely manner, or at all, or that the trial or dosing of new patients in the trial will resume promptly upon implementation of the proposed protocol amendment, or at all. We also cannot assure you when the FDA's clinical hold will be lifted, if at all, or that the FDA's clinical hold will be limited solely to the issue of elevated FVIII levels or that the FDA will not require additional changes to the trial protocol or dose level prior to any resumption of the trial. Continued delays or additional pauses to the Phase 3 AFFINE trial, or the inability to otherwise cause the FDA to lift the clinical hold on the Phase 3 AFFINE trial in a timely manner or on acceptable terms, or at all, could negatively impact the projected timelines for conducting and completing the trial and seeking regulatory approvals for giroctocogene fitelparvovec, which could in turn materially and adversely affect giroctocogene fitelparvovec's competitive position and commercial viability and therefore our business, prospects and market price of our common stock.

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

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

We have experienced and continue to experience impacts from the 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, United Kingdom and locations of our clinical studies and trials. We continue to conduct business operations pursuant to a modified operating plan that includes enhanced workplace safety protocols and modified working schedules. These protocols and modifications have slowed our productivity and disrupted our business to a moderate degree and are likely to continue doing so through the remainder of 2021 and possibly in 2022. For example, we have experienced periodic short-term disruptions to our onsite operations while addressing positive cases of COVID-19 by onsite workers, and our operations could experience longer term disruptions in the future in the event of a significant outbreak of COVID-19 among our onsite workers. Moreover, from time to time, we have been required to reorganize and prioritize our resources to mitigate moderate COVID-19 impacts arising from travel restrictions, density restrictions and supply constraints. If our programs encounter longer-term disruptions, it could impact our ability to support our biopharmaceutical partners as contemplated in our collaboration agreements and could result in adjustments to our timelines, although we do not believe that the short-term disruptions to date have resulted in any such impacts.

Additionally, our Phase 1/2 STAAR clinical study evaluating isaralgagene civaparvovec has experienced and continues to experience delays in its timeline due in part to COVID-19 impacts and the diversion of healthcare resources to fight the pandemic. For example, we estimate that the opening of the first clinical trial site in the United Kingdom for this study experienced a delay of approximately one year due to the significant prevalence of COVID-19 in the United Kingdom. Additionally, we have experienced delays in recruiting, enrolling and dosing patients for this study, due in part to the hesitation of patients to travel by plane to trial sites not within driving distance and to enter medical facilities during the pandemic and also due in part to trial sites prioritizing COVID-19 clinical care over research activities such as the STAAR study. The study has also experienced delays when certain patients have decided to take the COVID-19 vaccine prior to enrollment or dosing in the study. Moreover, we have experienced some short-term delays in sourcing the necessary raw materials to manufacture supplies for the STAAR study and transporting clinical trial materials due to COVID-19 impacts. We estimate that these challenges have set back our STAAR study timelines 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. We estimate that these challenges set back our clinical study timeline by approximately three months. While we have now enrolled the first patient in this study and expect to dose the first two patients in this study in the middle of 2022, this timeline could be revised if COVID-19 impacts result in additional delays.

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

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

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

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

In addition, to the extent the evolving COVID-19 pandemic continues to adversely affect our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described in this “Risk Factors” section and in the risk factors disclosed in Part I, Item 1A of the 2020 Annual Report.

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

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

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

We are dependent on certain key members of our executive team and certain of our scientific, clinical development and manufacturing personnel, the loss of whose services may impede the progress of our research, development, manufacturing and regulatory efforts. For example, in 2021, our former Chief Financial Officer and our former General Counsel, as well as several other senior finance and legal employees, resigned from Sangamo to pursue opportunities at various other

biotechnology companies. We could experience resignations of other executives and employees in the future given the intensity of the competition for talent in the biotechnology industry, particularly in the San Francisco Bay Area. Additional resignations could result in more significant disruptions and threats to our growth and stability. While we have entered into employment agreements with each of our executive officers, any of them could leave our employment at any time, as all of our employees are "at will" employees. We do not have "key person" insurance on any of our employees.

