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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2020

OR

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

For the transition period from _____ to _____

Commission file number 000-30171

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

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

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

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

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

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

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

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

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

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

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

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

As of May 5, 2020, 140,883,058 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. (formerly TxCell S.A.) and Sangamo Therapeutics UK Ltd.

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

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some statements contained in this report are forward-looking with respect to our operations, research, development and commercialization activities, clinical trials, operating results and financial condition. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

- our strategy;
- anticipated product candidate development and potential commercialization of any resulting products;
- the initiation, scope, rate of progress, enrollment, anticipated results and timing of our preclinical studies and clinical trials and those of our collaborators or strategic partners;
- the therapeutic and commercial potential of, technologies used by us in our product candidates, including our zinc finger protein, or ZFP, technology platform, zinc finger nucleases, or ZFNs, and ZFP transcription factors, or ZFP-TFs;
- the expected benefits of the acquisition of Sangamo Therapeutics France S.A.S., or Sangamo France (formerly known as TxCell S.A.);
- 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 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;
- the ability of Sangamo and our collaborators or strategic partners to obtain and maintain regulatory approvals for product candidates;
- 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;
- our estimates regarding the sufficiency of our cash resources and our expenses, capital requirements and need for additional financing, and our ability to obtain additional financing;
- our ability to manage the growth of our business;
- our projected operating and financial performance;
- our operational and legal risks; and
- our plans, objectives, expectations and intentions and any other statements that are not historical facts.

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

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

SANGAMO THERAPEUTICS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited; in thousands)

	March 31, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 85,749	$ 80,428
Marketable securities	272,381	282,046
Interest receivable	926	682
Accounts receivable	6,970	36,909
Prepaid expenses and other current assets	4,922	5,408
Total current assets	370,948	405,473
Marketable securities, non-current	5,000	21,832
Property and equipment, net	31,294	29,926
Intangible assets	52,137	53,156
Goodwill	38,550	39,273
Operating lease right-of-use assets	75,377	77,289
Other non-current assets	9,470	9,067
Non-current restricted cash	1,500	1,500
Total assets	$ 584,276	$ 637,516
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$ 16,923	$ 17,556
Accrued compensation and employee benefits	8,592	13,605
Deferred revenues	36,550	38,711
Total current liabilities	62,065	69,872
Deferred revenues, non-current	75,274	81,432
Long-term portion of lease liabilities	40,198	41,192
Deferred income tax	6,444	6,570
Other non-current liabilities	5,880	5,711
Total liabilities	189,861	204,777
Commitments and contingencies		
Stockholders' equity:		
Preferred stock	—	—
Common stock	1,163	1,160
Additional paid-in capital	1,096,854	1,090,828
Accumulated deficit	(699,898)	(656,985)
Accumulated other comprehensive loss	(3,828)	(2,449)
Total Sangamo Therapeutics, Inc. stockholders' equity	394,291	432,554
Non-controlling interest	124	185
Total stockholders' equity	394,415	432,739
Total liabilities and stockholders' equity	$ 584,276	$ 637,516

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended March 31,	
	2020	2019
Revenues	$ 13,076	$ 8,071
Operating expenses:		
Research and development	41,479	34,850
General and administrative	16,119	17,118
Total operating expenses	57,598	51,968
Loss from operations	(44,522)	(43,897)
Interest and other income, net	1,548	1,694
Net loss	(42,974)	(42,203)
Net loss attributable to non-controlling interest	(61)	(53)
Net loss to Sangamo Therapeutics, Inc. stockholders	$ (42,913)	$ (42,150)
Basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	$ (0.37)	$ (0.41)
Shares used in computing basic and diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders	116,060	102,270

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended March 31,	
	2020	2019
Net loss	$ (42,974)	$ (42,203)
Foreign currency translation adjustment	(1,633)	(1,504)
Change in unrealized gain on available-for-sale securities	254	253
Comprehensive loss	(44,353)	(43,454)
Comprehensive loss attributable to non-controlling interest	(61)	(53)
Comprehensive loss attributable to Sangamo Therapeutics, Inc.	$ (44,292)	$ (43,401)

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three months ended March 31, 2020						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balances at December 31, 2019	115,972,708	$ 1,160	$ 1,090,828	$ (656,985)	$ (2,449)	$ 185	$ 432,739
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	305,845	3	406	—	—	—	409
Stock-based compensation	—	—	5,620	—	—	—	5,620
Foreign currency translation adjustment	—	—	—	—	(1,633)	—	(1,633)
Net unrealized gain on marketable securities	—	—	—	—	254	—	254
Net loss	—	—	—	(42,913)	—	(61)	(42,974)
Balances at March 31, 2020	116,278,553	$ 1,163	$ 1,096,854	$ (699,898)	$ (3,828)	$ 124	$ 394,415

	Three months ended March 31, 2019						
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Non-Controlling Interest	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2018	102,187,471	$ 1,022	$ 929,632	$ (562,696)	$ (1,440)	$ 739	$ 367,257
Cumulative-effect adjustment of ASC Topic 842 on January 1, 2019	—	—	—	897	—	—	897
Issuance of common stock upon exercise of stock options and in connection with restricted stock units, net of tax	141,281	1	215	—	—	—	216
Issuance costs related to public offering	—	—	(258)	—	—	—	(258)
Stock-based compensation	—	—	4,523	—	—	—	4,523
Foreign currency translation adjustment	—	—	—	—	(1,504)	—	(1,504)
Net unrealized gain on marketable securities	—	—	—	—	253	—	253
Net loss	—	—	—	(42,150)	—	(53)	(42,203)
Balances at March 31, 2019	102,328,752	$ 1,023	$ 934,112	$ (603,949)	$ (2,691)	$ 686	$ 329,181

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

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

	Three Months Ended March 31,	
	2020	2019
Operating Activities:		
Net loss	$ (42,974)	$ (42,203)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1,311	715
Amortization of discount on marketable securities	(744)	(1,238)
Amortization and other changes in right-of-use assets	1,886	782
Loss (gain) on free shares	73	(545)
Stock-based compensation	5,620	4,523
Net loss on lease termination	—	218
Other	—	44
Net changes in operating assets and liabilities:		
Interest receivable	(244)	(219)
Accounts receivable	29,939	(2,638)
Prepaid expenses and other assets	(100)	1,152
Prepaid rent	—	(12,101)
Accounts payable and accrued liabilities	345	10,183
Accrued compensation and employee benefits	(4,965)	(3,306)
Deferred revenues	(8,319)	(370)
Long-term portion of lease liabilities	(887)	(66)
Other non-current liabilities	169	(50)
Net cash used in operating activities	(18,890)	(45,119)
Investing Activities:		
Purchases of marketable securities	(43,580)	(87,075)
Maturities of marketable securities	71,075	78,253
Purchases of property and equipment	(3,775)	(5,977)
Net cash provided by (used in) investing activities	23,720	(14,799)
Financing Activities:		
Taxes paid related to net share settlement of equity awards	(411)	(265)
Proceeds from exercise of stock options and restricted stock units	820	481
Net cash provided by financing activities	409	216
Effects of changes in foreign exchange rates	82	252
Net increase (decrease) in cash, cash equivalents, and restricted cash	5,321	(59,450)
Cash, cash equivalents, and restricted cash, beginning of period	81,928	143,918
Cash, cash equivalents, and restricted cash, end of period	$ 87,249	$ 84,468
Supplemental disclosure of non-cash activities:		
Property and equipment included in unpaid liabilities	$ 1,080	$ 1,834
Right-of-use assets obtained in exchange for lease obligations	$ —	$ 6,676

See accompanying Notes to Condensed Consolidated Financial Statements.

SANGAMO THERAPEUTICS, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
March 31, 2020
(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 biotechnology company focused on translating ground-breaking science into genomic medicines with the potential to transform patients' lives using the Company's platform technologies in gene therapy, *ex vivo* gene-edited cell therapy, *in vivo* genome editing and *in vivo* genome regulation.

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 have been included. Operating results for the three months ended March 31, 2020 are not necessarily indicative of the results that may be expected for the year ending December 31, 2020. The Condensed Consolidated Balance Sheet data at December 31, 2019 was derived from the audited Consolidated Financial Statements included in Sangamo's Annual Report on Form 10-K for the year ended December 31, 2019 (the "2019 Annual Report") as filed with the SEC on February 28, 2020.

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 financial statements and footnotes for the year ended December 31, 2019, included in the 2019 Annual Report.

Going Concern

Sangamo is currently working on a number of long-term development projects that will involve experimental technology. 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, collaboration funds, research grants and from the issuance of equity or debt securities. Sangamo believes that its available cash, cash equivalents and investments as of March 31, 2020, and expected revenues from collaborations, strategic partnerships and research grants, will be adequate to fund its operations at least through the next twelve months from the date the financial statements are issued. Sangamo may require additional financial resources to complete the development and commercialization of its products including zinc finger protein ("ZFP") therapeutic products. Additional capital may not be available on terms acceptable to the Company, or 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 ZFP 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 financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and the accompanying notes. On an ongoing basis, management evaluates its estimates including critical accounting policies or estimates related to revenue recognition, clinical trial accruals, 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 March 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the collaboration agreement with Sanofi Genzyme ("Sanofi") as 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. In March 2020, the Company also 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 ("IND") transfer of the SB-525 product candidate to Pfizer, both of which resulted in an increase in the measure of proportional cumulative performance.

These adjustments increased revenue by $0.1 million, decreased net loss by $0.1 million and no impact on the Company's basic net loss per share for the three months ended March 31, 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 it fulfills its obligations under its agreements, the Company performs the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation.

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

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

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

	Three Months Ended March 31,	
	2020	2019
Kite Pharma, Inc.	55 %	75 %
Pfizer	27 %	N/A
Sanofi	4 %	18 %

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. To date, the Company has not experienced any losses related to these receivables.

Funds received from third parties under contract or funds received from grant arrangements are generally recorded as revenue if the Company is deemed to be the principal participant in the arrangements because the activities under the contracts or grants are part of the Company's development programs. Contract funds are not refundable and are recognized when the related qualified research and development costs are incurred and there is reasonable assurance that the funds will be received. Funds received in advance 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 March 31, 2020, no impairment of goodwill or indefinite-lived intangible assets has been 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 March 31, 2020, no impairment of any long-lived assets has been identified.

Fair Value Measurements

The carrying amounts for financial instruments consisting of cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximate fair value due to their short maturities. Marketable securities are stated at their estimated fair values. The free shares asset/liability is measured using a binomial-lattice pricing model and is reviewed each reporting period and adjusted, as needed and is expected 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, deposits in demand money market accounts and commercial paper. Restricted cash consists of a letter of credit for $1.5 million as 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):

	March 31, 2020	December 31, 2019	March 31, 2019	December 31, 2018
Cash and cash equivalents	$ 85,749	$ 80,428	$ 80,968	$ 140,418
Non-current restricted cash	1,500	1,500	3,500	3,500
Cash, cash equivalents and restricted cash as reported within the accompanying Condensed Consolidated Statements of Cash Flows	$ 87,249	$ 81,928	$ 84,468	$ 143,918

Marketable Securities

Sangamo classifies its marketable securities as available-for-sale and records its investments at estimated fair value based on quoted market prices or observable market inputs of almost identical assets, with the unrealized holding gains and losses included in Accumulated Other Comprehensive Income (Loss) (“AOCI") within stockholders' equity.

The Company’s investments are subject to a periodic impairment review. The Company recognizes an impairment charge, if material, when a decline in the fair value of its investments below the cost basis is judged to be other-than-temporary. If the estimated fair value of a security is below its carrying value, the Company evaluates whether it is more likely than not that it will sell the security before its anticipated recovery in market value and whether evidence indicating that the cost of the investment is recoverable within a reasonable period of time outweighs evidence to the contrary. The Company also evaluates whether or not it intends to sell the investment. If the impairment is considered to be other-than-temporary, the security is written down to its estimated fair value. In addition, the Company considers whether credit losses exist for any securities. A credit loss exists if the present value of cash flows expected to be collected is less than the amortized cost basis of the security. Other-than-temporary declines in estimated fair value and credit losses are included in other income (expense) within the accompanying Condensed Consolidated Statements of Operations. The Company considers various factors in determining whether to recognize an impairment charge, including the length of time and extent to which the estimated 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 available-for-sale securities are included in interest and other income, net, which are determined using the specific identification method.

Concentrations of Risk

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 guidelines 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 holding its cash, cash equivalents and investments and issuers of 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 IND application 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, 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 to not 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 to not 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.

Recent Adopted Accounting Pronouncements

Collaborative Arrangements

In November 2018, the FASB issued Accounting Standards Update ("ASU") 2018-18, *Collaborative Arrangements (ASC Topic 808): Clarifying the Interaction between Topic 808 and Topic 606* ("ASC Topic 808"), which clarifies that certain transactions between participants in a collaborative arrangement should be accounted for under ASC Topic 606 when the counterparty is a customer. In addition, ASC Topic 808 precludes an entity from presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer for that transaction. ASU 2018-18 is effective for all interim and annual reporting periods beginning after December 15, 2019. On January 1, 2020, the Company adopted ASU 2018-18. The adoption of ASU 2018-18 did not have a material impact on Company's Condensed Consolidated Financial Statements.

Goodwill Impairment Testing

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test of Goodwill Impairment* ("ASU 2017-04"). The new guidance simplifies the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. ASU 2017-04 requires goodwill impairment to be measured as the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of its goodwill. ASU 2017-04 requires prospective application and is effective for annual periods beginning after December 15, 2019. ASU 2017-04 will require the Company to amend its methodology for determining any goodwill impairment beginning in 2020. On January 1, 2020, the Company adopted ASU 2017-04. The adoption of ASU 2017-04 did not have a material impact on Company's Condensed Consolidated Financial Statements.

Credit Losses

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326)* ("ASU 2016-13"). ASU 2016-13 implements an impairment model, known as the current expected credit loss model that is based on expected losses rather than incurred losses. Under the new guidance, an entity will recognize as an allowance its estimate of expected credit losses. ASU 2016-13 is effective for all interim and annual reporting periods beginning after December 15, 2019 and must be adopted using a modified retrospective approach, with certain exceptions. Early adoption is permitted. On January 1, 2020, the Company adopted ASU 2016-13 by using a modified retrospective approach. The adoption of ASU 2016-13 did not have a material impact on Company's Condensed Consolidated Financial Statements.

Income Taxes

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes – Simplifying the Accounting for Income Taxes* ("ASU 2019-12"). The guidance removes exceptions to the general principles in *Income Taxes (Topic 740)* for allocating tax expense between financial statement components, accounting basis differences stemming from an ownership change in foreign investments and interim period income tax accounting for year-to-date losses that exceed projected losses. The guidance becomes effective for annual reporting periods beginning after December 15, 2020 and interim periods within those fiscal years with early adoption permitted. On January 1, 2020, the Company early adopted ASU 2019-12. The adoption of ASU 2019-12 did not have a material impact on Company's Condensed Consolidated Financial Statements.

NOTE 2—FAIR VALUE MEASUREMENTS

The Company measures certain financial assets and liabilities at fair value on a recurring basis, including cash equivalents, available-for-sale 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 measurement and unobservable (i.e., supported by little or no market activity).

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

	March 31, 2020			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 59,609	$ 59,609	$ —	$ —
Total	59,609	59,609	—	—
Marketable securities:				
Commercial paper securities	130,179	—	130,179	—
Corporate debt securities	95,518	—	95,518	—
U.S. government-sponsored entity debt securities	51,684	—	51,684	—
Total	277,381	—	277,381	—
Total cash equivalents and marketable securities	$ 336,990	$ 59,609	$ 277,381	$ —
Free shares asset	$ 163	$ —	$ —	$ 163

	December 31, 2019			
	Fair Value Measurements			
	Total	Level 1	Level 2	Level 3
Assets:				
Cash equivalents:				
Money market funds	$ 30,496	$ 30,496	$ —	$ —
Commercial paper securities	2,999	—	2,999	—
Total	33,495	30,496	2,999	—
Marketable securities:				
Commercial paper securities	155,368	—	155,368	—
Corporate debt securities	95,017	—	95,017	—
U.S. government-sponsored entity debt securities	53,493	—	53,493	—
Total	303,878	—	303,878	—
Total cash equivalents and marketable securities	$ 337,373	$ 30,496	$ 306,877	$ —
Free shares asset	$ 236	$ —	$ —	$ 236

Cash Equivalents and Marketable Securities

The Company generally classifies its marketable securities and some cash equivalents 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, listed 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). The Company initially recorded a liability of $0.2 million on the acquisition date. The put options were classified within Level 3 of the fair value hierarchy as the Company utilized a binomial-lattice pricing model (the "Monte Carlo simulation model") that involved certain market conditions to estimate the fair value of the options. The assumptions used in this simulation model are reviewed on a quarterly basis and adjusted, as needed. Subsequent changes in the fair value of the free shares are recorded in general and administrative expenses in the Condensed Consolidated Statements of Operations. During 2019, the Company purchased approximately 111,000 shares of the 477,000 total free shares for a cash payment of approximately $0.3 million upon exercise of the put options. As of March 31, 2020, approximately 366,000 free shares remain outstanding and subject to purchase by the Company.

The fair value of the free shares asset was approximately $0.2 million at December 31, 2019 and the Company recognized an immaterial loss due to a decrease in the fair value of free shares, leaving the balance to an asset of approximately $0.2 million at March 31, 2020.

Free Shares valuation assumptions:	**March 31, 2020**	**December 31, 2019**
Sangamo Stock Price (USD)	$ 6.66	$ 8.68
Sangamo France Stock Price (EUR)	€ 1.64	€ 2.14
EUR / USD Exchange Rate	0.94	0.91
Estimated Correlation Sangamo and Sangamo France Stock Prices	100.0%	100.0%
Sangamo Stock Price (USD) Volatility Estimate	76.7%	72.5%
Sangamo France Stock Price (EUR) Volatility Estimate	76.7%	72.5%
EUR / USD Exchange Rate Volatility Estimate	6.4%	6.6%
Risk Free Rate and Cost of Debt by Expected Exercise Date	Varies	Varies

NOTE 3—CASH EQUIVALENTS AND MARKETABLE SECURITIES

Cash Equivalents and Available-for-sale Securities

The table below summarizes the Company's cash equivalents and available-for-sale securities (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized (Losses)	Estimated Fair Value
March 31, 2020				
Assets				
Cash equivalents:				
Money market funds	$ 59,609	$ —	$ —	$ 59,609
Total	59,609	—	—	59,609
Available-for-sale securities:				
Commercial paper securities	129,827	352	—	130,179
Corporate debt securities	95,534	107	(123)	95,518
U.S. government-sponsored entity debt securities	51,433	251	—	51,684
Total	276,794	710	(123)	277,381
Total cash equivalents and available-for-sale securities	$ 336,403	$ 710	$ (123)	$ 336,990
December 31, 2019				
Assets				
Cash equivalents:				
Money market funds	$ 30,496	$ —	$ —	$ 30,496
Commercial paper securities	2,998	1	—	2,999
Total	33,494	1	—	33,495
Available-for-sale securities:				
Commercial paper securities	155,230	145	(7)	155,368
Corporate debt securities	94,905	115	(3)	95,017
U.S. government-sponsored entity debt securities	53,411	91	(9)	53,493
Total	303,546	351	(19)	303,878
Total cash equivalents and available-for-sale securities	$ 337,040	$ 352	$ (19)	$ 337,373

The fair value of investments available-for-sale by contractual maturity were as follows (in thousands):

	March 31, 2020	December 31, 2019
Maturing in one year or less	$ 272,381	$ 282,046
Maturing after one year through five years	5,000	21,832
Total	$ 277,381	$ 303,878

The Company had no material realized losses of its available-for-sale securities for the three months ended March 31, 2020 or 2019. The Company periodically reviews the available-for-sale investments for other-than-temporary impairment loss. No investments were other-than-temporarily impaired at either March 31, 2020 or December 31, 2019. The Company considers factors such as the duration, severity 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 available-for-sale 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, there were no other-than-temporary impairments for these securities at March 31, 2020. All available-for-sale securities with unrealized losses have been in a loss position for less than 12 months.

NOTE 4—BASIC AND DILUTED NET LOSS PER SHARE

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

The total number of shares subject to stock options and restricted stock units ("RSUs") outstanding and the employee stock purchase plan ("ESPP") shares reserved for issuance, which are all anti-dilutive, were excluded from consideration in the calculation of diluted net loss per share attributable to Sangamo Therapeutics, Inc. stockholders. Stock options and RSUs outstanding and ESPP shares reserved for issuance as of March 31, 2020 and 2019 totaled 14,849,728 and 11,604,633, respectively.

NOTE 5—MAJOR CUSTOMERS, PARTNERSHIPS AND STRATEGIC ALLIANCES

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 adeno-associated virus ("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 termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and satisfaction of other 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 also eligible to receive tiered high single-digit to sub-teen royalties on potential net commercial sales of licensed products arising from the collaboration. These royalty payments are subject to reduction due to patent expiration, entry of biosimilar products to the market and payments made under certain licenses for third-party intellectual property.

Under the collaboration agreement, 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 three of these: ST-501 for tauopathies including Alzheimer's disease, ST-502 for synucleinopathies including Parkinson's disease, and a third undisclosed neuromuscular disease 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 will perform early research activities, costs for which will be shared by the companies, aimed at the development of the combination of proprietary central nervous system delivery vectors and ZFP transcription factors ("ZFP-TFs") (or potential other ZFP products) targeting therapeutically relevant genes. Biogen will then assume responsibility and costs for the IND enabling studies, clinical development, related regulatory interactions, and global commercialization. The Company will be 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 will assume responsibility for manufacturing activities beyond the first clinical trial for each of the first three products. Subject to certain exceptions set forth in the collaboration agreement, the Company will be 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 target-by-target basis, for any reason after a specified notice period. Each party has the right to terminate this agreement on account of the other party's bankruptcy or material, uncured breach. In addition, 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 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 until the first anniversary of the effectiveness of the collaboration agreement, Biogen will hold and not sell any of the Biogen Shares and from the first anniversary 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, upon Biogen's request, the Company will register for resale any of the Biogen Shares on a registration statement to be filed with the SEC, until such time as all remaining Biogen Shares may be sold pursuant to Rule 144 promulgated under the Securities Exchange Act of 1933, as amended, within a 90-day period.

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.

Kite Pharma, Inc.

In February 2018, the Company entered into a global collaboration and license agreement with Kite Pharma, Inc. ("Kite"), 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 ten 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 by ready obligation to perform research services, and (2) the on-going 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 June 2024, the estimated period of the stand-ready obligation. Revenue from the reimbursable costs related to the integrated service deliverable is recognized as the research services are performed. Related costs and expenses under these arrangements have historically approximated the revenues recognized. The estimated period of performance and project cost is reviewed quarterly and adjusted, as needed, to reflect the Company's current assumptions regarding the timing of its deliverables. As of March 31, 2020 and December 31, 2019, the Company had deferred revenue of $100.3 million and $106.5 million, respectively, related to this agreement.

Revenues recognized under the agreement for the three months ended March 31, 2020 and 2019 were as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Revenue related to Kite agreement:		
Recognition of license and stand-ready fee	$ 6,227	$ 6,159
Research services	992	2,153
Total	$ 7,219	$ 8,312

Pfizer Inc.

SB-525 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 SB-525, 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 SB-525, while Pfizer is responsible for subsequent worldwide development, manufacturing, marketing and commercialization of SB-525. 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 SB-525 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 will be 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 SB-525 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 SB-525 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 development milestone payments contingent on the achievement of specified clinical development, intellectual property, regulatory and first commercial sale milestones for SB-525 and potentially other products. In addition, Sangamo 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 SB-525 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 SB-525 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, a $25.0 million milestone has 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. As of March 31, 2020, the total transaction price under this agreement is $104.0 million, which represents the upfront and research services fees of $79.0 million and one unconstrained milestone in the amount of $25.0 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 clinical or regulatory milestones have been included in the transaction price, as all such 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 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 on-going 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 recognizes revenue from the upfront payment based on proportional performance of the on-going research services through 2020, the estimated period the Company will perform research services. The estimation of progress towards the satisfaction of its 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. As of March 31, 2020 and December 31, 2019, the Company had deferred revenue of $1.0 million and $4.0 million, respectively, related to this agreement.

In December 2019, the Company entered into an amendment to the agreement, pursuant to which the Company transferred the IND for SB-525 to Pfizer. Upon this transfer the Company achieved a $25.0 million milestone as the conditions for achieving the milestone were met. The Company recognized on a cumulative basis approximately $24.7 million as of March 31, 2020 attributed to this milestone as revenue and $1.0 million during the three months ended March 31, 2020. The balance of this payment of $0.3 million will be recognized as revenue commensurate with the provision of research services over the remaining term of the agreement.

Revenues recognized under the agreement for the three months ended March 31, 2020 and 2019 were as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Revenue related to Pfizer SB-525 agreement:		
Recognition of upfront fee and research services	$ 2,190	$ (3,040)
Milestone achievement	993	—
Total	$ 3,183	$ (3,040)

In March 2019, the Company received new data results, and expanded enrollment of patients in the ongoing trial. As a result, the estimated project cost increased and the proportional performance was updated based on the actual services delivered to Pfizer as a percentage of the updated project cost as of March 31, 2019. The increase in project cost resulted in a decrease in the measure of the proportional cumulative performance. During the three months ended March 31, 2019, the Company recorded a revenue reduction of approximately $3.0 million or 38% of total revenues due to a decrease in the measure of the proportional cumulative performance.

In March 2020, the Company recorded an adjustment to revenue related to a change in estimate in connection with the hemophilia A collaboration agreement with Pfizer. This adjustment was a direct result of the decision to decrease the project scope and the corresponding costs, after the successful IND transfer of the SB-525 product candidate to Pfizer, both of which resulted in an increase in the measure of proportional cumulative performance. This adjustment increased revenue by $2.4 million, decreased net loss by $2.4 million and decreased the Company's basic net loss per share by $0.02 for the three months ended March 31, 2020.

C9ORF72 Research Collaboration and License Agreement

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

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

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

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

The Company assessed the agreement with Pfizer in accordance with ASC Topic 606 and concluded that Pfizer is a customer. 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.

The Company concluded the total transaction price under this agreement is $12.0 million, which represents the upfront fee. None of the clinical or regulatory milestones have been included in the transaction price, as 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 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 on-going 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 recognizes revenue from the upfront payment based on proportional performance of the on-going services, over the estimated period the Company will perform research services. The estimation of progress towards the satisfaction of its 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. As of March 31, 2020 and December 31, 2019, the Company had deferred revenue of $7.6 million and $8.0 million, respectively, related to this agreement.

Revenues recognized under the agreement for the three months ended March 31, 2020 and 2019 were as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Recognition of upfront fee related to Pfizer *C9ORF72* agreement	$ 360	$ 615

Sanofi Genzyme

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 development and sales milestone payments upon the achievement of specified regulatory, clinical development and sales milestones. In addition, the Company is also 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 $93.3 million includes the upfront license fee of $20.0 million, two unconstrained milestones in the amount of $13.5 million and estimated research costs of $59.8 million for identified research projects over the estimated performance period, as all unachieved milestone amounts are fully constrained. As part of its evaluation of the constraint, the Company considered numerous factors, including the fact that achievement of the milestones at this time is uncertain and contingent upon future periods when the uncertainty related to the variable consideration is resolved. The Company will re-evaluate the transaction price, including the estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur. None of the 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 on-going 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 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 March 31, 2020 and December 31, 2019, the Company had deferred revenue of $2.9 million and $1.7 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 Company recognized on a cumulative basis approximately $5.5 million as of March 31, 2020 attributed to this milestone as revenue and a revenue reversal of $0.2 million was recognized during the three months ended March 31, 2020.

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 Company recognized on a cumulative basis approximately $6.8 million as of March 31, 2020 attributed to this milestone as revenue and a revenue reversal of $0.3 million was recognized during the three months ended March 31, 2020.

Revenues recognized under the agreement for the three months ended March 31, 2020 and 2019 were as follows (in thousands):

	Three Months Ended March 31,	
	2020	2019
Revenue related to Sanofi agreement:		
Recognition of upfront fee	$ (729)	$ 752
Research services	1,720	1,197
Milestone achievement	(492)	—
Total	$ 499	$ 1,949

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

California Institute for Regenerative Medicine

In May 2018, the California Institute for Regenerative Medicine ("CIRM") granted a Strategic Partnership Award for $8.0 million to fund the clinical studies of a potentially curative ZFP therapeutic for the treatment of beta thalassemia based on the application of Sangamo's ZFN genome editing technology. The grant 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 March 31, 2020, 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 March 31, 2020 and December 31, 2019, $5.9 million and $5.7 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 maintains deferred tax assets that reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. These deferred tax assets include net operating loss carryforwards, research credits and capitalized research and development costs. Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain based on Sangamo's history of losses. Accordingly, the Company's net deferred tax assets have been fully offset by a valuation allowance. Utilization of operating losses and credits may be subject to substantial annual limitation due to ownership change provisions of the Internal Revenue Code of 1986, as amended and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization.

On March 27, 2020, the President signed the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") into law. The CARES Act is a relief package that includes changes to the US tax code including but not limited to, (1) modifications to the calculation of interest deductibility in 2019 and 2020; (2) changes to rules related to the uses and limitations of net operating loss carryforwards created in 2018-2020 and (3) technical corrections for qualified improvement property. The CARES Act did not have a material impact on the Company's Condensed Consolidated Statements of Operations for the three months ended March 31, 2020.

NOTE 7—COMMITMENTS AND CONTINGENCIES

Leases

Sangamo occupies approximately 87,700 square feet of office and research and development laboratory facilities in Brisbane, California, pursuant to a lease that expires in May 2029. Sangamo also occupies approximately 45,600 square feet of research and office space in Richmond, California pursuant to leases that expire in August 2026. In addition, the Company leases approximately 20,800 square feet of research and office space in Valbonne, France subject to leases that expire beginning in June 2025 through March 2028.

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

The Company performed evaluations of its contracts and determined each of its identified leases are operating leases. For the three months ended March 31, 2020, the Company incurred $2.6 million of lease costs included in operating expenses in the Condensed Consolidated Statements of Operations in relation to these operating leases. Variable lease expense was $0.5 million for the three months ended March 31, 2020 and was not included in the measurement of the Company's operating ROU assets and lease liabilities. The variable expense consists primarily of the Company's proportionate share of operating expenses, property taxes and insurance and is classified as lease expense due to the Company's election to not separate lease and non-lease components.

Cash paid for amounts included in the measurement of operating lease liabilities for the three months ended March 31, 2020 was $1.6 million and was included in net cash used in operating activities in the Company's Condensed Consolidated Statements of Cash Flow.

As of March 31, 2020, the maturities of the Company's operating lease liabilities were as follows (in thousands):

	Total
Nine months ending December 31, 2020	$ 4,298
2021	6,385
2022	6,463
2023	6,551
2024	6,689
Thereafter	26,134
Total lease payments	56,520
Less:	
Imputed interest	(13,023)
Total	$ 43,497
Reported as of March 31, 2020:	
Operating lease liabilities - current (included in Accounts payable and accrued liabilities on the Condensed Consolidated Balance Sheet)	$ 3,299
Operating lease liabilities - long-term	40,198
Total	$ 43,497

As of March 31, 2020, the weighted-average remaining lease term is 8.6 years and the weighted-average incremental borrowing rate used to determine the operating lease liability was 6.2% for the Company's operating leases.

The Company does not have any financing leases.

Contingencies

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

NOTE 8—STOCK-BASED COMPENSATION

The following table shows total stock-based compensation expense included in the Condensed Consolidated Statements of Operations for the three months ended March 31, 2020 and 2019 (in thousands):

	Three Months Ended March 31,	
	2020	2019
Research and development	$ 2,839	$ 2,298
General and administrative	2,781	2,225
Total stock-based compensation expense	$ 5,620	$ 4,523

NOTE 9—STOCKHOLDERS' EQUITY

Common Stock

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

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

On July 20, 2018, Sangamo entered into various agreements with the goal of eventually acquiring 100% of Sangamo France's share capital. The Company entered into the Sangamo France SPA with certain shareholders of Sangamo France, pursuant to which it acquired 13,519,036 ordinary shares of Sangamo France ("Ordinary Shares") as part of a block transaction that closed on October 1, 2018 (the "Acquisition Date"). Additionally, the Company and Sangamo France entered into a Tender Offer Agreement pursuant to which Sangamo agreed to acquire 11,528,635 Ordinary Shares for the same price per share as the

Sangamo France SPA via a cash tender offer that closed on November 23, 2018. Following the block transaction, cash tender offer, and other open market purchases of shares, the Company owned 98.2% of the Ordinary Shares as of December 31, 2018 (or 25,047,671 Ordinary Shares). In addition to the Sangamo France SPA and the tender offer agreement, the Company also 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) (collectively the “Free Shares Options”). In June 2019, Sangamo France became a société par actions simplifiée (“S.A.S.”) and was renamed from “TxCell” to “Sangamo Therapeutics France.” During 2019, the Company acquired approximately 111,000 vested free shares, increasing its ownership of the Ordinary Shares from 98.2% to 98.7%. The Company did not acquire any vested free shares during the three months ended March 31, 2020.

At the Acquisition Date, the fair value of the Free Shares Options was estimated to be a liability of $0.2 million. See “Note 2 — Fair Value Measurements-*Free Shares Asset*” for information regarding the valuation method. The fair value of the Free Shares Options will vary based on future changes in the Company’s stock price during the option period. The fair value of the Free Shares Options was estimated to be an asset of $0.2 million as of March 31, 2020.

The acquisition of Sangamo France was accounted for as a business combination in accordance with ASC Topic 805, *Business Combinations*. The operating results of Sangamo France after the Acquisition Date have been included in the Company’s Condensed Consolidated Statements of Operations.

There were no goodwill impairments during the three months ended March 31, 2020 or during 2019 and, as noted below, substantially all of the non-controlling interest on the Acquisition Date was subsequently acquired by the Company and, accordingly, substantially all of the goodwill is allocated to the Company as of March 31, 2020 and December 31, 2019.

The following table summarizes the estimated consideration transferred and the fair value of the net assets acquired as of the Acquisition Date (in thousands):

		October 1, 2018
Consideration transferred	$	45,911
Fair value of non-controlling interest		35,829
Fair value of Sangamo France	$	81,740
Cash	$	4,779
Current assets		2,427
Property and equipment		1,857
IPR&D		55,019
Other assets		155
Current liabilities		(9,761)
Assumed debt liabilities		(4,933)
Deferred tax liability, net		(6,798)
Fair value of net identifiable assets acquired		42,745
Goodwill		38,995
Total fair value of net assets acquired	$	81,740

Non-Controlling Interest

The fair value of the remaining non-controlling was determined based on the number of outstanding shares comprising the non-controlling interest and the $2.99 acquisition price per share as of the Acquisition Date. The non-controlling interest is presented as a component of stockholders' equity on the Company’s Condensed Consolidated Balance Sheets.

Non-controlling interest as of March 31, 2020 was as follows (in thousands):

		Total
Balance at December 31, 2019	$	185
Loss attributable to non-controlling interest		(61)
Balance at March 31, 2020	$	124

NOTE 11—SUBSEQUENT EVENTS

In April 2020, the collaboration and license agreement with Biogen became effective following termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and satisfaction of other closing conditions, including the payment of $225.0 million for the purchase of the Biogen Shares. Under the collaboration and license agreement, Biogen paid the Company an upfront license fee of $125.0 million in May 2020.

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 include, without limitation, statements containing the words "believes," "anticipates," "expects," "continue," "intend," "plan," "will," "may" and other words of similar import or the negative of those terms or expressions. Such forward-looking statements are subject to known and unknown risks, uncertainties, estimates and other factors that may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Actual results could differ materially from those set forth in such forward-looking statements as a result of, but not limited to the "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q. You should read the following discussion and analysis along with the financial statements and notes attached to those statements included elsewhere in this report and in our Annual Report on Form 10-K for the year ended December 31, 2019, or the 2019 Annual Report, as filed with the Securities and Exchange Commission, or SEC, on February 28, 2020.

In addition, the section of this "Management's Discussion and Analysis of Financial Condition and Results of Operations" generally discusses 2020 and 2019 items and quarter-to-quarter comparisons between 2020 and 2019. Discussions of 2019 items and quarter-to-quarter comparisons between 2019 and 2018 are not included in this Quarterly Report on Form 10-Q and can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part I, Item 2 of our Quarterly Report on Form 10-Q for the three months ended March 31, 2019, as filed with the SEC on May 8, 2019.

Overview

We are a clinical stage biotechnology company focused on translating ground-breaking science into genomic medicines with the potential to transform patients' lives using our platform technologies in gene therapy, *ex vivo* gene-edited cell therapy, *in vivo* genome editing and *in vivo* genome regulation.

Our strategy is to maximize the value and therapeutic use of our technology platforms. For certain therapies, we intend to capture the value of our proprietary gene therapy, cell therapy, genome editing and genome regulation technologies by manufacturing and developing product candidates and commercializing approved products ourselves. For other therapies, we intend to partner with other biopharmaceutical companies to manufacture and develop product candidates and commercialize approved products as appropriate. Decisions to partner product candidates will be based on review of our internal resources, internal know-how, assessment of technical risk, anticipated length and complexity of clinical studies, competitive landscape and other commercial considerations. Our diverse pipeline includes genomic medicine product candidates across multiple therapeutic areas including inherited metabolic disorders, or IMDs, rare blood diseases, central nervous system diseases, oncology and immunology, which comprises inflammatory and autoimmune diseases.

We are a leader in the research and development of zinc finger proteins, or ZFPs, a naturally occurring class of transcription factor proteins found in humans and other species. We have used our internal know-how and technical expertise to develop a proprietary synthetic ZFP platform with potential clinical utility in *ex vivo* gene-edited cell therapy, *in vivo* genome editing and *in vivo* genome regulation. ZFPs may be engineered to make zinc finger nucleases, or ZFNs, that can be used to selectively modify DNA sequences by knocking in or knocking out genes of choice, or zinc finger protein transcription factors, or ZFP-TFs, that can be used to selectively increase or decrease gene expression. In the process of developing this platform, we have additionally accrued significant scientific, manufacturing and development capabilities, as well as related know-how all of which are broadly applicable to the field of gene therapy. We have used this knowledge to advance a gene therapy platform.

We have a substantial intellectual property portfolio protecting our technology and product candidates. We continue to license and file new patent applications to strengthen and consolidate our existing patent portfolio. We believe that our intellectual property position is critical to our ability to research, develop, manufacture and commercialize gene therapy, *ex vivo* gene-edited cell therapy, *in vivo* genome editing and *in vivo* genome regulation products and services.