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

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

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

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

Effective November 1, 2021, the Company appointed D. Mark McClung as the Company's Executive Vice President and Chief Operating Officer. Mr. McClung previously served as the Company's Executive Vice President and Chief Business Officer since May 2020.

Mr. McClung, age 58, is responsible for European business operations, corporate and business development, product strategy and planning, alliance management, patient advocacy, government relations, investor relations, corporate communications, facilities and information technology. From February 2019 until joining Sangamo, Mr. McClung consulted to the biopharmaceutical industry, including Sangamo. Prior thereto, from 2015 through February 2019, Mr. McClung was Vice President and General Manager of Global Oncology Commercial at Amgen Inc., a public biopharmaceutical company, which he joined following Amgen's acquisition of Onyx Pharmaceuticals Inc., where he had served as Senior Vice President & Chief Commercial Officer. For two decades prior, Mr. McClung held roles of increasing responsibility at GlaxoSmithKline in marketing and sales, commercial operations, clinical development and product strategy, and general management in Canada, the United States, and Europe, including as Vice President and Head of Global Commercial for GSK Oncology from 2009 to 2013. Mr. McClung received his bachelor's degree in Human Kinetics and Biomedical Sciences from the University of Guelph in Ontario, Canada and completed graduate coursework at York University in Toronto and Wharton Business School at the University of Pennsylvania.

The Compensation Committee of the Company's Board of Directors approved a new compensation package for Mr. McClung, consisting of an annual base salary of $470,000, commencing November 1, 2021, a target cash bonus of 40% of his annual base salary under the Company's Amended and Restated Incentive Compensation Plan (the "Bonus Plan"), and Mr. McClung's continued participation in the Company's Amended and Restated Executive Severance Plan (the "Severance Plan") at the level set forth in such plan for Executive Vice Presidents. Mr. McClung will continue to be eligible for future equity awards on an annual basis under the Company's Amended and Restated 2018 Equity Incentive Plan (the "EIP"). Each of the Bonus Plan, the Severance Plan and the EIP are described under the heading "Executive Compensation" in the Company's definitive proxy statement on Schedule 14A, filed with the Securities and Exchange Commission on April 2, 2021.

ITEM 6. EXHIBITS

bit 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).
10.1#+	Letter Agreement between the Company and Scott Willoughby dated as of August 2, 2021.
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 September 30, 2021 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: November 4, 2021

SANGAMO THERAPEUTICS, INC.

/s/ ALEXANDER D. MACRAE

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

/s/ PRATHYUSHA DURAIBABU

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

Exhibit 10.1

EXECUTIVE EMPLOYMENT AGREEMENT

Employment Agreement ("Agreement") made effective as of the 2nd day of August 2021 by and between Sangamo Therapeutics, Inc., a Delaware corporation (the "Company"), and Scott B. Willoughby ("Executive") (collectively, the "Parties").

R E C I T A L S

WHEREAS, the Company desires to promote Mr. Willoughby to Executive, and Executive desires to be promoted by the Company, on the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual promises set forth herein, the Parties agree follows:

1. **Employment**.

The Company hereby agrees to employ Executive and Executive hereby agrees to accept such employment, on the terms and conditions set forth in this Agreement, with a start date of August 2, 2021 (the "Effective Date"). To the extent of any inconsistency with Mr. Willoughby's prior employment agreements with the Company, this Agreement shall supersede such prior agreements.

2. **At-Will Employment**.

Executive shall be employed on an at-will basis. Either Executive or the Company may terminate employment at any time, with or without cause, and with or without advance notice.

3. **Position, Duties and Obligations**.

(a) Executive shall be appointed as the Senior Vice President, General Counsel & Corporate Secretary and shall serve in such position, and in such other positions as the Board and the Company may from time to time reasonably determine, subject at all times to the direction, supervision and authority of the Chief Executive Officer (collectively, your "Duties").