Business Update

In February 2020, we entered into a collaboration and license agreement with Biogen MA, Inc., or 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, including ST-501 a preclinical ZFP-TF product candidate for tauopathies including Alzheimer's disease, and ST-502, a preclinical ZFP-TF product candidate for alpha-synuclein related diseases including Parkinson's disease, among other targets. Concurrently with the execution of the collaboration and license agreement, we entered into a stock purchase agreement with BIMA in which BIMA agreed to purchase $225.0 million of newly issued shares of our common stock, or Biogen Shares. In April 2020, the collaboration agreement became effective and we received the stock sale proceeds, and Biogen paid us an upfront license fee of $125.0 million in May 2020. We are 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, we are also eligible to receive tiered royalties on potential net commercial sales of licensed products arising from the collaborations. For more information regarding the Biogen collaboration, see section entitled "—Collaborations—Biogen" in Item 1, Business of our 2019 Annual Report.

In December 2019, we completed the transfer to Pfizer of the SB-525 hemophilia A gene therapy investigational new drug, or IND, application for which we earned a $25.0 million milestone payment under our collaboration agreement with Pfizer for the global development and commercialization of gene therapies for hemophilia A. In 2019, we also completed the manufacturing technology transfer to Pfizer. Pfizer has announced that it is advancing SB-525 into a Phase 3 registrational clinical study, which may provide the basis for seeking regulatory approval as a therapeutic, and that it expects to dose the first patient in the study in the second half of 2020. We presented updated follow-up data from the Phase 1/2 Alta Study assessing SB-525 in adult patients with severe hemophilia A in partnership with Pfizer at the 61st American Society of Hematology, or ASH, annual meeting in December 2019. The data showed that SB-525 was generally well tolerated and its administration resulted in a sustained increased Factor VIII levels following treatment with SB-525 through to 44 weeks, the extent of follow-up for the longest treated patient in the 3e13 vg/kg dose cohort. We are working with Pfizer to provide an update on the data shared at the ASH meeting and anticipate that the update will occur this year.

We are also evaluating our wholly owned ST-920 gene therapy for Fabry disease, a rare inherited metabolic disease. In 2019, the IND was accepted by the U.S. Food and Drug Administration, or FDA, and a clinical trial authorization, or CTA, was granted in the United Kingdom. The FDA also granted Orphan Drug Designation to ST-920 for the treatment of Fabry disease. We are currently evaluating ST-920 in adult males with classic Fabry disease in the Phase 1/2 STAAR study, an open-label, dose-ascending clinical trial. We have successfully screened and enrolled patients into the STAAR study and are carefully following the impact of the evolving COVID-19 pandemic on the operations of clinical sites and on the health care system in order to identify an appropriate time to infuse the first subject.

In collaboration with our partner Sanofi, we are evaluating gene-edited cell therapies for two hemoglobinopathies, ST-400 for transfusion dependent beta thalassemia, and BIVV003 for sickle cell disease, or SCD. ST-400 and BIVV003 are both designed to induce the synthesis of fetal hemoglobin, achieved by gene-edited knock out of the erythroid specific enhancer of the BCL11a gene, which encodes a strong repressor of the gamma globin gene. In December 2019, we achieved a $7.5 million milestone payment from Sanofi for the first subject dosed in Sanofi's Phase 1/2 PRECIZN-1 trial evaluating BIVV003 for SCD. We have enrolled and dosed five patients into the Thales Study evaluating ST-400 for beta thalassemia. No additional beta thalassemia patients will be treated until the data from both studies have been collected and analyzed. Sanofi will continue enrolling sickle cell patients into the PRECIZN-1 study. We and Sanofi will look for an appropriate time to present data from these programs at a future date once both studies have accumulated a sufficient number of patients and follow up.

We are also evaluating chimeric antigen receptor regulatory T cell, or CAR-Treg, cell therapies for the treatment of inflammatory and autoimmune diseases. Our lead CAR-Treg program is TX200, which is being evaluated to treat HLA-A2 mismatched kidney transplantation. In late 2019, we received CTA authorization in the United Kingdom for the TX200 Phase 1/2 STEADFAST clinical trial. As we plan the initiation of the STEADFAST trial, we are monitoring the impact of the evolving COVID-19 pandemic on clinical operations for this study and expect to dose the first subject in 2021.

In April 2020, we executed a collaboration agreement with UK cell conversion company Mogrify Ltd, or Mogrify, to develop allogeneic cell therapies from Mogrify's proprietary stem cell conversion technology using our ZFP and gene-engineered CAR-Treg, platforms. We believe this collaboration may potentially accelerate our development of scalable and accessible CAR-Treg cell therapies to treat inflammatory and autoimmune diseases, diversifying our options and complementing current efforts.

In February 2018, we entered into a global collaboration and license agreement with Kite Pharma, Inc., or 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 ZFNs and viral vectors to disrupt and insert certain genes in T-cells and natural killer cells, or NK-cells including the insertion of genes that encode chimeric antigen receptors, or CARs, T-cell receptors, or TCRs, and NK-cell receptors, or NKRs directed to mutually agreed targets. Kite is responsible for all clinical development, manufacturing and commercialization of any resulting products. In collaboration with Kite, we are evaluating KITE-037, an allogeneic anti-CD19 CAR-T cell product. Kite has informed us that the timeline for the initiation of the KITE-037 clinical trial planned for 2020 may be delayed due to the impact of the COVID-19 pandemic.

We currently rely on contract manufacturing organizations, or CMOs, to produce our preclinical and clinical product candidates in accordance with FDA and the European Medicines Agency, or EMA, mandated regulations, also known as current good manufacturing practices, or cGMPs. We employ a technical operations staff in the areas of process development, analytical development, quality control, quality assurance, project management, and manufacturing to facilitate appropriate oversight of our CMOs, support of our regulatory filings and execution of clinical trials. We are building a cGMP manufacturing facility in our new headquarters building in Brisbane, CA. This facility is being designed to manufacture Phase 1/2 clinical trial supplies for our gene therapy and cell therapy pipeline and potentially collaboration programs. The gene therapy manufacturing facility is currently anticipated to become operational in 2020. The cell therapy manufacturing facility in Brisbane, as well as another cell therapy manufacturing facility at our site in Valbonne, France, are anticipated to become operational in 2021.

Estimated Impacts of Evolving COVID-19 Pandemic

In December 2019, COVID-19 was reported and in March 2020, the World Health Organization characterized COVID-19 as a global pandemic. Also that month, governmental agencies imposed shelter-in-place rules in areas where we operate in California, France and the United Kingdom. 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. 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.

We have implemented an operating plan to continue business operations during COVID-19 shelter-in-place orders. In March, we briefly paused laboratory operations to develop workplace safety protocols and to understand more fully the guidance of governmental organizations and the shelter-in-place restrictions. We have since resumed modified laboratory operations subject to enhanced health and safety protocols and modified working schedules. Office-based employees have been working from home since March 2020.

We do not anticipate any material negative impact on our financial condition in 2020 as a result of the COVID-19 pandemic. We believe we are well positioned financially to execute on our wholly owned and partnered research and clinical programs. We ended the first quarter of 2020 with $363.1 million in cash, cash equivalents and marketable securities, and since the end of the quarter have received an additional $350.0 million in cash related to the Biogen collaboration, including both a $125.0 million upfront license fee and $225.0 million in proceeds from the sale of stock to Biogen. Although we believe we are well capitalized currently, if the capital markets become impaired for a prolonged period of several years, our financial condition could deteriorate. 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 COVID-19. 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.

Our business relies on cooperation with clinical trial sites and with external biopharmaceutical research and manufacturing partners, and we have been working with these sites and partners to minimize any impact of COVID-19 on our clinical trials and our research and development operations. Although our laboratory operations in the United States and France have resumed, enhanced health and safety protocols and modified workplace schedules could result in reduced productivity. In addition to laboratory work supporting our proprietary research, we also conduct research to support collaborations with biopharmaceutical partners, which under certain circumstances provides us with expense reimbursements and other potential payments. At this time, we do not anticipate any material impact to our ability to perform these obligations and earn revenues or to be reimbursed for our expenses. We do anticipate that some clinical trial timelines may be impacted due to COVID-19 and the diversion of healthcare resources to fight the pandemic. For our ST-920 program, for example, we have been able to enroll multiple patients into the STAAR Study, but dosing of these subjects is postponed until it is deemed appropriate and safe. Our TX200 program is experiencing a delay because of international travel restrictions. We will continue to monitor the impact of COVID-19 on timelines of our clinical trials. We are not aware of supply shortages related to COVID-19 that will affect our clinical trials or research operations.

See also the section titled “Risk Factors” for additional information on risks and uncertainties related to the evolving COVID-19 pandemic.

Certain Components of Results of Operations

Our revenues have consisted primarily of revenues derived from collaboration agreements with our strategic partners related to upfront license fees, reimbursable research services, milestones achievements and grant funding. We expect revenues to continue to fluctuate from period to period and there can be no assurance that new collaborations or partner funding 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 in the future as we continue our research and development activities. To date, we have funded our operations primarily through the issuance of equity securities, payments from our strategic partners 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 gene therapy and our genome editing programs in the clinic and, if we are able, to progress our earlier stage product candidates into clinical trials.

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 accounting principles generally accepted in the United States. The preparation of these 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. There have been no significant changes in our critical accounting policies and estimates disclosed in our 2019 Annual Report.

Results of Operations for the Three Months Ended March 31, 2020 and 2019

Revenues

	Three Months Ended March 31, (in thousands, except percentage values)			
	2020	2019	Change	%
Revenues	$ 13,076	$ 8,071	$ 5,005	62 %

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

The increase of $5.0 million in revenues for the three months ended March 31, 2020, compared to the same period in 2019, was primarily due to an increase of $6.2 million in revenues related to our hemophilia A collaboration agreement with Pfizer due to a change in estimate and subsequent adjustment to revenue under the agreement. In the three months ended March 31, 2019, we increased the project scope and costs related to Pfizer as we accelerated the program, thereby resulting in a decrease of proportional cumulative performance and a corresponding decrease in revenues by $3.0 million. In the three months ended March 31, 2020, after the successful IND transfer of the SB-525 to Pfizer, we decreased the project scope resulting in an increase in revenues of $3.2 million.

Operating expenses

	Three Months Ended March 31, (in thousands, except percentage values)			
	2020	2019	Change	%
Operating expenses:				
Research and development	$ 41,479	$ 34,850	$ 6,629	19 %
General and administrative	16,119	17,118	(999)	(6 %)
Total operating expenses	$ 57,598	$ 51,968	$ 5,630	11 %

Research and Development Expenses

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

The increase of $6.6 million in research and development expenses for the three months ended March 31, 2020, compared to the same period in 2019, was driven by $4.7 million increase in overhead costs as we ramp up our internal manufacturing operations, a $2.8 million increase in headcount related compensation expense to support clinical trials, and an increase of $1.2 million in laboratory supplies. These increases were partially offset by a decrease of $2.9 million in clinical and manufacturing supply expenses due to timing of our trials and programs. Stock-based compensation expense included in research and development expenses was $2.8 million and $2.3 million for the three months ended March 31, 2020 and 2019, 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.

In any event, 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 II, Item 1A of this Quarterly Report on Form 10-Q.

General and Administrative Expenses

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

The decrease of $1.0 million in general and administrative expenses for the three months ended March 31, 2020, compared to the same period in 2019, was primarily due to a decrease of $1.7 million in corporate costs as a result of higher professional and outside service fees in 2019 related to the acquisition of Sangamo France and a decrease of $1.6 million in facility and support costs allocated to general and administrative functions as we continue to ramp up our manufacturing operations in 2020. These decreases were offset by an increase of $2.5 million in headcount driven compensation costs. Stock-based compensation expense included in general and administrative expenses was $2.8 million and $2.2 million for the three months ended March 31, 2020 and 2019, 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 $0.1 million for the three months ended March 31, 2020, compared to the same period in 2019.

Liquidity and Capital Resources

Liquidity

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

As of March 31, 2020, we had cash, cash equivalents, and marketable securities totaling $363.1 million compared to $384.3 million as of December 31, 2019, with the decrease primarily attributable to our net operating expenditures. Our most significant use of capital pertains to our 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, corporate debt securities, commercial paper securities and money market funds. Cash in excess of immediate requirements is invested in accordance with our investment policy with a view toward capital preservation and liquidity.

Since the beginning of 2017, we have received significant amounts of capital as upfront payments under our collaboration arrangements. Our collaboration agreements provide for the payment of development, regulatory, and commercial milestones. In February 2020, we entered into a collaboration and license agreement with Biogen for the research, development and commercialization of gene regulation therapies for the treatment of neurological diseases, which became effective in April 2020. Upon effectiveness of the agreement in April 2020, we received a payment of $225.0 million for the purchase of the Biogen Shares. In addition, Biogen paid us an upfront license fee of $125.0 million in May 2020. For more information see Note 5 — Major Customers, Partnerships and Strategic Alliances in the Condensed Consolidated Financial Statements of this Quarterly Report on Form 10-Q. We currently anticipate that cash flows from operations, available funds and access to financing sources, including our revolving credit facility, will continue to be sufficient to meet our cash needs for at least the next twelve months. During the period of uncertainty of 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 $18.9 million for the three months ended March 31, 2020 primarily reflecting our net loss of $43.0 million, a decrease in deferred revenues of $8.3 million, partially offset by a decrease in accounts receivable of $29.9 million and stock-based compensation of $5.6 million and other activities.

Investing activities

Net cash provided by investing activities for the three months ended March 31, 2020 was $23.7 million related to a net increase in maturities of marketable securities, partially offset by purchases of property and equipment.

Financing activities

Net cash provided by financing activities for the three months ended March 31, 2020 was $0.4 million related to proceeds from the issuance of common stock upon exercise of stock options and restricted stock units, partially offset by taxes paid related to net share settlement of equity awards.

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 believe that our available cash resources, as well as expected revenues from collaborators, strategic partners and research grants, will be adequate to fund our currently planned operations through at least the next twelve months from the date the financial statements are issued. Future capital requirements beyond the next twelve months will be substantial and if our capital resources are insufficient to meet future capital requirements, we may need to raise additional capital to fund our operations through equity or debt financing. 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 may result in dilution to our stockholders, and any debt financing may include covenants that restrict our business.

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 and Commercial Commitments

Our future minimum contractual commitments were reported in our 2019 Annual Report and there have been no material changes outside the ordinary course of business in the previously disclosed contractual commitments during the three months ended March 31, 2020.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our exposure to market risk relates to our cash, cash equivalents and investments. 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 commercial paper, corporate debt securities and U.S. government-sponsored entity debt securities. 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 March 31, 2020 have not changed materially from those discussed in Item 7A of the 2019 Annual Report.

Volatile market conditions arising from the 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 March 31, 2020. Based on that evaluation, as of March 31, 2020, 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 has been no change in our internal control over financial reporting that occurred during the three months ended March 31, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

We have not experienced any material impact to our internal controls over financial reporting even though most of our employees are working remotely due to the evolving COVID-19 pandemic. We continue to monitor and assess the COVID-19 pandemic in order to minimize the impact on the design and operating effectiveness of our internal controls.

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

An investment in our common stock involves significant risk. This Form 10-Q contains forward-looking information based on our current expectations. Because our actual results may differ materially from any forward-looking statements made by or on our behalf, this section includes a discussion of important factors that could affect our actual future results, including, but not limited to, our revenues, expenses, net loss and net loss per share. You should carefully consider the information described in the following risk factors in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K for the year ended December 31, 2019, or the 2019 Form 10-K, together with the other information appearing elsewhere in this report, before making an investment decision regarding our common stock.

Risks Relating to Research, Development, Commercialization and Regulatory Approval of our Products and Technology

Our success depends substantially on the results of clinical trials of our therapeutic programs and ability to obtain regulatory approval of our product candidates, and we may be unable to demonstrate safety and efficacy of our product candidates.

We are a clinical-stage biotechnology company and have ongoing clinical trials evaluating product candidates that use our platform technologies in gene therapy, *ex vivo* gene-edited cell therapy, *in vivo* genome editing and *in vivo* genome regulation. We do not have any products that have obtained regulatory approval and are substantially dependent on the results of clinical trials of our therapeutic programs. However, there is no guarantee that we will be able to achieve positive final safety and efficacy results in our current or future clinical trials for our product candidates. If we fail to demonstrate safety or obtain positive clinical trial results, are unable to meet the expected timeline of these clinical trials or release of data for these programs, or if we are unable to obtain regulatory approval of our product candidates, our anticipated revenue from our product candidates and our prospects for profitability would be adversely affected, which would have an adverse effect on our business operations and financial conditions, which may cause a significant decline in our stock price.

We are exposed to numerous risks associated with conducting required clinical trials for the development of our product candidates, and there is no guarantee that we will be successful in any of our clinical trials or obtain marketing approval for any of our product candidates.

We must conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates before we can obtain marketing approval for any such candidates. We have limited experience in conducting later stage clinical trials and may not possess the necessary resources and expertise to complete such trials. Clinical testing is expensive, time consuming and uncertain. 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 prevent successful or timely completion of clinical development include, among others:

- delays in reaching a consensus with regulatory authorities on 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;
- delays in recruiting and enrolling suitable patients to participate in our clinical trials;
- delays in clinical trial activities due to the evolving COVID-19 global pandemic and the diversion of healthcare resources to fight the pandemic;
- imposition of a clinical hold by regulatory authorities as a result of a serious adverse event or after an inspection of our clinical trial operations or trial sites;
- 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 U.S. Food and Drug Administration, or FDA, or applicable laws and regulations in the European Union, or 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 subjects complete participation in a trial or return for post-treatment follow-up;
- clinical trial sites or subjects dropping out of a trial;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- occurrence of serious adverse events or other safety concerns associated with the product candidate that are viewed to outweigh its potential benefits, result in approval delays or other regulatory restrictions, or harm our reputation;
- occurrence of serious adverse events or other safety concerns in trials of the same class of agents conducted by other sponsors;
- failure to demonstrate that a product candidate is safe and effective for its 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 for these programs; and
- loss 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 can change decisions or guidance with respect to approvable endpoints, particularly as the technology continues to develop in these areas. Due to the novelty of certain programs, 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 were to successfully obtain 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 current or future product candidates, once obtained, may be withdrawn. If we are unable to obtain and maintain regulatory approval for our product candidates in one or more jurisdictions, or any approval contains significant limitations, we would not be able to generate anticipated revenues or become profitable, which would have an adverse effect on our business operations and financial conditions.

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 should be considered carefully and with caution since the final data may be materially different from the preliminary, initial or interim data, particularly as more patient data become available.

Results from preclinical studies or early clinical trials are not necessarily predictive of future clinical trial results, 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 development 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 partners 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.

There is no guarantee that any of our pending clinical trials will be successful. Moreover, we have pending clinical trials involving our zinc finger nucleases, or ZFN, technology, where the clinical benefit has not been demonstrated in analyses conducted to date in the ongoing clinical trials. Although we are planning new clinical trials to evaluate updated ZFNs and other potential modifications to enhance the *in vivo* delivery of the ZFNs, there can be no assurance that we will be able to effectively deliver ZFNs to produce a clinical benefit to patients treated with our product candidates. In addition, our viral delivery systems and ZFN technologies continue to evolve and neither has been fully validated in human clinical trials for the therapeutic areas we are pursuing. If our viral delivery systems or ZFN technologies do not meet the safety criteria or cannot produce the desirable efficacy results we expect, we may be forced to suspend or terminate the affected program or seek alternative technologies to deliver ZFNs.

In addition, there is a high failure rate for drugs, biologic products and cell therapies proceeding through clinical trials. Many companies in the pharmaceutical and biotechnology 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.

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

A regulatory authority such as the FDA or the European Medicines Agency, or EMA, must approve any human therapeutic product before it can be marketed in such jurisdiction. The process for receiving regulatory approval is long and uncertain, and a potential product may not withstand the rigors of testing under the regulatory approval processes. Before commencing clinical trials in humans in the United States, we must submit an Investigational New Drug application, or IND, to the FDA. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the EU, for example, a clinical trial authorization, or CTA, must be submitted for each clinical protocol to each country's national health authority and an independent ethics committee. Only after an IND becomes effective and/or the applicable CTA has been accepted may clinical trials begin. See the "Business—Government Regulation" section in our 2019 Form 10-K for details regarding the regulatory approval processes applicable to our product candidates. While there is some overlap, the regulatory requirements to conduct clinical trials and seek marketing approval vary by jurisdiction. There is no guarantee that the safety studies and other data generated will be sufficient to permit us to conduct clinical trials in all jurisdictions where planned, or once generated, that such clinical trial data will be sufficient to obtain marketing approval in all jurisdictions in which we intend to seek such approval. If we are not able to obtain the necessary regulatory approvals to conduct our clinical trials, or commercialize our products, or if such approvals are delayed or suspended, it would have an adverse effect on our business operations and trading price of our common stock.

We may not be able to find suitable patients or may find it difficult to enroll patients for our clinical trials, which could delay or prevent us from proceeding with clinical trials of our product candidates.

Identifying and qualifying patients to participate as subjects in clinical trials of our product candidates is critical to our success. The timing of our clinical trials depends on our ability to recruit patients to participate, as well as completion of required follow-up periods. For example, hemophilia trials often take longer to enroll due to the availability of existing treatments. 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 subjects in a timely manner, we may not be able to complete our clinical trials. We may face similar challenges or delays in our other or potential future clinical trials. If patients are unwilling to participate in our gene therapy studies because of negative publicity from adverse events related to the biotechnology or gene therapy fields, competitive clinical trials for similar patient populations or for other reasons, the timeline for recruiting patients, conducting studies and obtaining regulatory approval of our product candidates may be delayed. These delays could result in increased costs, delays in advancing our product candidates, delays in testing the effectiveness of our product candidates or termination of the clinical trials altogether.

We may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics, to complete our clinical trials in a timely manner. Patient enrollment and trial completion is affected by factors including:

- size of the patient population and process for identifying subjects;
- design of the trial protocol;
- eligibility and exclusion criteria;
- perceived risks and benefits of the product candidate under study;
- perceived risks and benefits of gene therapy-based 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;
- severity of the disease under investigation;
- availability of genetic testing for potential patients;
- proximity and availability of clinical trial sites for prospective subjects;
- ability to obtain and maintain subject consent;
- risk that enrolled subjects will drop out before completion of the trial;

- patient referral practices of physicians; and
- ability to monitor subjects adequately during and after treatment.

If we have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit or terminate ongoing or planned clinical trials, or expand to additional jurisdictions, which could impose additional challenges on our company and expose us to 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 and prospects.

We may encounter difficulties that may delay, suspend or scale back our efforts to advance additional research programs through preclinical development, IND and foreign equivalent submissions and into clinical development.

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

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

We have received regenerative medicine advanced therapy, or RMAT, designation for our product candidate to treat severe hemophilia A. Additionally, some of our product candidates have also been granted Orphan Drug Designation by the FDA, and some have also been designated Orphan Medicinal Products by the EMA. Regulatory authorities in some jurisdictions, including the United States and the EU, may designate drugs for relatively small patient populations as orphan drugs. For additional information regarding these special regulatory designations, see the “Business—Government Regulation” section in our 2019 Form 10-K.

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

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

During the conduct of clinical trials, subjects report changes in their health, including illnesses, injuries and discomforts, to their study doctor. Often, it is not possible to determine if the product candidate being studied caused these conditions, particularly as many of the diseases we are studying have complex comorbidities. If clinical experience indicates that our product candidates have side effects or cause serious or life-threatening side effects, the development of the product candidate may fail or

be delayed, or, if the product candidate has received regulatory approval, such approval may be revoked, which would severely harm our business, prospects, operating results and financial condition.

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

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

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

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

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

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

Our ability to commercialize any product successfully will depend, in part, on the extent to which coverage and adequate reimbursement for these products and related treatments will be available. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, determine which medications they will cover and establish reimbursement levels, which can affect demand for, or the price of, any product candidate for which we obtain regulatory approval. Given the nature of the product candidates that we are developing, some patients may require treatment only one time (*e.g.*, single dose administration), and there is substantial uncertainty about the pricing structure for such products, and the level of coverage and reimbursement that will be available for a shift to single-dose treatment as compared to chronic therapy over a patient's lifetime. If other companies establish a new pricing structure or business model, including payment based on demonstration of long term efficacy, our ability to price or obtain reimbursement for our products may be adversely affected. If such pricing structure or business model do not adequately fund the costs of our research and development, manufacturing and commercialization efforts, our business may be adversely affected.

In addition to uncertainty about the potential pricing structure for certain of our product candidates, cost containment is a recurrent trend in the healthcare industry. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for certain medications. We cannot be sure that coverage and adequate

reimbursement will be available for any product that we commercialize and, if reimbursement is available, what the level of reimbursement will be. If reimbursement is not available or is available only at limited levels, we may be unable to successfully commercialize any product candidate for which we obtain regulatory approval. Our inability to promptly obtain coverage and profitable reimbursement rates from both government-funded and private payors for any approved products that we develop could have an adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

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

The regulations that govern, among other things, regulatory approvals, coverage, pricing and reimbursement for new drug products vary widely from country to country. In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay regulatory approval of our product candidates, restrict or regulate post-approval activities and affect our ability to successfully sell any product candidates for which we obtain regulatory approval. Also, there has been heightened governmental scrutiny recently over pharmaceutical and biological product pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical and biological products. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, have been designed to encourage importation from other countries and bulk purchasing. For a discussion of health reform activity and the current pricing framework, see the “Business—Government Regulation—Healthcare Reform” and “—Pricing, Coverage and Reimbursement” section in our 2019 Form 10-K.

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

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

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

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

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

If we or a regulatory agency discovers previously unknown problems with a product such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions relative to that product or the manufacturing facility, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. Moreover, product labeling, advertising and promotion for any approved product will be subject to regulatory requirements and continuing regulatory review. Failure to comply with such requirements, when and if applicable, could subject us to a number of actions ranging from warning letters to product seizures or significant fines, among other actions. See the “Business—Government Regulation—U.S. Review and Approval Processes” section in our 2019 Form 10-K for more information.

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

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

We are exposed to the risk of fraud or other misconduct by our employees and contractors, including intentional failures to comply with FDA regulations or similar regulations of comparable foreign regulatory authorities, provide accurate information to the FDA or comparable foreign regulatory authorities, comply with manufacturing standards we have established, comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable foreign regulatory authorities, report financial information or data accurately or disclose unauthorized activities to us. Misconduct by our employees and contractors could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter such misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant civil, criminal and administrative penalties, damages, fines, disgorgement, personal imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations.

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

We have limited resources and may forego or delay pursuit of certain programs or product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities or pursue partnering arrangements rather than retain sole responsibility for development. Our current and future research and development programs for product candidates may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may pursue opportunities that end up having a number of competitors that are more advance than our product candidates, or relinquish valuable rights to that product candidate through strategic collaboration, licensing or other royalty arrangements in cases where it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. We may also allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a partnering arrangement or which does not prove to have viable commercial opportunities. Any failure to use our financial and human resources efficiently could harm our business and operations.

Even if our technology proves to be effective, it still may not lead to commercially viable products.

Even if we, our collaborators or strategic partners are successful in using our zinc finger protein, or ZFP, technology in drug discovery, protein production, therapeutic development or other areas in which we have licensed our technology, such as plant agriculture, we or they may not be able to commercialize the resulting products or may decide to use other methods competitive with this technology. To date, no company has received marketing approval or has developed or commercialized any therapeutic or agricultural products based on our ZFP technology. Should our technology fail to provide safe, effective, useful or commercially viable approaches to the discovery and development of these product candidates, this would significantly limit our business and future growth and would adversely affect our value.

Risks Relating to Manufacturing

We are building a manufacturing facility that could support future clinical production of our product candidates. We have no experience as a company manufacturing pharmaceutical or biological products, and there can be no assurance that we will be able to build a compliant manufacturing facility or, if built, we will be able to successfully manufacture any of our product candidates.

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

Manufacturing our product candidates is costly and difficult and may not support regulatory approval or commercial viability.

There are risks associated with manufacturing our product candidates including, among others, cGMP compliance, cost overruns, technical problems with process scale-up, process reproducibility, stability issues, lot consistency, yields and timely availability of raw materials. Even if efficacy and safety data from our clinical trials would otherwise support regulatory approval for a product candidate, there is no assurance that we or any third-party manufacturer will be able to manufacture our product candidates to specifications at levels necessary to support or maintain regulatory approval by the FDA or other regulatory authorities.

For example, some of our product candidates are biologics and their manufacture involves complex processes, including the development of cell lines or cell systems to produce the biologic, with the challenge of significant variability. Further, there are difficulties in growing large quantities of such cells, consistently and sufficiently isolating certain types of cells and harvesting and purifying the biologic produced by them. The cost to manufacture biologics is generally far higher than traditional small molecule chemical compounds, and the manufacturing process can be difficult to reproduce. Thus, there is no guarantee we will be successful in establishing a larger-scale commercial manufacturing process for our product candidates or obtaining the needed manufacturing capacity. Due to the high cost to manufacture, inherent uncertainty related to manufacturing costs, and uncertainty in our patient population, there is risk that some of our product candidates may not be commercially viable.

We operate laboratories and are building manufacturing facilities that use potentially harmful biological materials and hazardous materials. If we use these materials in a manner that causes injury or violates laws, we may be liable for damages, penalties or fines.

Our research and development activities involve and our planned manufacturing facilities will involve the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals, and various radioactive compounds typically employed in the study of molecular and cellular biology. For example, we routinely use cells in culture and gene delivery vectors, and we employ small amounts of radioisotopes in trace experiments. We are subject to federal, state, and local laws and regulations governing the use, storage, handling, and disposal of these materials and specified waste products. Although we maintain up-to-date licensing and training programs, we cannot eliminate the risk of accidental contamination or injury from the use, storage, handling, or disposal of these materials or the risk of violating laws governing these materials. In the event of contamination or injury or violation of applicable laws, we could be held liable for damages, penalties or fines that result, and any liabilities could exceed our resources. We currently carry insurance covering certain liabilities arising from our use of these

materials. However, if we are unable to maintain adequate insurance coverage at a reasonable cost, we may not have insurance covering these liabilities.

Supply interruptions may disrupt our inventory levels and the availability of our product candidates, and cause delays in obtaining regulatory approval, which could harm our business by reducing our potential revenues.

Our product candidates are manufactured using technically complex processes requiring specialized facilities, highly specific raw materials and other production constraints. The complexity of these processes, as well as strict government standards for the manufacture and storage of our products candidates, subjects us to production risks. While product batches released for use in clinical trials undergo sample testing, some defects may only be identified following product release. In addition, process deviations or unanticipated effects of approved process changes may result in these intermediate products not complying with stability requirements or specifications. For example, our product candidates must be stored and transported at temperatures within a certain range. If these environmental conditions deviate, our product candidates' remaining shelf-lives could be impaired or their efficacy and safety could be adversely affected, making them no longer suitable for use.

The occurrence, or suspected occurrence, of production and distribution difficulties, whether due to the impacts of the evolving COVID-19 pandemic or otherwise, can lead to lost inventories, with consequential reputational damage and the risk of product liability. The investigation and remediation of any identified problems can cause development delays and substantial expense. Any unforeseen failure in the storage of the product or loss in supply could delay our clinical trials and, with respect to our product candidates that may be approved, result in a loss of our market share and negatively affect our business, financial condition, results of operations and prospects.

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

We currently have limited experience in clinical-scale manufacturing of our product candidates and we rely upon third-party CMOs to manufacture and supply drug product for our preclinical studies and clinical trials. Although we are in the process of building out a cGMP compliant manufacturing facility in our Brisbane facility, it is not yet ready, and will only manufacture limited quantities of our product candidates for our early stage clinical trials. We intend to continue to rely on third parties for the manufacture of product candidates for later stage clinical trials, and commercial-scale manufacturing for any approved product. The manufacture of pharmaceutical and biological products in compliance with the FDA's cGMP requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical and biological products often encounter difficulties in production, including difficulties with production costs and yields, quality control, including stability of the product candidate and quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced cGMP requirements, other federal and state regulatory requirements and foreign regulations. If our manufacturers were to encounter any of these difficulties or otherwise fail to comply with their obligations to us or under applicable regulations, our ability to provide study biologics in our clinical trials would be jeopardized. Any delay or interruption in the supply of clinical trial materials could delay the completion of our clinical trials, increase the costs associated with maintaining our clinical trial programs and, depending upon the period of delay, require us to commence new studies at significant additional expense or terminate the studies completely.

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

Our current agreements with our CMOs do not provide for the entire supply of the drug product necessary for all anticipated clinical trials or for full scale commercialization. If we and our CMOs cannot agree to the terms and conditions for them to provide the drug product necessary for our clinical and commercial supply needs, we may not be able to manufacture the

product candidate until a qualified alternative manufacturer is identified, which could also delay the development of, and impair our ability to commercialize our product candidates.

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

Risks Relating to our Industry

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

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

Adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of our product candidates.

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

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

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

The biotechnology and pharmaceutical industries are highly competitive and subject to significant and rapid technological change. We are aware of several companies focused on other methods for editing cells, editing genes and regulating gene expression and a limited number of commercial and academic groups pursuing the development of genome editing and genome regulation technology. The field of applied gene-edited cell therapy, genome editing and genome regulation is highly competitive and we expect competition to persist and intensify in the future from a number of different sources, including pharmaceutical and biotechnology companies, academic and research institutions, and government agencies that will seek to develop competing products as well as technologies that will compete with our ZFP technology platform. For example, in genome editing and gene therapy products, competing proprietary technologies with our product development focus include but are not limited to, recombinant proteins, other gene therapy/cDNAs, antisense, siRNA and microRNA approaches, exon skipping, small molecule drugs, monoclonal antibodies, Clustered Regularly Interspaced Short Palindromic Repeats, or CRISPR/Cas technology and Transcription Activator-Like Effector, or TALE, proteins, meganucleases, and MegaTALs. See the “Business—Competition” section in our 2019 Form 10-K for more information on the competition we may face.

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

In addition to possessing competing technologies, our competitors include pharmaceutical and biotechnology companies with:

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

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

The global COVID-19 pandemic could adversely affect our business and operations, including at our primary offices, which are currently subject to shelter-in-place orders, and at our clinical trial sites, as well as the business and operations of our collaborators, strategic partners, manufacturers, CROs and other third parties with whom we conduct business.

On January 30, 2020, the World Health Organization declared the coronavirus outbreak a "Public Health Emergency of International Concern" and on March 10, 2020, declared it to be a pandemic. Our business and operations could be adversely affected by the effects of the pandemic. Actions taken around the world to help mitigate the spread of the coronavirus include restrictions on travel, and quarantines in certain areas, and forced closures for certain types of public places and businesses, including in the three countries where Sangamo has most of its day-to-day operations, the United States, France and the United Kingdom. Our business has been directly impacted by pandemic restrictions aimed at reducing the spread of the disease, including multiple California executive orders, several semi-coordinated San Francisco Bay Area orders, several other state and additional local orders across the country and similar orders outside the U.S., which, among other things, direct individuals to shelter at their places of residence, direct businesses and governmental agencies to cease non-essential operations at physical locations, prohibit certain non-essential gatherings, and order cessation of non-essential travel. The San Francisco Bay Area shelter-in-place order will continue until May 31, 2020, unless further extended. In response to these public health directives and orders, we have implemented work-from-home policies for most employees and modified working protocols and schedules in our laboratories. The effects of government orders and our work-from-home and laboratory policies may negatively impact productivity, disrupt our business and delay our pre-clinical and clinical programs and timelines, the magnitude of which will depend, in part, on the length and severity of the restrictions and other limitations on our ability to conduct our business in the ordinary course. These disruptions, and possibly more severe disruptions in the future that may arise due to the extension of these orders or new orders, could negatively impact our business, operating results and financial condition.

Imposition of government orders, including quarantine and shelter-in-place orders related to COVID-19 or other infectious diseases, could continue to impact personnel at our laboratories and our third-party manufacturing facilities in the United States and other countries, and the availability or cost of materials, which would disrupt our supply chain. Many of our third-party manufacturers which we use for the supply of materials for product candidates or other materials necessary to manufacture product to conduct preclinical tests and clinical trials are located in countries affected by COVID-19, and should they experience disruptions, such as temporary closures or suspension of services, we would likely experience delays in advancing these tests and trials.

In addition, our clinical trials and clinical trials managed by our collaborators may be affected by the COVID-19 pandemic. Clinical site initiation, patient recruitment and enrollment and dosing of subjects may be delayed due to prioritization of hospital resources toward the COVID-19 pandemic. Some subjects may not be able to comply with clinical trial protocols if

quarantines impede subject movement or interrupt healthcare services. Similarly, the pandemic may limit the ability to recruit and retain principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19 and adversely impact our clinical trial operations. For example, we have not yet dosed subjects in our clinical trial for our ST-920 therapy to treat Fabry disease.

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

The global pandemic of COVID-19 continues to rapidly evolve. The extent to which the COVID-19 pandemic impacts our business, our clinical development and regulatory efforts will depend on future developments that are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions, quarantines and social distancing requirements in the United States, France, United Kingdom and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States, France, United Kingdom and other countries to contain and treat the disease. Accordingly, we do not yet know the full extent of potential delays or impacts on our business, sales of our products, our clinical and regulatory activities, healthcare systems or the global economy as a whole. However, these effects could adversely affect our business, financial condition, results of operations and growth prospects.

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

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

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

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

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

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

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any product candidates for which we obtain regulatory approval. Arrangements with healthcare providers, third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we would market, sell and distribute our products. As a biotechnology company, even though we will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. For details regarding the restrictions under applicable federal and state healthcare laws and regulations that may affect our ability to operate see the "Business—Government Regulation—Additional Regulation" section in our 2019 Form 10-K.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Scrutiny has also increased, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Responding to investigations can be time-and resource-consuming and can divert management's attention from the business. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. If our operations or if any physicians or other healthcare providers or entities with whom we expect to do business are found to not be in compliance with applicable laws or applicable regulations, we and they could be subjected to significant civil, criminal and administrative enforcement actions, see the "Business—Government Regulation—Additional Regulation" section in our 2019 Form 10-K.

Further, we are required to comply with privacy and data security laws, such as the EU General Data Protection Regulation, or GDPR, and the California Consumer Privacy Act of 2018, or CCPA, which apply to the collection, use, disclosure, transfer, or other processing of personal data. For more information regarding these regulations, see the "Business—Government Regulation—Privacy Regulation" section in our 2019 Form 10-K. Any failure or alleged failure (including as a result of deficiencies in our policies, procedures or measures relating to privacy, data security, marketing or communications) by us to comply with laws, regulations, policies, legal or contractual obligations, industry standards or regulatory guidance relating to privacy or data security, may result in governmental investigations and enforcement actions, litigation, fines and penalties or adverse publicity. In addition, new regulation, legislative actions or changes in interpretation of existing laws or regulations regarding data privacy and security (together with applicable industry standards) may increase our costs of doing business. In this regard, we expect that there will continue to be new proposed laws, regulations and industry standards relating to privacy and data protection in the United States, the EU and other jurisdictions, and we cannot determine the impact such future laws, regulations and standards will have on our business.