(b) During Executive's employment, Executive shall perform Executive's Duties faithfully and to the best of Executive's ability, and shall devote substantially all of Executive's business time, attention, knowledge, skills and interests to the business of the Company (and its affiliates or subsidiaries).

(c) During Executive's employment, Executive shall not, whether directly or indirectly, render any services of a commercial or professional nature to any other person or organization, whether for compensation or otherwise, without the prior written consent of the Chief Executive Officer.

(d) The foregoing in this Section 3 shall not preclude Executive from serving on any corporate, civic or charitable boards or committees on which Executive is serving as of the Effective Date and discloses to the Chief Executive Officer prior to the Effective Date or on which Executive commences service following such date with the Chief Executive Officer's prior written approval, so long as such activities do not interfere with the performance of Executive's responsibilities hereunder.

(e) Executive's principal place of business will be located in Brisbane, California.

(f) Executive represents that Executive may enter into this Agreement, and as of the Effective Date, 1) continue employment with the Company under the terms of this Agreement, and 2) perform the Duties and responsibilities contemplated by this Agreement without violating any other agreement or agreements with other parties including but not limited to and any prior employers.

4. **Compensation and Benefits**.

(a) **Base Compensation.** The Company shall pay to Executive an annual base salary of $400,000 Dollars, prorated for any partial employment period and payable in equal monthly installments in accordance with the Company's payroll schedule. The Compensation Committee of the Board shall annually review the then-current level of Executive's base salary (for increase only) to determine the amount, if any, of change to such salary.

(b) **Annual Performance Bonus.** Executive is eligible to earn an annual performance bonus commencing with the 2021 calendar year performance period. The target amount of Executive's annual cash bonus shall be 35% percent of Executive's annual base salary. Your new bonus target will be pro-rated accordingly for the remainder of 2021. The Board shall have sole discretion to determine whether any annual cash bonus will be paid based upon achievement of both corporate objectives and Executive's personal objectives, and the reasonable discretion to determine that actual amount of any such bonus. Executive must be an employee in good standing on the date that the Board makes such determination in order to earn any such bonus, which determination shall be made by the Board no later than March 31 of the calendar year first following the performance period calendar year. The actual bonus may be more or less than the target amount based upon the Company's achievement over the year. Any bonus to which Executive becomes entitled for a particular calendar year shall be paid in accordance with the terms of the applicable bonus plan, but in no event later than the second payroll period following such Board determination. The Compensation Committee of the Board shall annually review Executive's then target amount for the annual cash bonus (for increase only) to determine the amount, if any, of change to such target amount.

(c) **Executive Severance Plan.** Executive shall be deemed an Eligible Employee and an Executive Officer and entitled to receive certain severance benefits under the Sangamo Therapeutics, Inc. Executive Severance Plan dated February 6, 2019 (the "Severance Plan") subject to the terms and conditions of the Severance Plan. A copy of the Severance Plan has been provided to Executive concurrently with this Agreement. Notwithstanding the

foregoing, in the event that the Company withdraws this offer after it is signed by Executive or terminates this Agreement prior to the Effective Date for any reason other than Executive's failure to successfully pass the requirements for a background check clearance, satisfactory reference check, and satisfactory proof of Executive's legal right to work in the United States required under Section 8(a) herein, then Executive shall be entitled to severance under the Severance Plan as though his employment was terminated by the Company other than for Cause to the same extent as he would otherwise be entitled had such termination occurred after the Effective Date.

(d) **Benefits.** Executive will be entitled to the employee benefits generally provided to other executive officers of the Company pursuant to the terms of the applicable benefit plans. Executive will not be subject to a formal paid time off program. Executive is free to take paid time off from work for vacation, medical appointments, and other short-term absences due to illnesses or other personal reasons. If Executive desires to take time off for a duration longer than two (2) weeks manager approval is required. Unlimited paid time off is available from the first day of employment.