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

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

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

We currently hold product liability insurance coverage at a level that we believe is customary for similarly situated companies and adequate to provide us with insurance coverage for foreseeable risks, but which may not be adequate to cover all

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

Risks Relating to our Finances

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

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

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

We have incurred significant operating losses and negative operating cash flows since inception and have not achieved profitability. We expect capital outlays and operating expenditures to increase over the next several years as we expand our infrastructure and research and product development activities. While we believe our available cash resources, as well as funds received from corporate collaborators, strategic partners and research grants will enable us to maintain our currently planned operations through at least the next 12 months from the date the financial statements are issued, we will need to raise substantial additional capital to fund the development, manufacturing and potential commercialization of our product candidates. We regularly consider fund raising opportunities and may decide, from time to time, to raise capital based on various factors, including market conditions and our plans of operation. In addition, as we focus our efforts on proprietary human therapeutics, we will need to seek FDA approvals of our product candidates, a process that could cost in excess of hundreds of millions of dollars per product. We may experience difficulties in accessing the capital markets due to external factors beyond our control, such as volatility in the equity markets for emerging biotechnology companies and general economic and market conditions both in the United States and abroad. For example, our ability to raise additional capital may be adversely impacted by potential worsening global economic conditions and the recent disruptions to and volatility in the credit and financial markets in the United States and worldwide resulting from the evolving COVID-19 pandemic. We cannot be certain that we will be able to obtain financing on terms acceptable to us, or at all. Our failure to obtain adequate and timely funding will adversely affect our business and our ability to develop our technology and products candidates.

To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may issue common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. New investors could gain rights superior to our existing stockholders.

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

Although certain amount of our federal net operating loss carryforwards carry forward indefinitely (but are subject to a percentage limitation), a significant amount of our federal and all of our state net operating loss carryforwards will begin to expire, if not utilized, beginning in 2024 and 2029, respectively. The net operating loss carryforwards subject to expiration could expire unused and be unavailable to offset future income tax liabilities. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50 percentage point change in its equity ownership value over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We have experienced an ownership change in the past and we may also

experience additional ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations. In addition, at the state level, there may be periods during which the use of net operating loss carryforwards is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. As a result, if we earn net taxable income, we may be unable to use all or a material portion of our net operating loss carryforwards and other tax attributes, which could potentially result in increased future tax liability to us and adversely affect our future cash flows.

Risks Relating to our Reliance on Third Parties

If conflicts arise between us and our contractors, collaborators or strategic partners, these parties may act in their self-interest, which may limit our ability to implement our strategies and otherwise harm our business and prospects.

If conflicts arise between us and our contractors, corporate or academic collaborators or strategic partners, the other party may act in its self-interest, which may limit our ability to implement our strategies. Some of our academic collaborators and strategic partners are conducting multiple product development efforts within each area that is the subject of the collaboration with us. Our collaborators or strategic partners may develop, either alone or with others, products in related fields that are competitive with the products or potential products that are the subject of these collaborations. Competing products, either developed by the collaborators or strategic partners or to which the collaborators or strategic partners have rights, may result in the withdrawal of partner support for our product candidates.

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

In addition, conflicts could arise between us and our collaborators resulting from disputes regarding our or our collaborators' or strategic partners' performance under the applicable agreement, including disputes arising from alleged breaches of our agreements with our collaborators and strategic partners. For example, we have certain confidentiality obligations to our collaborators and strategic partners under our agreements with them, and it is possible that, in connection with the data security incident we disclosed in April 2018, we could be subject to claims that we have breached our confidentiality obligations, which could result in damages payable by us and/or the affected collaborator or strategic partner seeking to terminate its agreement with us.

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

Our collaborators and strategic partners may control aspects of our research, development and manufacturing programs, including but not limited to, our clinical trials, which could result in delays and other obstacles in the commercialization of our proposed products.

We depend on third-party collaborators and strategic partners to design and conduct our clinical trials for some of our therapeutic programs. As a result, we may not be able to conduct these programs in the manner or on the time schedule we currently contemplate, which may negatively impact our business operations. In addition, if any of these collaborators or strategic partners withdraws support for our programs or proposed products or otherwise impair their development; our business could be negatively affected.

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

Our license collaborators or strategic partners may decide to adopt alternative technologies or products or may be unable to develop commercially viable products with our technology, which would negatively impact our revenues and our strategy to develop these products.

Our collaborators or strategic partners may adopt alternative technologies, which could decrease the marketability of ZFP technology. Additionally, because many of our collaborators or strategic partners are likely to be working on more than one development project, they could choose to shift their resources to projects other than those they are working on with us. If they do so, this would delay our ability to test our technology and would delay or terminate the development of potential products based on our ZFP technology. Further, our collaborators and strategic partners may elect not to develop products arising out of our collaborative and strategic partnering arrangements or to devote sufficient resources to the development, manufacturing, marketing or sale of these products. If they terminate the collaborative relationship with us, we will be required to seek the support of other partners or collaborators. We may not have sufficient resources and expertise to develop these programs by ourselves, and we may not be able to identify a suitable partner or negotiate a favorable collaboration agreement to allow us to continue the development of these programs. If any of these events occur, we may not be able to develop our technologies or commercialize our products.

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

We do not have financial resources ourselves to fully develop, obtain regulatory approval for and commercialize our product candidates. We rely significantly on our strategic collaboration agreements with other companies to provide funding for our research and development efforts, including pre-clinical studies and clinical tests, and expect to rely significantly on such agreements to provide funding for the lengthy regulatory approval processes required to commercialize our product candidates. For example, we have collaboration agreements with Biogen to develop preclinical ZFP-TF product candidates to treat tauopathies including Alzheimer's disease, alpha-synuclein related diseases including Parkinson's disease and other neurological diseases; with Kite to develop engineered cell therapies for cancer; with Pfizer to develop product candidates for hemophilia A and amyotrophic lateral sclerosis and frontotemporal lobar degeneration linked to mutations of the *C9ORF72* gene; and with Sanofi to develop product candidates for beta thalassemia and sickle cell disease.

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

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

Risks Relating to our Intellectual Property

Because it is difficult and costly to protect and maintain our proprietary rights, and third parties may have filed patent applications that are similar to ours, we may not be able to obtain or maintain proprietary protection of our technologies and products or we may only obtain protection in limited jurisdictions.

Our commercial success may depend in part on obtaining and enforcing patent protection for our technology and successfully defending any of our patents that may be challenged. Obtaining and enforcing pharmaceutical and biotechnology patents is costly, time consuming and complex, and we may not be able to file and prosecute all necessary or desirable patent applications, or maintain, enforce and license any patents that may issue from such patent applications, at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and can involve complex legal and factual questions. No consistent policy regarding the breadth of claims allowed in biotechnology patents has emerged to date. Accordingly, we cannot predict the breadth of claims that may issue from any patent

applications that we own or license, nor are we able to predict whether any third-party patents might issue with claims that are relevant to our product candidates or technologies. Even if patents do successfully issue and even if such patents cover our product candidates, third parties may challenge their validity, enforceability or scope, which may result in such patents being narrowed or invalidated. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Furthermore, if third parties have filed similar patent applications, an interference or derivation proceeding in the United States can be initiated by the United Stated Patent and Trademark Office, or U.S. PTO, a third party, or by us to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

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

With respect to our present and any future sublicenses, because our rights derive from those granted to our sublicensor, we are subject to the risk that our sublicensor may fail to perform its obligations under the master license or fail to inform us of useful improvements in, or additions to, the underlying intellectual property owned by the original licensor.

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

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

- we or our licensors were the first to make the inventions covered by each of our pending patent applications;
- we or our licensors were the first to file patent applications for these inventions;
- the patents of others will not have an adverse effect on our ability to do business;
- others will not independently develop similar or alternative technologies or reverse engineer any of our products, processes or technologies;
- any of our pending patent applications will result in issued patents;
- any patents issued or licensed to us, our collaborators or strategic partners will provide a basis for commercially viable products or will provide us with any competitive advantages;
- any patents issued or licensed to us will not be challenged and invalidated by third parties; or
- we will develop additional products, processes or technologies that are patentable.

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

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

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

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

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

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

We rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors, collaborators, partners and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures have been and may in the future be breached, and we may not have adequate remedies for any breach. See also the risk factor titled, “Significant disruptions of our information technology systems or data security incidents could result in significant financial, legal, regulatory, business and reputational harm to us.” In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

Although we expect all of our employees and consultants to assign their inventions to us, and all of our employees, consultants, advisors, collaborators, partners and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed or that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Misappropriation or unauthorized disclosure of our trade secrets could impair our competitive position and may have an adverse effect on our business. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret. In addition, others may independently discover our trade secrets and proprietary information. For example, the FDA, as part of its Transparency Initiative, is currently considering whether to make additional information publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA’s disclosure policies may change in the future, if at all.

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

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

Presently, we believe we have rights to the intellectual property, through licenses from third parties and under patents that we own, to develop our gene and cell therapy product candidates. Because our programs may involve additional product candidates, such as TX200 and potential future CAR-Treg therapies that may require the use of proprietary rights held by third

parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, our product candidates may require specific formulations to work effectively and efficiently and these rights may be held by others. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify on commercially reasonable terms, if at all. The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property rights that we may consider attractive. These established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

For example, we sometimes collaborate with U.S. and foreign academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such right of first negotiation for intellectual property, we may be unable to negotiate a license within the specified time frame or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our program.

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

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

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

We may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we have done so from time to time. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we may be required to expend significant time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could harm our business significantly. We cannot provide any assurances that third-party patents do not exist that might be enforced against our current product candidates or future products, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties.

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

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

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have an adverse effect on our business, financial condition, results of operations, and prospects. If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates, which could have an adverse effect on our business, financial conditions, results of operations, and prospects. As an example, Sangamo France has exclusively licensed the right to the chimeric antigen receptors, or CAR, for use in TX200 from the University of British Columbia, or UBC. Should UBC terminate this license agreement, we may have to develop or acquire the appropriate CAR which would extend our anticipated development timeline and add expense, and which could result in our failure to realize the anticipated benefits of the acquisition of Sangamo France.

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

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

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

Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties, redesign our infringing products or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure.

Competitors may also infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid, is unenforceable, in whole or in part, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing. Moreover, if

we or one of our licensing partners initiated legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate is invalid and/or unenforceable. Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover our product candidate. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection could have an adverse impact on our business.

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

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have an adverse effect on our ability to raise additional funds or otherwise have an adverse effect on our business, results of operations, financial condition and prospects.

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

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

Changes in patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other biotechnology companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biotechnology industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. Changes in either the patent laws or interpretation of the patent laws in the United States or in other jurisdictions in which we seek patent protection could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. The United States enacted the Leahy-Smith America Invents Act, or the America Invents Act, which includes a number of significant changes that affect the way patent applications will be prosecuted and also may affect patent litigation. These include allowing third party submission of prior art to the U.S. PTO during patent prosecution and additional procedures to attack the validity of a patent by U.S. PTO administered post-grant proceedings, including post-grant review, *inter partes* review, and derivation proceedings. Because of a lower evidentiary standard in U.S. PTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a U.S. PTO proceeding sufficient for the U.S. PTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. In addition, the challenged patents are not accorded the presumption of validity as they are in Federal District Court. Accordingly, a third party may attempt to use the U.S. PTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. Therefore, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our owned or in-

licensed patent applications and the enforcement or defense of our owned or in-licensed issued patents, all of which could have an adverse effect on our business, financial condition, results of operations, and prospects. Moreover, recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, the U.S. PTO, and similar legislative, judicial and regulatory bodies in other jurisdictions, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

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

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

We are conducting proprietary research to discover new product candidates. These programs increase our financial risk of product failure, may significantly increase our research expenditures, and may involve conflicts with future collaborators and strategic partners.

Our proprietary research programs consist of research that is funded solely by us or by grant funding and in which we retain exclusive rights to therapeutic products generated by such research. This is in contrast to certain of our research programs that may be funded by corporate partners in which we may share rights to any resulting products. Conducting proprietary research programs may not generate corresponding revenue and may create conflicts with our collaborators or strategic partners over rights to our intellectual property with respect to our proprietary research activities. Any conflict with our collaborators or strategic partners could reduce our ability to enter into future collaborations or partnering agreements and negatively impact our relationship with existing collaborators and partners that could reduce our revenue and delay or terminate our product development. As we continue to focus our strategy on proprietary research and therapeutic development, we expect to experience greater business risks, expend significantly greater funds and require substantial commitments of time from our management and staff.

Risks Relating to our Business Operations

Significant disruptions of our information technology systems or data security incidents could result in significant financial, legal, regulatory, business and reputational harm to us.

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

vulnerable to unintentional or malicious, internal and external attacks on our technology environment. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity.

Significant disruptions of our, our third-party vendors' and/or business partners' information technology systems or other similar data security incidents could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, sensitive information, which could result in financial and reputational harm to us. For example, in April 2018, we announced a data security incident involving the compromise of a then senior executive's company email account. Upon learning of the incident on March 28, 2018, external network security experts were promptly engaged, and the incident response team worked diligently to investigate the incident. We also promptly notified federal law enforcement of the incident. The investigation concluded that the incident was limited to the compromise of the then senior executive's company email account for approximately 11 weeks. The investigation did not reveal any evidence that our network or other information technology systems were otherwise compromised in connection with the incident or that the incident resulted in the disclosure of or access to personal information about patients or other individuals besides the holder of the company email account that was affected. However, proprietary, confidential and other sensitive information of ours and that of other entities was accessed and may have been compromised as a result of the incident. Unforeseen developments related to this incident could occur, which could have a further adverse impact on us. We do not maintain cyber liability insurance and will therefore have no coverage for any losses resulting from this data security incident. Any litigation or regulatory review arising from this incident could result in significant legal exposure to us. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our facility, development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

While we aware of the company email incident described above, there is no way of knowing with certainty whether we have experienced any other data security incidents that have not been discovered. While we have no reason to believe this to be the case, attackers have become very sophisticated in the way they conceal access to systems, and many companies that have been attacked are not aware that they have been attacked. Any event, including the company email incident described above, that leads to unauthorized access, use or disclosure of personal information could, among other consequences, disrupt our business, harm our reputation, compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents. In addition, failure to maintain effective internal accounting controls related to security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and subject us to regulatory scrutiny. Moreover, data security incidents and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or further security incidents.

We continue to operate the acquired Sangamo France business in France and the Sangamo UK business in the United Kingdom, which may expose us to unanticipated costs or events.

Sangamo France's historical operations have been based in France and we continue to operate the acquired Sangamo France business in France. Our operation of the acquired Sangamo France business in France involves significant risks, including:

- difficulty hiring and retaining appropriate personnel due to intense competition for such limited resources;
- disruptions in relations with our employees, including legacy Sangamo France employees; and
- compliance with regulatory requirements, including local French employment regulations and organized labor in France.

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

We may face difficulties as we expand our operations into countries in which we have no prior operating experience, and we may be exposed to risks associated with our operations and clinical trials in foreign jurisdictions, which could adversely affect our business.

In addition to Sangamo France and Sangamo UK, we may expand our global footprint in order to enter new markets. Operating in foreign jurisdictions requires significant resources and management attention and subjects us to regulatory, economic and political risks that are different from those we face in the United States. We cannot be sure that any further international expansion will be successful.

Certain countries into which we expand may have less political, social or economic stability and less developed infrastructure and legal systems. It will be costly to establish, develop and maintain international operations and develop and promote our products, if and when approved, in international markets. We may also encounter regulatory, legal, personnel, technological and other difficulties that increase our expenses and/or delay our ability to become profitable in such countries, which could have an adverse effect on our business and operations. Consequently, we are, and will continue to be, subject to risks inherent with operating in foreign countries, in addition to those specific risks associated with Sangamo France and Sangamo UK, which include:

- the increased complexity and costs inherent in managing international operations, including in geographically disparate locations;
- diverse regulatory, financial and legal requirements, and any future changes to such requirements, in one or more countries where we are located or do business;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems and price controls;
- adverse tax consequences, including changes in applicable tax laws and regulations;
- applicable trade laws, tariffs, export quotas, custom duties or other trade restrictions, and any changes to them;
- economic weakness, including inflation, or political or economic instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses or reduced revenues, and other obligations incident to doing business or operating in another country;
- liabilities for activities of, or related to, our international operations;
- challenges inherent in efficiently managing employees in diverse geographies, including the need to adapt systems, policies, benefits and compliance programs to differing labor and other regulations;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of health epidemics, including the evolving COVID-19 pandemic, and the resulting global economic and social impacts;
- workforce uncertainty in countries where labor unrest is more common than in the United States; and
- laws and regulations relating to data security and the unauthorized use of, or access to, commercial and personal information.

The withdrawal of the United Kingdom from the EU, commonly referred to as "Brexit," may adversely impact our ability to obtain regulatory approvals of our product candidates in the EU, result in restrictions or imposition of taxes and duties for importing our product candidates into the EU and may require us to incur additional expenses in order to develop, manufacture and commercialize our product candidates in the EU.

Following the result of a referendum in 2016, the United Kingdom left the EU on January 31, 2020 pursuant to formal withdrawal agreements between the United Kingdom and the EU. Under these agreements, the United Kingdom will be subject to a transition period until December 31, 2020, during which EU rules will continue to apply. Negotiations between the United Kingdom and the EU are expected to continue in relation to the customs and trading relationship between the United Kingdom and the EU following the expiry of the transition period.

A significant proportion of the regulatory framework in the United Kingdom applicable to our business and our product candidates is derived from EU directives and regulations, and as such, following the transition period, Brexit could negatively impact the regulatory regime with respect to the development, manufacture, importation, approval and commercialization of our product candidates in the United Kingdom or the EU. Any delay in obtaining, or an inability to obtain, any clinical trial authorizations or marketing approvals, as a result of Brexit or otherwise, would prevent us from developing or commercializing our product candidates in the United Kingdom or the EU and restrict our ability to generate revenue and achieve and sustain profitability. In addition, we may be required to pay taxes or duties or be subjected to other hurdles in connection with the importation of our clinical trial materials and/or our product candidates into the EU or into the United Kingdom from the EU, or

we may incur expenses in establishing a manufacturing facility in the EU in order to circumvent such hurdles. If any of these outcomes occur, we may be forced to restrict or delay efforts to seek regulatory approval in the United Kingdom or the EU for our product candidates, or incur significant additional expenses to operate our business, which could significantly and significantly harm or delay our ability to generate revenues or achieve profitability of our business. Any further changes in international trade, tariff and import/export regulations as a result of Brexit or otherwise may impose unexpected duty costs or other non-tariff barriers on us. These developments, or the perception that any of them could occur, may significantly reduce global trade and, in particular, trade between the impacted nations and the United Kingdom. It is also possible that Brexit may negatively affect our ability to attract and retain employees, particularly those from the EU.

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

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

We will need to grow the size of our organization, and we may experience difficulties in managing this growth and attracting and retaining employees.

We will need to grow the size of our organization in order to support our continued development and potential commercialization of our product candidates. In particular, we will need to add substantial numbers of additional personnel and other resources to support our development and potential commercialization of our product candidates. As our operations expand, we will also need to manage additional relationships with various strategic partners, suppliers and other third parties. We may not be able to attract or retain employees with the appropriate levels of experience and skills to accomplish our objectives. As our development and commercialization plans and strategies continue to develop, or as a result of any future acquisitions, our need for additional managerial, operational, manufacturing, sales, marketing, financial and other resources will increase. Future growth will also impose significant added responsibilities on members of management.

Our future financial performance and our ability to commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to manage our development efforts and preclinical studies and clinical trials effectively and hire, train and integrate additional management, research and development, manufacturing, administrative and sales and marketing personnel. Our failure to accomplish any of these tasks could prevent us from successfully growing our company.

We are dependent on certain key members of our executive team and certain of our scientific and manufacturing personnel, the loss of whose services may adversely impact the achievement of our objectives. 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. The loss of the services of one or more of such key employees might impede the achievement of our research, development and commercialization objectives.

Recruiting and retaining other qualified employees for our business, including scientific and technical personnel is, and will continue to be, critical to our success. There currently is a shortage of skilled individuals with substantial gene therapy experience, which is likely to continue. As a result, competition for skilled personnel, including in gene therapy research and vector manufacturing, is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies and academic institutions for individuals with similar skill sets. In addition, failure to succeed in preclinical or clinical trials or applications for marketing approval may make it more challenging to recruit and retain qualified personnel. The inability to recruit, or loss of services of certain executives or key employees, may impede the progress of our research, development and commercialization objectives

and have an adverse effect on our business, financial condition, results of operations and prospects. Moreover, our ability to recruit and retain qualified executives and employees may be adversely impacted by the evolving COVID-19 pandemic.

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

Part of our business strategy is to expand our product candidate pipeline by identifying and validating new product candidates, which we may develop ourselves, in-license or otherwise acquire from others. If our existing product candidates do not receive regulatory approval or are not successfully commercialized, then the success of our business will depend on our ability to continue to expand our product pipeline through in-licensing or other acquisitions. We may be unable to identify relevant product candidates. If we do identify such product candidates, we may be unable to reach acceptable terms with any third party from which we desire to in-license or acquire them. Further, while we seek to mitigate risks and liabilities of potential acquisitions and in-licensing transactions through, among other things, due diligence, there may be risks and liabilities that such due diligence efforts fail to discover, that are not disclosed to us, or that we inadequately assess, or that we are not able to effectively manage. Additionally, we may not realize the anticipated benefits of such transactions for a variety of reasons, including the possibility that acquired product candidates, such as TX200, prove not to be safe or effective in clinical trials, the integration of an acquired product candidate, technology or business gives rise to unforeseen difficulties and expenditures, or that the expected benefits will not otherwise be realized or will not be realized within the expected timeframe.

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

Risks Relating to our Common Stock and Corporate Organization

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

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

- announcements by us or collaborators providing updates on the progress or development status of product candidates or data from clinical trials;
- initiation or termination of clinical trials;
- changes in market valuations of similar companies;
- overall market and economic conditions, including the equity markets for emerging biotechnology companies;
- deviations in our results of operations from the guidance given by us;
- announcements by us or our competitors of new or enhanced products, technologies or services or significant contracts, acquisitions, strategic relationships, joint ventures or capital commitments;
- announcement of changes in business and operations by our collaborators and partners, or changes in our existing collaboration agreements;
- changes in public opinion of gene therapy and genomic medicines;
- regulatory developments, including increased regulatory scrutiny of gene therapy and genomic medicines;
- changes, by one or more of our security analysts, in recommendations, ratings or coverage of our stock;
- additions or departures of key personnel; and
- sales of our common stock or other securities by us, management or directors, liquidation of institutional funds that comprised large holdings of our stock and decreases in our cash balances.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies, including very recently in connection with the evolving COVID-19 pandemic, which has resulted in decreased stock prices for many companies notwithstanding the lack of a

fundamental change in their underlying business models or prospects. These fluctuations have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors, including potentially worsening economic conditions and other adverse effects or developments relating to the evolving COVID-19 pandemic, and political, regulatory and other market conditions, may negatively affect the market price of shares of our common stock, regardless of our actual operating performance.

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

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. With the exception of shares recently issued to Biogen in connection with our collaboration agreement, our outstanding shares of common stock generally may be freely sold in the public market at any time to the extent permitted by Rules 144 and 701 under the Securities Act of 1933, as amended, or the Securities Act, or to the extent such shares have already been registered under the Securities Act and are held by non-affiliates of ours. While Biogen agreed not to sell any shares until the first anniversary of the effectiveness, and to limit resales through the second anniversary, such restrictions are only temporary. Further, we also agreed, subject to certain limitations, to register for resale any the shares issued Biogen. We have also filed registration statements registering all shares of common stock that we may issue under our equity compensation plans. Such shares can be freely sold in the public market upon issuance, subject to volume limitations and black-out periods applicable to affiliates.

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

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

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

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

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

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

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

connection with possible acquisitions and other corporate purposes, this issuance may make it more difficult for a third party to acquire a majority of our outstanding voting stock.

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

In addition, our amended and restated bylaws:

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

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

Our amended and restated bylaws provide that a state or federal court located within the State of Delaware will be the exclusive forum for the adjudication of certain disputes, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

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

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

This provision further provides that any person or entity that acquires any interest in shares of our capital stock will be deemed to have notice of and consented to the provisions of such provision.

While this provision does not apply to suits brought to enforce a duty or liability created by the Exchange Act or the Securities Act, or any claim for which the federal courts have exclusive jurisdiction, this provision may nonetheless limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers, and other employees. If a court were to find this provision to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could seriously harm our business.

ITEM 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

On May 6, 2020, we began entering into new indemnity agreements with each of our current directors and officers, or indemnitees, using a new form of indemnity agreement approved by our Board of Directors. These indemnity agreements supersede previous indemnity agreements entered into between the indemnitees and the Company.

Consistent with the previous indemnity agreements, the new indemnity agreements provide, among other things, that we indemnify the indemnitees to the fullest extent permitted by law, subject to certain conditions, against all expenses and certain other amounts actually and reasonably incurred by the indemnitees in connection with proceedings in which the indemnitees are involved, or are threatened to become involved, by reason of the fact that the indemnitees are or were directors or officers of the Company. As in the previous indemnity agreements, the new indemnity agreements also, subject to certain conditions, entitle the indemnitees to advancement of attorneys' fees and other expenses and provide procedures for determining whether an indemnitee is eligible for indemnification. Additionally, the new indemnity agreements have a specified term and provide that an indemnitee is eligible for indemnification during the period of his or her service as an officer or director and thereafter so long as the indemnitee is subject to any proceeding by reason of his or her prior service as a director or officer. The new indemnity agreement also requires us to maintain directors' & officers' liability insurance for a five-year tail period following the time an indemnitee ceases to provide services as a director or officer.

We intend for the new indemnity agreement to provide indemnification rights to the fullest extent permitted under Delaware law and these indemnification rights are in addition to any other rights the indemnitees may have under our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws.

The above summary of the new indemnity agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the form of indemnity agreement, which is filed as Exhibit 10.3 to this Quarterly Report on Form 10-Q.

ITEM 6. EXHIBITS

Exhibit number		Description of Document
3.1		Composite copy of Seventh Amended and Restated Certificate of Incorporation of Sangamo Therapeutics, Inc., as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 000-30171), filed with the SEC on August 9, 2017).
3.2		Third Amended and Restated Bylaws of Sangamo Therapeutics, Inc. (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 000-30171), filed with the SEC on June 15, 2018.
10.1	†	Collaboration and License Agreement among the Company, Biogen MA, Inc. and Biogen International GmbH, dated February 26, 2020.
10.2		Stock Purchase Agreement between the Company and Biogen MA, Inc., dated February 26, 2020.
10.3	‡	Form of Indemnity Agreement
31.1		Rule 13a — 14(a) Certification of Principal Executive Officer.
31.2		Rule 13a — 14(a) Certification of Principal Financial Officer.
32.1	*	Certifications Pursuant to 18 U.S.C. Section 1350.
101.INS		XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH		Inline XBRL Taxonomy Extension Schema Document
101.CAL		Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF		Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB		Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE		Inline XBRL Taxonomy Extension Presentation Linkbase Document
104		The cover page from Sangamo's Quarterly Report on Form 10-Q for the three months ended March 31, 2020, 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.

† Certain portions of this exhibit (indicated by "[*]") have been omitted because they are both (i) not material and (ii) would be competitively harmful if publicly disclosed.

‡ Indicates management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Dated: May 11, 2020

SANGAMO THERAPEUTICS, INC.

/s/ SUNG H. LEE

Sung H. Lee
Executive Vice President and Chief Financial Officer
Executive Vice President and Chief Financial Officer
(Duly Authorized Officer and Principal Financial Officer)
(Duly Authorized Officer and Principal Financial Officer)

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

COLLABORATION AND LICENSE AGREEMENT

by and between

Sangamo Therapeutics, Inc.,

Biogen MA, Inc.

and

Biogen International GmbH

February 26, 2020

Table of Contents

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Schedules:

Confidential

COLLABORATION AND LICENSE AGREEMENT

This **COLLABORATION AND LICENSE AGREEMENT** (this "**Agreement**") is made as of February 26, 2020 (the "**Execution Date**"), by and between **Sangamo Therapeutics, Inc.**, a Delaware corporation having an office at 7000 Marina Boulevard, Brisbane, CA 94005 ("**Sangamo**"), and **Biogen MA, Inc.**, a corporation organized under the laws of the Commonwealth of Massachusetts having an office at 225 Binney Street, Cambridge, MA 02142 ("**BIMA**"), and Biogen International GmbH, a Gesellschaft mit beschränkter Haftung organized under the laws of Switzerland, whose registered office is at Neuhofstrasse 30, 6340 Baar, Switzerland ("**BIG**", together with BIMA, collectively, "**Biogen**"). Biogen and Sangamo are referred to in this Agreement individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, Biogen is a biopharmaceutical company engaged in the research, development, manufacturing and commercialization of biopharmaceutical products for the treatment of human disease, including neurological or psychiatric diseases.

WHEREAS, Sangamo is a clinical stage biotechnology company focused on the research, development and commercialization of genome editing and gene therapy products targeting genetic diseases with unmet medical needs.

WHEREAS, Biogen and Sangamo desire to establish a collaboration for the research and development and, if successful, commercialization of zinc finger protein-based products targeting neurological or psychiatric disease gene targets, all under the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, Biogen and Sangamo hereby agree as follows:

ARTICLE 1
DEFINITIONS

Unless the context otherwise requires, the terms in this Agreement with initial letters capitalized shall have the meanings set forth below:

1.1 "**AAV Vector**" means any adeno-associated virus vector, including the capsid.

1.2 "**Academic Research Agreement**" has the meaning set forth in Section 11.6(a).

1.3 "**Acquiree**" has the meaning set forth in Section 2.5(b)(ii).

1.4 "**Acquiror**" has the meaning set forth in Section 2.5(b)(i).

1.5 "**Additional Cure Period**" has the meaning set forth in Section 12.2(b) (Termination for Material Breach).

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

1.6 "**Affiliate**" means, with respect to any Person, any other Person that (directly or indirectly) controls, is controlled by, or is under common control with, such Person. For purposes of this Agreement, a Person shall be deemed to "control" another Person if it owns or controls, directly or indirectly, at least fifty percent (50%) of the equity securities (or other ownership interests, by contract or otherwise) of such other Person entitled to vote in the election of directors (or, in the case that such other Person is not a corporation, for the election of the corresponding managing authority), or otherwise has the power to direct the management and policies of such other Person.

1.7 "**Alliance Manager**" has the meaning set forth in Section 3.1 (Alliance Managers).

1.8 "**Allowable Overruns**" means, for one or more given Research Activities in a given Calendar Year, any FTE Costs or Out-of-Pocket Costs incurred by or on behalf of a given Party in the performance of such Research Activities allocated to such Party under the Research Plan that (a) are not attributable to any breach of this Agreement by such Party and (b) are in excess of the aggregate amount budgeted for such Research Activities in the Research Budget for such Calendar Year (i) by an amount not to exceed [*] of such amount budgeted for such Calendar Year or (ii) otherwise approved by the JSC in accordance with Section 3.2 (Joint Steering Committee).

1.9 "**Antitrust Clearance Date**" has the meaning set forth in Section 15.1 (Effective Date).

1.10 "**Antitrust Laws**" means any and all applicable Laws designed to prohibit, restrict or regulate actions for the purpose or effect of monopolization or restraint of trade.

1.11 "**BIMA**" has the meaning set forth in the preamble.

1.12 "**Biogen**" has the meaning set forth in the preamble.

1.13 "**Biogen [*] Patent Right**" means any Patent Right [*] that Covers or otherwise claims any Inventions developed or invented [*] [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Invention to [*] that [*], but expressly excluding [*].

1.14 "**Biogen [*] Know-How**" means all Inventions developed or invented [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Inventions to [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Inventions to [*], in each case, that (a) [*] and (b) [*].

1.15 "**Biogen [*] Patent Rights**" means all Patent Rights that Cover or otherwise claim Biogen [*] Know-How.

1.16 "**Biogen [*] Technology**" means Biogen [*] Know-How and Biogen [*] Patent Rights.

1.17 "**Biogen First Right Patent Rights**" has the meaning set forth in Section 10.2(a) (Biogen-Prosecuted Patent Rights).

1.18 "**Biogen Indemnitees**" has the meaning set forth in Section 14.1 (Indemnification by Sangamo).

1.19 "**Biogen Licensed Know-How**" means any Know-How Controlled by Biogen or any of its Affiliates that is (a) [*] such Know-How is [*], or (b) [*] under this Agreement and [*].

1.20 "**Biogen Licensed Patent Right Rights**" means any Patent Rights Controlled by Biogen or any of its Affiliates that Cover or otherwise claim any Biogen Licensed Know-How.

1.21 "**Biogen Licensed Technology**" means Biogen Licensed Know-How and Biogen Licensed Patent Right Rights.

1.22 "**Biogen-Prosecuted Patent Rights**" has the meaning set forth in Section 10.2(a) (Biogen-Prosecuted Patent Rights).

1.23 "**Biogen Research Activities**" has the meaning set forth in Section 4.3(b) (Biogen Research Activities).

1.24 "**Biogen Sole-Prosecuted Patent Rights**" has the meaning set forth in Section 10.2(a) (Biogen-Prosecuted Patent Rights).

1.25 "**Biogen [*] Technology**" means, with respect to [*], (a) all Know-How [*] Biogen or any of its Affiliates [*] with respect to [*] that (i) [*] Biogen or any of its Affiliates [*] (ii) [*] Biogen or its Affiliates and (iii) [*] under this Agreement and (b) all Patent Rights Controlled by Biogen or any of its Affiliates that Cover or otherwise claim such Know-How.

1.26 "**Biogen [*] Technology**" means, with respect to [*], (a) all Know-How (i) [*] Biogen's or its Affiliates', [*], either [*] or [*], in each case, in connection with [*] with respect to [*] or (ii) [*] Biogen or its Affiliates [*] with respect to [*] that [*] with respect to [*] and (b) all Patent Rights Controlled by Biogen or its Affiliates that Cover or otherwise claim such Know-How described in the foregoing clause (a), but expressly excluding all Biogen [*] Technology.

1.27 "**Biosimilar Product**" means, with respect to a particular Product in a particular country in the Territory, any biological product sold by a Third Party that is not a Sublicensee of, or Third Party Distributor for, Biogen or its Affiliates and that did not purchase such product in a chain of distribution that included Biogen or any of its Affiliates or Sublicensees, (a) where such product is approved by the applicable Regulatory Authority as biosimilar to or interchangeable with such Product (including, with respect to the United States, a product that is the subject of an application submitted under Section 351(k) of the Public Health Services Act citing the Product as the reference product) or (b) for which the Regulatory Approval otherwise relies on such Product as a reference product or any corresponding foreign application in the Territory (including, with respect to the EU, a marketing authorization application for a biosimilar biological medicinal product pursuant to Article 10(4) of Directive 2001/83/EC).

1.28 "**Blocked Target**" has the meaning set forth in Section 4.7(d) (Blocked Targets).

1.29 "[*]**"** means [*].

1.30 "**Breach Notice**" has the meaning set forth in Section 12.2(b) (Termination for Material Breach).

1.31 "**Business Day**" means a day other than a Saturday, Sunday, or a bank or other public holiday in California or Massachusetts.

1.32 "**Calendar Quarter**" means the respective periods of three consecutive calendar months ending on March 31, June 30, September 30 or December 31, during the Term, or the applicable part thereof during the first or last calendar quarter of the Term.

1.33 "**Calendar Year**" means any calendar year ending on December 31, or the applicable part thereof during the first or last calendar year of the Term.

1.34 "**Challenge**" means, with respect to any Licensed Patent Right, to contest the validity or enforceability of any such Patent Right in any court, arbitration proceeding or other tribunal, including the United States Patent and Trademark Office, the European Patent Office or the United States International Trade Commission. As used in this term "Challenge", the term "contest" means (a) filing an action under 28 U.S.C. §§ 2201-2202 seeking a declaration of invalidity or unenforceability of any such Licensed Patent Right; (b) filing, or joining in, a petition under 35 U.S.C. § 311 to institute *inter partes* review of any such Licensed Patent Right, or any portion thereof; (c) filing, or joining in, a petition under 35 U.S.C. § 321 to institute post-grant review of any such Licensed Patent Right, or any portion thereof; (d) any foreign equivalent of clauses (a), (b) or (c) in the Territory outside of the United States; or (e) filing or commencing any opposition, nullity or similar proceedings challenging the validity or enforceability of any such Licensed Patent Right in any country outside the United States; but expressly excluding filing a request under 35 U.S.C. § 251 for a reissue of any such Licensed Patent Right or any foreign equivalents thereto in the Territory outside of the United States.

1.35 "**Change of Control**" means, with respect to a Party, (a) a merger, reorganization, combination or consolidation of such Party with a Third Party that results in the holders of beneficial ownership of the voting securities or other voting interests of such Party (or, if applicable, the ultimate parent of such Party) immediately prior to such merger, reorganization, combination or consolidation ceasing to hold beneficial ownership of more than fifty percent (50%) of the combined voting power of the surviving entity or the ultimate parent of the surviving entity immediately after such merger, reorganization, combination or consolidation, (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the beneficial owner of more than fifty percent (50%) or more of the combined voting power of the outstanding securities or other voting interest of such Party, (c) the sale, lease, exchange, contribution or other transfer (in one transaction or a series of related transactions) to a Third Party of all or substantially all of such Party's assets or (d) a liquidation or dissolution of such Party or any direct or indirect parent of such Party.

1.36 "**Clearance Date**" means, with respect to a Product, (a) in the U.S., the date that is [*] days following the filing of the first IND for such Product, if Biogen or its Affiliates or Sublicensees has not received any notice of a clinical hold or any other regulatory administrative delay (that is initiated by the FDA and not caused by an action or inaction of Biogen) from the FDA during such [*] day period; *provided that*, if Biogen or its Affiliate or Sublicensee does receive a notice of a clinical hold or there is such other regulatory administrative delay, then the "Clearance Date" for such Product will be the date on which the FDA lifts such clinical hold or such other regulatory administrative delay is otherwise resolved and the FDA first allows the applicable Product to be administered to a human pursuant to such IND filing, or (b) in other regulatory jurisdictions outside the U.S., the date on which such Product is first permitted by the applicable Regulatory Authority of such jurisdiction to be administered to a human pursuant to an IND filing in accordance with applicable Laws (or, to the extent no IND filing is required under applicable Laws in such regulatory jurisdiction, the date of Initiation of the first Clinical Trial using such Product).

1.37 "**Clinical Trial**" means any clinical trial in humans, including any Phase 1 Clinical Trial, Phase 2 Clinical Trial, Registration Trial or any post-approval clinical trial in humans.

1.38 "**Clinical Trial Material**" means a Product that intended for administration and dosing to humans in Clinical Trials, but not intended for commercial sale (for example, in a form that does not include external packaging).

1.39 "**CMC Budget**" has the meaning set forth in Section 7.2(c).

1.40 "**CMC Plan**" has the meaning set forth in Section 7.2(c).

1.41 "**CMC Plan Know-How**" means all Inventions developed or invented during the Term by Biogen's or its Affiliates', licensees', Sublicensees' or Subcontractors' employees, agents or independent contractors or any Persons contractually required to assign or license such Know-How to Biogen or any Affiliate of Biogen, either alone or jointly with Sangamo's or its Affiliates', licensees', Sublicensees' or Subcontractors' employees, agents or independent contractors or any Persons contractually required to assign or license such Know-How to Sangamo or any Affiliate of Sangamo, in each case, in the performance of activities under a CMC Plan.