(e) **Equity**. Effective on the second Friday of the month, or if not a trading day, the trading day prior (the "Grant Date") in which the Executive commences her new role, as long as the first day of employment with Sangamo occurs between the prior Grant Date and the day preceding the Grant Date, the Compensation Committee of the Board shall grant you non-statutory stock options to purchase up to 15,000 shares of the Company's Common Stock subject to the terms and conditions of the Company's 2018 Equity Incentive Plan (the "Plan"),with an exercise price per share equal to the fair market value of the Company's Common Stock on the Grant Date (the "Option"). The Option will be evidenced by the standard stock option agreement under the Plan and will be subject to the terms and conditions of that agreement and the Plan:

- $1/4^{th}$ (one-fourth) of the Option shares will vest on the first-year anniversary of the Grant Date, and
- $1/48^{th}$ (one forty-eighth) of the Option shares will vest in equal monthly installments for thirty-six (36) months thereafter,

provided Executive remains a full-time employee through each such vesting date. Vesting of the Option and any subsequent equity grants will cease upon termination of Executive's service by either party for any reason.

(f) Also, subject to approval by the Compensation Committee of the Board, we intend to grant you 7,500 restricted stock units ("Restricted Stock Units") under the Plan. Each Restricted Stock Unit represents the right to receive one share of the Company's common stock upon the specified issuance date following vesting. Your Restricted Stock Units will vest in a series of three (3) successive equal annual installments upon your completion of each year of service to the Company measured from the Vesting Commencement Date. The issuance of the underlying shares of common stock in settlement of vested Restricted Stock Units will be subject to the Company's collection of all applicable withholding taxes. The Restricted Stock Units will

be evidenced by the Plan's form of Restricted Stock Unit Issuance Agreement and will be subject to its terms and conditions and the Plan.

(g) **Clawback**. Notwithstanding anything to the contrary in this Agreement, all compensation paid to Executive by the Company (whether payable pursuant to this Agreement or otherwise) will be subject to reduction, recovery and/or recoupment to the extent required by any present or future law, government regulation or stock exchange listing requirement (or any policy adopted by the Company which ensures compliance with the requirements of any such law, government regulation or stock exchange listing requirement).

(h) **Resignation from Positions**. Notwithstanding any other provision of this Agreement to the contrary, upon any termination of employment (whether voluntary or involuntary), Executive, upon written request from the Board, shall immediately resign from any positions Executive has with the Company (or any subsidiary), whether as an executive, officer, employee, consultant, director, trustee, fiduciary or otherwise.

5. **Confidentiality**. Executive agrees to continue to abide by the terms and conditions of the Employee Confidential Information and Invention Assignment Agreement between Executive and the Company, a copy of which has previously been executed and is attached as Exhibit A. Executive further agrees that at all times both during Executive's employment by the Company and after Executive's employment ends, Executive will keep in confidence and trust, and will not use or disclose, except as directed by the Company, any confidential or proprietary information of the Company.

6. **Tax Withholdings**. Any and all cash compensation and other benefits (including without limitation, base salary, annual bonus and sign-on bonus) paid to Executive under this Agreement shall be subject to all applicable tax withholding requirements, and the Company shall make such other deductions as may be required and/or allowed by applicable law and/or as authorized in writing by Executive.