1.42 "**CMC Plan Patent Rights**" means any Patent Rights that Cover or otherwise claim CMC Plan Know-How.

1.43 "**CMC Plan Technology**" means all CMC Plan Know-How and CMC Plan Patent Rights.

1.44 "**CMO**" has the meaning set forth in Section 7.2(d) (Sangamo Supply Obligations).

1.45 "**Collaboration Target**" means (a) any Initial Target; or (b) any other Target that has been selected by Biogen as a "Collaboration Target" pursuant to Section 4.7(b) (Selection of Collaboration Targets) and is deemed a "Collaboration Target" pursuant to Section 4.7(c) (Notice of Target Nomination).

1.46 "**Collaboration Target Exclusivity Period**" has the meaning set forth in Section 2.5(a)(i) (Exclusivity Obligations).

1.47 "**Collaboration Target Selection Fee**" has the meaning set forth in Section 9.2 (Collaboration Target Selection Fee).

1.48 "[*] **Know-How**" means all Inventions developed or invented, whether solely or jointly, by [*] employees, agents or independent contractors or any Persons contractually required to assign or license such Invention to [*] that [*].

1.49 "[*] **Patent Rights**" means any Patent Rights that Cover or otherwise claim [*] Know-How.

1.50 "[*] **Technology**" means all [*] Know-How and [*] Patent Rights.

1.51 "**Combination Product**" means a Product that is:

(a) sold in the form of a combination that contains or comprises a Therapeutic Candidate and a delivery technology together with one or more other therapeutically active pharmaceutical or biologic agents (whether coformulated or copackaged or otherwise sold together for a single price) that are not a Therapeutic Candidate or a delivery technology; or

(b) sold for a single invoice price together with any:

(i) [*];

(ii) [*] related to any Product; or

(iii) product, process, service or therapy other than [*] (such additional therapeutically active pharmaceutical agent and each of (i) – (iii), an "**Other Component**").

1.52 "**Commercialize**" or "**Commercialization**" means all activities directed to marketing, promoting, distributing, detailing or selling a pharmaceutical or biological product (as well as importing and exporting activities in connection therewith), including all activities directed to obtaining Pricing Approvals, but excluding activities directed to Manufacturing, Development, or Medical Affairs. "**Commercialize**," "**Commercializing**," and "**Commercialized**" will be construed accordingly.

1.53 "**Commercially Reasonable Efforts**" means, (a) with respect to the efforts to be expended by Biogen or its Affiliate with respect to any Development or Commercialization objective, activity or goal related to a Therapeutic Candidate or Product under this Agreement, those efforts that Biogen would normally use to accomplish such objective, activity or goal, and specifically means the carrying out of Development and Commercialization activities using efforts that [*] would normally devote to a product at a similar stage in its development or product life and of similar market potential, strategic importance and profit potential, based on conditions then prevailing and taking into account efficacy, safety, approved labeling, the competitiveness of

alternative products sold by Third Parties in the marketplace, the patent and other proprietary position of the product, the likelihood of Regulatory Approval or Pricing Approval given the regulatory structure involved and all other relevant factors; and (b) with respect to the efforts to be expended by a Party or its Affiliates with respect to the Research Activities, those efforts that are no less than [*] would normally use to accomplish similar activities for other research programs (whether internal or for a Third Party collaborator), based on conditions then prevailing and taking into account existing data, technical challenges and other relevant scientific factors. Commercially Reasonable Efforts pursuant to clause (a) of this Section 1.53 (Commercially Reasonable Efforts) will be determined on a country-by-country and indication-by-indication basis for the applicable Therapeutic Candidate or Product, and it is anticipated that the level of effort will change over time, reflecting changes in the status of such Therapeutic Candidate or Product (as applicable) and the market or country involved. [*] expressly understands and accepts that the use of such Commercially Reasonable Efforts may [*].

1.54 "**Committee**" means the JSC, JRC, JMC or any joint subcommittee established by the JSC, as applicable, and collectively all such committees and subcommittees.

1.55 "**Competing Program**" has the meaning set forth in Section 2.5(b) (Exception).

1.56 "**Competitive Infringement**" has the meaning set forth in Section 10.3(a) (Notification).

1.57 "**Confidential Information**" of a Party means (a) the terms of this Agreement, and (b) all Know-How or other proprietary information (whether or not patentable), including proprietary information regarding or embodying such Party's technology, products, business or objectives, unpublished patent applications, and other non-public information and data of a financial, commercial, business, operational or technical nature (including information comprising or relating to concepts, discoveries, inventions, data, designs or formulae), in each case, that is disclosed by or on behalf of the Disclosing Party or any of its Affiliates or otherwise made available to the Receiving Party or any of its Affiliates or permitted recipients, including information disclosed prior to the Effective Date pursuant to the Confidentiality Agreement.

1.58 "**Confidentiality Agreement**" has the meaning set forth in Section 16.11 (Entire Agreement; Amendments).

1.59 "**Control**" or "**Controlled**" means the possession by a Party (whether by ownership, license, or otherwise, other than pursuant to this Agreement) of (i) with respect to any tangible Know-How, the legal authority or right to physical possession of such tangible Know-How, with the right to provide such tangible Know-How to the other Party on the terms set forth herein, or (ii) with respect to Patent Rights, Regulatory Approvals, Regulatory Materials, intangible Know-How, or other Intellectual Property, the legal authority or right to grant a license, sublicense, access, or right to use (as applicable) to the other Party under such Patent Rights, Regulatory Approvals, Regulatory Materials, intangible Know-How or other Intellectual Property on the terms set forth herein, in each case ((i) and (ii)), without breaching or otherwise violating the terms of any arrangement or agreement with a Third Party in existence as of the time such Party or its Affiliates would first be required hereunder to grant the other Party such access, right

to use, licenses, or sublicense. Notwithstanding any provision to the contrary set forth in this Agreement, a Party and its Affiliates will not be deemed to "Control" any Know-How, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property that, prior to the consummation of a Change of Control of such Party, is owned or in-licensed by a Third Party that becomes an Affiliate of such acquired Party after the Effective Date as a result of such Change of Control unless (A) prior to the consummation of such Change of Control, such acquired Party or any of its Affiliates also Controlled such Know-How, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property, (B) any such Know-How, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property arises from participation by employees or consultants of such Third Party in any activities under this Agreement after such Change of Control or (C) the Know-How, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property owned or in-licensed by such Third Party were not used in the performance of activities under this Agreement prior to the consummation of such Change of Control, but after the consummation of such Change of Control, such acquired Party or any of its Affiliates uses any such Know-How, Materials, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property in the performance of its obligations or exercise of its rights under this Agreement, in each of which cases ((A) through (C)), such Know-How, Patent Rights, Regulatory Approvals, Regulatory Materials or other Intellectual Property will be "Controlled" by such Party for purposes of this Agreement.

1.60 "**Cover**" means, with respect to a particular subject matter at issue and a relevant Patent Right or individual claim in such Patent Right, as applicable, that the composition, manufacture, use, sale, offer for sale, or importation of such subject matter would, without a license or other right to use, infringe one or more claims in such Patent Right or the individual claim of such Patent Right, and for the purpose of determining such infringement, considering Valid Claims of pending patent applications as if they have already been issued.

1.61 "**Data Package**" has the meaning set forth in Section 4.7(e) (Data Packages).

1.62 "**Data Package Review Period**" means, on a Reserved Target-by-Reserved Target basis, the period commencing on the date on which Sangamo delivers a Data Package to Biogen with respect to such Reserved Target and ending [*] days thereafter, as such period may be extended pursuant to Section 4.7(e)(iv) (Extension of Data Package Review Period).

1.63 "**Debarred**" means, with respect to an individual or entity, that such individual or entity has been (a) debarred or suspended under 21 U.S.C. §335(a) or (b), (b) the subject of a conviction described in Section 306 of the Federal Food, Drug and Cosmetic Act, (c) excluded from a federal or governmental health care program, (d) debarred from federal contracting, (e) convicted of or pled nolo contendere to any felony, or to any federal or state legal violation (including misdemeanors) relating to prescription drug products or fraud, (f) the subject to OFAC sanctions or on the OFAC list of specially designated nationals or (g) the subject of any similar sanction of any Governmental Authority in the Territory.

1.64 "**Defaulting Party**" has the meaning set forth in Section 12.2(b) (Termination for Material Breach).

1.65 "**Delivery System**" has the meaning set forth in Section 1.142 (Product).

1.66 "**Develop**" or "**Development**" means all internal and external research or development activities for any pharmaceutical or biological product, including conducting pre-clinical and clinical studies, toxicology studies of a product for use in clinical trials (including placebos and comparators), and statistical analyses, and the preparation, filing, prosecution and maintenance of any Regulatory Approval for a product and interacting with Regulatory Authorities with respect to the foregoing (including following receipt of Regulatory Approval) in the applicable country or region for such product, as well as all regulatory activities related to any of the foregoing, but excluding activities directed to Manufacturing, Medical Affairs or Commercialization. Development will include development and regulatory activities for additional forms, formulations or indications for a pharmaceutical or biologic product after receipt of Regulatory Approval of such product (including label expansion), including Clinical Trials initiated following receipt of Regulatory Approval or any Clinical Trial to be conducted after receipt of Regulatory Approval that was mandated by the applicable Regulatory Authority as a condition of such Regulatory Approval with respect to an approved formulation or indication (such as post-marketing studies, observational studies, implementation and management of registries and analysis thereof, in each case, if required by any Regulatory Authority in any region in the Territory to support or maintain Regulatory Approval for a pharmaceutical or biologic product in such region). "**Develop**," "**Developing**," and "**Developed**" will be construed accordingly.

1.67 "**Diagnostic Field**" means the diagnosis of disease in humans or animals in any and all indications.

1.68 "**Disclosing Party**" has the meaning set forth in Section 11.2 (Duty of Confidence).

1.69 "**Dispute**" has the meaning set forth in Section 16.5 (Dispute Resolution).

1.70 "**Dollar**" means the U.S. dollar, and "$" shall be interpreted accordingly.

1.71 "**Duties**" has the meaning set forth in Section 9.8(a) (Duties on Sangamo Research Activities).

1.72 "**Effective Date**" has the meaning set forth in Section 15.1 (Effective Date).

1.73 "**EMA**" means the European Medicines Agency or any successor entity thereto.

1.74 "**EU Registration Trial**" means a Clinical Trial of a Product that is designed to, and for which the EMA or other applicable Regulatory Authorities have provided guidance that the design of such Clinical Trial is sufficient to, ascertain efficacy and safety of such Product in support of the preparation and submission of an MAA for such Product to (a) the EMA or (b) [*] of the following countries: [*], regardless of whether such trial is referred to as a phase 2, phase 2b or phase 3 clinical trial. If a Clinical Trial of a Product is not initially designed as an EU Registration Trial but is later re-designed, converted or expanded into such a trial, then it shall be deemed to be an EU Registration Trial as of the date of such re-design, conversion or expansion. If Biogen or its Affiliate or Sublicensee publicly describes (including in public announcements or

information on its web site) a Clinical Trial of a Product that has not otherwise been classified as an EU Registration Trial pursuant to this Section 1.74 (EU Registration Trial) as a registration trial or a phase 3 clinical trial for the EU (or [*] of the following countries: [*]), then such Clinical Trial shall be deemed to be an EU Registration Trial as of the first date that such description is available to the public.

1.75 "**Ex-U.S. Major Market**" means [*].

1.76 "**Ex-U.S. Milestone Payments**" means Milestone Payments [*].

1.77 "**Excluded Target**" means each of the human genes set forth in the Schedule 1.77 (Excluded Targets).

1.78 "**Excluded Upstream Licenses**" means the following agreements between Sangamo (or its Affiliate) with a Third Party:

(a) that certain [*] between Sangamo and [*], having an effective date of [*];

(b) that certain [*] between Sangamo and [*], having an effective date of [*], as amended; and

(c) any agreement that is deemed an "Excluded Upstream License" pursuant to Section 2.4(b) (Additional Third Party Agreements).

1.79 "**Executive Officers**" means, for Sangamo, the Chief Executive Officer of Sangamo or his/her designee, and for Biogen, the Executive Vice President, Research & Development of Biogen or his/her designee, *provided* in each case that such person is not a member of the JSC at the time that the applicable disagreement arises.

1.80 "**Exploit**" means Develop, have Developed, make, have made, use, have used, perform Medical Affairs, have performed Medical Affairs, offer for sale, have offered for sale, sell, have sold, export, have exported, import, have imported, Manufacture, have Manufactured, Commercialize or have Commercialized. "**Exploitation**" and "**Exploiting**" will be construed accordingly.

1.81 "**FDA**" means the United States Food and Drug Administration or any successor entity thereto.

1.82 "**Field**" means the Diagnostic Field or the Therapeutic Field.

1.83 "**First Commercial Sale**" means, with respect to a particular Product in a particular country in the Territory, the first sale of such Product to a Third Party (other than a Sublicensee) for distribution, use or consumption in such country or region after receipt of Regulatory Approval for such Product in such country or region. First Commercial Sale excludes any transfers of Product to Third Parties for Clinical Trial purposes, as donations or for similar *bona fide* promotional purposes in accordance with applicable Law.

1.84 "**FTE**" means the equivalent of a full-time individual's work for a twelve (12) month period (consisting of [*] hours per year) of Development or Manufacturing work carried out by one or more duly qualified employees or consultants of a given Party. In the case that any full-time individual works partially on activities under this Agreement and partially on other work in a given year, then the full-time equivalent to be attributed to such individual's work hereunder shall be equal to the percentage of such individual's total work time in such year that such individual spent working on such activities under this Agreement. In no event shall any one individual be counted as more than one (1) FTE. Overtime, and work on weekends, holidays, and the like will not be counted with any multiplier (*e.g.* time-and-a-half or double time) toward the number of hours that are used to calculate the FTE contribution.

1.85 "**FTE Costs**" means, with respect to a period, the FTE Rate *times* the number of FTEs, or portion thereof, actually utilized in performing activities under the Research Plan during such period.

1.86 "**FTE Rate**" means an initial rate of [*] per FTE per year. The FTE Rate is "fully burdened" and will include employee salaries and all overhead allocated to such employee's work hereunder. Commencing on January 1, 2021, the FTE Rate shall be changed annually on a Calendar Year basis to reflect the year-to-year percentage increase (if any) in the Consumer Price Index for All Urban Consumers for the San Francisco Bay Area, as published by the U.S. Department of Labor, Bureau of Labor Statistics ("**CPI**") (based on the change in the CPI from the most recent index available as of the Execution Date to the most recent index available as of the date of the calculation of such revised FTE Rate).

1.87 "**GAAP**" means the U.S. generally accepted accounting principles, consistently applied.

1.88 "**GCP**" means the then-current good clinical practice standards for Clinical Trials for pharmaceuticals or diagnostics (as applicable), as set forth in the United States Food, Drug and Cosmetic Act, as amended from time to time, or other applicable Law, and such standards of good clinical practice as are required by the Regulatory Authorities of the European Union and other countries for which the applicable Product is intended to be developed, to the extent such standards are not less stringent than United States GCP.

1.89 "**GLP**" means the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58 or the successor thereto, or comparable regulatory standards in jurisdictions outside the United States.

1.90 "**GLP Tox Study**" means a toxicology study of a product (a) that is conducted in compliance with GLP regulations in an animal species appropriate to satisfy applicable regulatory requirements, (b) that is otherwise designed to satisfy applicable regulatory requirements and (c) the data and results from which are intended to support the filing of an IND for such product with the applicable Regulatory Authority.

1.91 "**GMP**" or "**cGMP**" means current good manufacturing practices as specified in 21 C.F.R. Parts 11, 210 and 211, ICH Guideline Q7A, or equivalent laws, rules or regulations of an applicable Regulatory Authority at the time of manufacture.

1.92 "**Governmental Authority**" means any national, international, federal, state, provincial or local government, or political subdivision thereof, or any multinational organization or any authority, agency or commission entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing authority or power, any court or tribunal (or any department, bureau or division thereof, or any governmental arbitrator or arbitral body).

1.93 "**HSR Act**" has the meaning set forth in Section 15.2 (HSR Filing).

1.94 "**HSR Conditions**" has the meaning set forth in 15.1 (Effective Date).

1.95 "[*] **Criteria**" means, with respect to a Collaboration Target, those criteria for ZFPs directed to such Collaboration Target that are (a) set forth in the applicable Research Plan as the "[*] Criteria" for such Collaboration Target and (b) intended to demonstrate that such ZFPs are [*].

1.96 "[*] **Criteria**" means, with respect to a Collaboration Target, those criteria for ZFPs directed to such Collaboration Target that are (a) set forth in the applicable Research Plan as the "[*] Criteria" for such Collaboration Target and (b) intended to demonstrate that such ZFPs are [*].

1.97 "**IND**" means an Investigational New Drug application as defined in 21 C.F.R. Part 312 or any comparable filings outside of the United States that are required to commence Clinical Trials in such country or region, and all supplements or amendments that may be filed with respect to the foregoing.

1.98 "**Indemnified Party**" or "**Indemnifying Party**" has the meaning set forth in Section 14.3(a) (Notice).

1.99 "**Infringement**" has the meaning set forth in Section 10.3(a) (Notification).

1.100 "**Infringement Action**" has the meaning set forth in Section 10.3(b) (Competitive Infringements).

1.101 "**Initial Target**" means each of the following Targets: (a) microtubule associated protein tau or MAPT, GenBank ID #4137 ("**Tau**"); (b) synuclein alpha GenBank ID #6622 ("**SNCA**"); (c) [*]; and (d) one (1) Target that (i) is selected by Biogen pursuant to Section 4.7(a) (Initial Targets) and (ii) is a Reserved Target or is deemed a "Collaboration Target" pursuant to Section 4.7(c) (Notice of Target Nomination).

1.102 "**Initiate**" or "**Initiation**" means, with respect to a Clinical Trial or GLP Tox Study of a Product, the first dosing of the first human subject in such Clinical Trial or the first animal in such GLP Tox Study.

1.103 "**Intellectual Property**" means all Patent Rights, rights to inventions, copyrights, design rights, trademarks, trade secrets, Know-How and all other intellectual property (whether registered or unregistered) and all applications and rights to apply for any of the foregoing, anywhere in the world.

1.104 "**Invention**" means any invention, discovery or Know-How that is discovered, generated, conceived or reduced to practice by or on behalf of a Party or its Affiliate or sublicensee through activities conducted under this Agreement.

1.105 "**JMC**" has the meaning set forth in Section 3.4 (Joint Manufacturing Committee).

1.106 "**Joint Know-How**" means any Invention developed or invented jointly by a Party's or its Affiliates', licensees', Sublicensees', or Subcontractors' employees, agents, or independent contractors or any Persons contractually required to assign or license such Know-How to such Party or any Affiliate of such Party, on the one hand, and the other Party's or its Affiliates', licensees', Sublicensees', or Subcontractors' employees, agents, or independent contractors or any Persons contractually required to assign or license such Know-How to such Party or any Affiliate of such Party, on the other hand, during the Term, but excluding all [*] Know-How, [*] Know-How, [*] Know-How and [*] Know-How.

1.107 "**Joint Patent Rights**" means any Patent Rights that Cover or otherwise claim Joint Know-How.

1.108 "**Joint Technology**" means all Joint Know-How and Joint Patent Rights.

1.109 "**JRC**" has the meaning set forth in Section 3.3 (Joint Research Committee).