7. **Arbitration**. Any dispute, controversy, or claim, whether contractual or non-contractual, between Executive and the Company shall be resolved by binding arbitration before the Judicial Arbitration and Mediation Service (the "JAMS"), in accordance with the JAMS Employment Arbitration Rules and Procedures, available at www.jamsadr.com. Executive and the Company each agree that before proceeding to arbitration, they will mediate disputes before the JAMS by a mediator approved by the JAMS. If mediation fails to resolve the matter, any subsequent arbitration shall be conducted by an arbitrator approved by the JAMS and mutually acceptable to Executive and the Company. All disputes, controversies, and claims shall be conducted by a single arbitrator, who shall: (i) allow discovery authorized by California Code of Civil Procedure Section 1282, et seq., or any other discovery required by applicable law; and (ii) issue a written award that sets forth the essential findings of fact and conclusions of law on which the award is based. The arbitrator shall have the authority to award any relief authorized by law in connection with the asserted claims or disputes. Judgment upon the arbitrator's award may be entered in any court having jurisdiction thereof. If Executive and the Company are unable to agree on the mediator or the arbitrator, then the JAMS shall select the mediator/arbitrator. The resolution of the dispute by the arbitrator shall be final, binding, non-appealable, and fully enforceable by a

court of competent jurisdiction under the Federal Arbitration Act. The arbitration award shall be in writing and shall include a statement of the reasons for the award. The arbitration shall be held in San Francisco, California. The Company shall pay all JAMS, mediation, and arbitrator's fees and costs, irrespective of who raised the claim and the outcome of arbitration.

8. **Miscellaneous**.

(a) **Conditions to Agreement**. This Agreement is contingent upon a background check clearance, satisfactory reference check, and satisfactory proof of Executive's legal right to work in the United States. Executive agrees to provide any documentation or information at the Company's request to facilitate these processes.

(b) **Governing Law**. This Agreement shall be interpreted, construed, governed and enforced according to the laws of the State of California.

(c) **Attorneys' Fees**. In the event of any controversy, claim or dispute between the parties, arising out of or relating to this Agreement or the breach hereof, or the interpretation hereof, each party shall bear its own legal fees and expenses. Notwithstanding the foregoing, in the event of a finding by any court having jurisdiction over such matter that any party initiating an action under this Agreement failed to have a reasonable prospect of prevailing on its claim, the arbitrator shall have discretion to award the prevailing party attorneys' fees and costs incurred by it with respect to such claim or action. The "prevailing party" means the party determined by the arbitrator to have most nearly prevailed, even if such party did not prevail in all matters, not necessarily the one in whose favor a judgment is rendered.

(d) **Amendments**. No amendment or modification of the terms or conditions of this Agreement shall be valid unless in writing and signed by the Parties hereto.

(e) **Severability**. If any provision of this Agreement as applied to any party or to any circumstance should be adjudged by a court of competent jurisdiction (or determined by the arbitrator) to be void or unenforceable for any reason, the invalidity of that provision shall in no way affect (to the maximum extent permissible by law) the application of such provision under circumstances different from those adjudicated by the court or determined by the arbitrator, the application of any other provision of this Agreement, or the enforceability or invalidity of this Agreement as a whole. Should any provision of this Agreement become or be deemed invalid, illegal or unenforceable in any jurisdiction by reason of the scope, extent or duration of its coverage, then such provision shall be deemed amended to the extent necessary to conform to applicable law so as to be valid and enforceable or, if such provision cannot be so amended without materially altering the intention of the parties, then such provision will be stricken, and the remainder of this Agreement shall continue in full force and effect.

(f) **Successors and Assigns**. The rights and obligations of the Company under this Agreement shall inure to the benefit of and shall be binding upon the successors and assigns of the Company. Executive shall not be entitled to assign any of Executive's rights or obligations under this Agreement.

(g) **Entire Agreement**. This Agreement, along with any other agreements set forth herein, including without limitation, the Proprietary Information and Inventions Agreement, constitutes the entire agreement between the parties with respect to the employment of Executive.

SANGAMO THERAPEUTICS, INC.

By:
Name: Whitney B. Jones

Title: Senior Vice President, Chief People Officer

SCOTT B. WILLOUGHBY

EXHIBIT A

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: November 4, 2021

/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: November 4, 2021

/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 September 30, 2021, to which this Certification is attached as Exhibit 32.1 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

/s/ ALEXANDER D. MACRAE

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

Date: November 4, 2021

/s/ PRATHYUSHA DURAIBABU

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

Date: November 4, 2021

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.