1.110 "**JSC**" has the meaning set forth in Section 3.2 (Joint Steering Committee).

1.111 "[*]" means [*].

1.112 "**Know-How**" means any (a) proprietary information or materials, including records, improvements, modifications, techniques, processes, methods, assays, chemical or biological materials, compositions of matter, designs, protocols, formulas, data (including physical data, chemical data, toxicology data, animal data, raw data, clinical data, and analytical and quality control data), dosage regimens, control assays, product specifications, inventions, discoveries, algorithms, technology, forecasts, profiles, strategies, plans, results in any form whatsoever, know-how, and trade secrets (in each case, whether or not patentable, copyrightable, or otherwise protectable), and (b) any physical embodiments of any of the foregoing, but in each case ((a) and (b)) excluding any Patent Rights.

1.113 "**Law**" means any federal, state, local, foreign or multinational law, statute, standard, ordinance, code, rule, regulation, resolution or promulgation, or any order by any Governmental Authority, including for clarity any applicable rules, regulations, guidances, and other requirements of any Regulatory Authority that may be in effect from time to time, or any

license, franchise, permit or similar right granted under any of the foregoing, or any similar provision having the force or effect of law.

1.114 "**Liabilities**" has the meaning set forth in Section 14.1 (Indemnification by Sangamo).

1.115 "**Licensed Know-How**" means any and all Know-How, other than any Joint Know-How, that is Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term and that is necessary or useful to Exploit any Therapeutic Candidate or Product in the Field, including all Know-How assigned by Biogen to Sangamo hereunder, but expressly excluding (a) any Know-How included in the [*], (b) any Know-How Controlled by Sangamo or its Affiliates that is related to any [*] and (c) any Know-How Controlled by Sangamo pursuant to any Excluded Upstream License.

1.116 "**Licensed Patent Rights**" means any and all Patent Rights, other than any Joint Patent Rights, that are Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term and that are necessary or useful to Exploit any Therapeutic Candidate or Product in the Field, including all Patent Rights [*] hereunder and all [*] Patent Rights, but expressly excluding (i) any Patent Rights included in the [*], (ii) any Patent Rights Controlled by Sangamo or any of its Affiliates related to any [*], (iii) any [*] Patent Rights and (iv) any Patent Rights Controlled by Sangamo pursuant to any Excluded Upstream License. As of the Execution Date, the Patent Rights listed on Schedule 1.116 (Licensed Patent Rights) are Licensed Patent Rights.

1.117 "**Licensed Technology**" means all Licensed Know-How and Licensed Patent Rights and Sangamo's interest in the Joint Technology [*].

1.118 "**Licensor Party**" has the meaning set forth in Section 10.1(d) (Unauthorized Inventions).

1.119 "[*]" means [*].

1.120 "**Manufacture**" means activities directed to manufacturing, processing, packaging, labeling, filling, finishing, assembly, quality assurance, quality control, testing, and release, shipping, or storage of any pharmaceutical or biologic product (or any components or process steps involving any product or any companion diagnostic), placebo, or comparator agent, as the case may be, including process development, qualification, and validation, scale-up, pre-clinical, clinical, and commercial manufacture and analytic development, product characterization, and stability testing, but excluding activities directed to Development, Commercialization, or Medical Affairs. "**Manufacturing**" will be construed accordingly.

1.121 "**Manufacturing Costs**" means, with respect to any Product, the consolidated fully burdened manufacturing cost in accordance with GAAP consistently applied, which will be the sum of:

(a) "cost of goods" including the actual costs of materials, direct labor, ordinary course quality assurance costs, stability testing cost, characterization testing, quality control, costs

of engineering runs, release testing of drug substance and drug product, equipment maintenance costs, and other costs variable with production, scale-up expenses, customs and duty and charges levied by Governmental Authorities, all costs of packaging, failed lot charges in the ordinary course of production, the cost of freight into or between Manufacturing sites, *plus* a reasonable allocation of the Manufacturing site's fixed overhead consistent with the applicable Party's costing methodology, including depreciation for capital expenditures for equipment (but not other capital expenses), in each case, to the extent allocable to any Product (or components of the foregoing), which will be calculated in accordance with GAAP; *provided* that any such allocation will be made on the basis of full capacity operation of the relevant facility and in any event will exclude any costs and charges related to unused manufacturing capacity and allocation of general corporate overhead; and

(b) any actual invoiced costs from a CMO that are solely and specifically related to the Manufacture of any Product (or components of the foregoing).

1.122 "**Manufacturing Technology Transfer**" has the meaning set forth in Section 7.7(a) (Manufacturing Technology Transfer).

1.123 "**Marketing Approval Application**" or "**MAA**" means any biologics license application or other marketing authorization application, in each case, filed with the applicable Regulatory Authority in a country or other regulatory jurisdiction, which application is required to commercially market or sell a pharmaceutical or biologic product in such country or jurisdiction (and any amendments thereto), including all Biologics License Applications (BLAs) or equivalent submissions to the FDA in the United States or any analogous application or submission with any Regulatory Authority outside of the United States.

1.124 "**Materials**" has the meaning set forth in Section 4.8 (Materials).

1.125 "**Medical Affairs**" means activities conducted by a Party's medical affairs department (or, if a Party does not have a medical affairs department, the equivalent function thereof), including communications with key opinion leaders, medical education, symposia, advisory boards (to the extent related to medical affairs or clinical guidance), activities performed in connection with patient registries, and other medical programs and communications, including educational grants, research grants (including conducting investigator-initiated studies), and charitable donations to the extent related to medical affairs and not to other activities that involve the promotion, marketing, sale, or other Commercialization of the Products and are not conducted by a Party's medical affairs (or equivalent) department.

1.126 "**Milestone Event**" has the meaning set forth in Section 9.3(a) (Milestone Events).

1.127 "**Milestone Payment**" has the meaning set forth in Section 9.3(a) (Milestone Events).

1.128 "[*]" has the meaning set forth in [*].

1.129 "**Net Sales**" means the gross amount invoiced in a country by Biogen or its Affiliates or Sublicensees (each of the foregoing Persons, a "**Selling Party**") for the sale or other disposition of a Product in such country to Third Parties (including Third Party Distributors, wholesalers and end-users), less the following deductions:

(a) sales returns and allowances actually paid, granted or accrued on such Product, including trade, quantity, prompt pay and cash discounts, and any other adjustments, including those granted on account of price adjustments or billing errors;

(b) credits or allowances given or made for rejection, recall, return or wastage replacement of, and for uncollectible amounts on, such Product or for rebates or retroactive price reductions (including Medicare, Medicaid, copay assistance, managed care and similar types of rebates and chargebacks); *provided, that*, if any uncollectible amounts are subsequently collected, such collected amounts shall be included in Net Sales in the period in which they are collected;

(c) taxes, duties or other governmental charges levied on or measured by the billing amount for such Product, as adjusted for rebates and refunds, including pharmaceutical excise taxes (such as those imposed on a Product by the United States Patient Protection and Affordable Care Act of 2010 and other comparable laws) as allocated to such Product in accordance with the Selling Party's standard practices, consistently applied, but which will not include any tax, duty, or other charge imposed on or measured by net income (however denominated) or any franchise taxes, branch profits taxes, or similar tax; and

(d) charges for freight, customs and insurance related to the distribution of such Product and wholesaler and distributor administration fees.

Such amounts will be determined consistent with a Selling Party's customary practices and in accordance with GAAP. It is understood that any accruals for individual items reflected in Net Sales are periodically (at least quarterly) trued up and adjusted by each Selling Party consistent with its customary practices and in accordance with GAAP.

Notwithstanding anything to the contrary set forth in this Agreement, Net Sales will not be imputed to transfers of Product to Third Parties as donations, for the performance of Clinical Trials or for similar *bona fide* promotional purposes in accordance with applicable Law.

Sale or transfer of Products between any of the Selling Parties for subsequent sale or disposition will not result in any Net Sales, with Net Sales to be based only on any subsequent sales or dispositions to a non-Selling Party. To the extent that any Selling Party receives any portion of the consideration for the sale or disposition of a Product to a non-Selling Party in a form other than cash, such portion of the Net Sales will be calculated based on the average price charged for such Product, as applicable, during the preceding royalty period, or in the absence of such sales, based on the fair market value of the Products, as determined by Biogen in good faith. For clarity, (i) Net Sales will not include amounts or other consideration received by a Selling Party from a non-Selling Party to the extent [*], *provided* that such consideration [*] and (ii) transfer of a Product by a Selling Party to a non-Selling Party consignee are not recognized as Net Sales by such Selling Party until the non-Selling Party consignee sells the Product.

In the case of any Combination Product sold in a given country in the Territory, Net Sales for the purpose of determining royalties and sales milestones of the Combination Product in such country will be calculated by multiplying actual Net Sales of such Combination Product by the fraction A/(A+B), where A is the invoice price of the Therapeutic Candidate together with the applicable Delivery System (or the invoice price of the AAV Vector that is Proprietary to Sangamo together with the applicable [*]), if the applicable Product does not include a Therapeutic Candidate) if sold separately in the same indication in such country, and B is the total invoice price of the Other Components in the Combination Product, if sold separately in the same indication in such country.

If, on a country-by-country basis, the Product is sold separately in the same indication in a country, but the Other Components in the Combination Product are not sold separately in the same indication in such country, then Net Sales for the purpose of determining royalties and sales milestones of the Combination Product for such country will be calculated by multiplying actual Net Sales of the Combination Product by the fraction A/C, where A is the invoice price of the Therapeutic Candidate together with the applicable Delivery System (or the invoice price of the AAV Vector that is Proprietary to Sangamo together with the applicable [*], if the applicable Product does not include a Therapeutic Candidate) if sold separately in the same indication in such country, and C is the invoice price of the Combination Product in such country.

If, on a country-by-country basis, the Product in the Combination Product is not sold separately in the same indication in such country, but the Other Components included in the Combination Product are sold separately in the same indication in such country, then Net Sales for the purpose of determining royalties and sales milestones of the Combination Product for such country will be calculated by multiplying actual Net Sales of the Combination Product by the fraction C-B/C, where B is the invoice price of the Other Components included in such Combination Product if sold separately in the same indication in such country, and C is the invoice price of the Combination Product in such country.

If neither the Product nor the Other Components are sold separately in the same indication in a given country, then Net Sales will be determined by Biogen in good faith based on the relative fair market value of the Product and the Other Components included in such Combination Product when sold in such indication in such country.

1.130 "**New License Agreement**" has the meaning set forth in Section 2.1(b)(iv) (Sublicenses).

1.131 "**Non-Defaulting Party**" has the meaning set forth in Section 12.2(b) (Termination for Material Breach).

1.132 "[*]" has the meaning set forth in [*].

1.133 "[*] **Research Activities**" means, with respect to a Research Plan, any [*] Research Activities to be conducted [*] under such Research Plan, to the extent that such [*] Research Activities [*] (a) [*] or (b) [*].

1.134 "**Out-of-Pocket Costs**" means, with respect to the Research Activities to be performed under a Research Plan, documented amounts paid by either Party or its Affiliates to Third Parties (including Subcontractors) for the performance of such Research Activities.

1.135 "**Party**" or "**Parties**" has the meaning set forth in the preamble.

1.136 "**Patent Rights**" means any and all (a) issued patents, (b) pending patent applications, including all provisional applications, substitutions, continuations, continuations-in-part, divisions and renewals, and all patents granted thereon, (c) patents-of-addition, reissues, reexaminations and extensions or restorations by existing or future extension or restoration mechanisms, including patent term adjustments, patent term extensions, supplementary protection certificates or the equivalent thereof, (d) inventor's certificates, (e) other forms of government-issued rights substantially similar to any of the foregoing and (f) United States and foreign counterparts of any of the foregoing.

1.137 "**Person**" means any individual, partnership, limited liability company, firm, corporation, association, trust, unincorporated organization or other entity.

1.138 "**Phase 1 Clinical Trial**" means a clinical trial in humans that generally provides for the first introduction of a pharmaceutical or biologic product in humans with a purpose of determining safety, metabolism, and pharmacokinetic properties and clinical pharmacology of such product, in a manner that meets the requirements of 21 C.F.R. § 312.21(a), as amended (or its successor regulation), or, with respect to any other country or region, the equivalent of such a clinical trial in such other country or region.

1.139 "**Phase 2 Clinical Trial**" means a clinical trial in humans that is intended to explore the feasibility, safety, dose ranging or efficacy of a pharmaceutical or biologic product in humans that is prospectively designed to generate sufficient data (if successful) to commence a Registration Trial for such product, in a manner that meets the requirements of 21 C.F.R. § 312.21(b), as amended (or its successor regulation), or, with respect to any other country or region, the equivalent of such a clinical trial in such other country or region.

1.140 "**Pre-Existing Restriction**" has the meaning set forth in Section 4.7(d) (Blocked Targets).

1.141 "**Pricing Approval**" means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical or biologic products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination (as the case may be).

1.142 "**Product**" means any product that includes (a) (i) a polynucleotide encoding a Therapeutic Candidate, whether alone or in combination with other active or inactive components or ingredients, and (ii) a delivery technology (other than any [*]), such as an AAV Vector (a "**Delivery System**") or (b) an AAV Vector that is Proprietary to and Controlled by Sangamo, whether or not [*].

1.143 "[*]" has the meaning set forth in [*].

1.144 "**Proprietary**" means, with respect to any product or component thereof (including any AAV Vector, promoter or other component of any Product or other Materials), the possession by a Party of ownership (whether sole or joint) or an exclusive license or sublicense (other than pursuant to the license grants under this Agreement) of Patent Rights that Cover such product or component thereof (including any AAV Vector, promoter or other component of any Product or other Materials) or Know-How that is used in connection with or otherwise related to the Exploitation of such product or component thereof (including any AAV Vector, promoter or other component of any Product or other Materials).

1.145 "**Prosecuting Party**" means, with respect to any Patent Right, the Party that is responsible for the Prosecution and Maintenance of such Patent Right pursuant to Section 10.2 (Patent Prosecution).

1.146 "**Prosecution and Maintenance**" has the meaning set forth in Section 10.2(a)(i) (Biogen-Prosecuted Patent Rights).

1.147 "**Quality Agreement**" has the meaning set forth in Section7.2(b) (Sangamo Supply Obligations).

1.148 "**Receiving Party**" has the meaning set forth in Section 11.2 (Duty of Confidence).

1.149 "**Registration Trial**" means a U.S. Registration Trial or an EU Registration Trial.

1.150 "**Regulatory Approval**" means all licenses, registrations, authorizations and approvals (including approvals of MAAs, supplements and amendments, pre- and post- approvals and labeling approvals) necessary for the Commercialization of a pharmaceutical or biologic product in a given country or regulatory jurisdiction, but excluding, in each case, Pricing Approvals.

1.151 "**Regulatory Authority**" means with respect to a country in the Territory, any national, supra-national, regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority with jurisdiction or authority over the Development, Manufacture, Commercialization or other Exploitation of pharmaceutical or biologic products in such country, including the FDA, the EMA and any corresponding national or regional regulatory authorities.

1.152 "**Regulatory Exclusivity**" means any exclusive marketing rights or data protection or other exclusivity rights (other than Patent Rights) conferred by any Regulatory Authority with respect to a Product in a country or jurisdiction in the Territory that prohibits the Commercialization of a Biosimilar Product, including orphan drug exclusivity, pediatric exclusivity or exclusivity conferred pursuant to 42 USC Section 262(k)(2), in the European Union under Directive 2001/83/EC, any successor provisions to such Laws, or rights similar thereto in other countries or regulatory jurisdictions in the Territory.

1.153 "**Regulatory Materials**" means all regulatory applications, submissions, notifications, communications, correspondences, registrations, approvals and other filings made to, received from or otherwise conducted with a Regulatory Authority in order to Develop, Manufacture, perform Medical Affairs, Commercialize or otherwise Exploit a product in a particular country or jurisdiction, as well as minutes of any material meetings, telephone conferences, or discussions with the relevant Regulatory Authority. Regulatory Materials include all INDs, MAAs, Regulatory Approvals and Pricing Approvals.

1.154 "**Reimbursable Research Costs**" has the meaning set forth in Section 4.4 (Research Costs).

1.155 "**Replacement Target**" has the meaning set forth in Section 4.7(f) (Replacement Targets).

1.156 "**Research Activities**" has the meaning set forth in Section 4.3(b) (Biogen Research Activities).

1.157 "**Research Activities Licensed Know-How**" means all Know-How, other than Joint Know-How, that is Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term and that is necessary or useful for Biogen to perform any Biogen Research Activities, including any [*] Research Activities, excluding (a) any Know-How included in the [*] and (b) any Know-How Controlled by Sangamo pursuant to any Excluded Upstream License.

1.158 "**Research Activities Licensed Patent Rights**" means all Patent Rights, other than Joint Patent Rights, that are Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term and that are necessary or useful for Biogen to perform any Biogen Research Activities (which include [*] Research Activities), excluding (a) any Patent Rights included in the [*] and (b) any Patent Rights Controlled by Sangamo pursuant to any Excluded Upstream License.

1.159 "**Research Activities Licensed Technology**" means all Research Activities Licensed Know-How and Research Activities Licensed Patent Rights.

1.160 "**Research Budget**" has the meaning set forth in Section 4.4(a) (Research Costs).

1.161 "**Research Collaboration**" has the meaning set forth in Section 4.1 (General).

1.162 "**Research Costs**" means all FTE Costs and Out-of-Pocket Costs, in each case, incurred by (a) Biogen specifically in the performance of the Biogen Research Activities or (b) Sangamo specifically in the performance of the Sangamo Research Activities, as applicable.

1.163 "**Research Plan**" has the meaning set forth in Section 4.2(a) (Research Plans).

1.164 "**Research Term**" means on a Research Plan-by-Research Plan basis: (a) with respect to any Research Plan for Tau, SNCA or [*], the period commencing on the Effective Date and continuing until the earlier of (i) the completion of all Research Activities thereunder or (ii) such time at which the JSC elects to cease all further Research Activities under such Research

Plan; and (b) with respect to any Research Plan for any Collaboration Target other than Tau, SNCA and [*], the period commencing upon the date on which Biogen pays to Sangamo the Collaboration Target Selection Fee in respect of such Target in accordance with Section 9.2 (Collaboration Target Selection Fee) and continuing until the earlier of (i) the completion of all Research Activities under such Research Plan or (ii) such time on which the JSC elects to cease all further Research Activities under such Research Plan.

1.165 "**Reserved Target**" means any Target set forth in Schedule 1.165 (Reserved Targets), subject to Section 4.7(e)(v) (Data Package Review Period).

1.166 "**Reserved Target Exclusivity Period**" has the meaning set forth in Section 2.5(a)(iii) (Exclusivity Obligations).

1.167 "**Results**" means any and all results, information, data, presentations, summaries and analyses that are generated pursuant to the performance of the Research Activities under the applicable Research Plan with respect to each Collaboration Target.

1.168 "**Royalty Bearing Patent Rights**" has the meaning set forth in Section 9.4(c) (Royalty Term).

1.169 "**Royalty Term**" has the meaning set forth in Section 9.4(c) (Royalty Term).

1.170 "**RP Adoption Period**" has the meaning set forth in Section 4.7(g) (Research Plans).

1.171 "**Sales Milestone Payment**" means Milestone Payment #[*] in Table 9.3(a).

1.172 "**Sangamo**" has the meaning set forth in the preamble.

1.173 "**Sangamo** [*] **Know-How**" means all Inventions developed or invented [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Invention to [*] or any Affiliate of [*] that (a) [*] and (b) [*], but expressly excluding all [*] Know-How.

1.174 "**Sangamo** [*] **Patent Right**" means any Patent Right that Covers or otherwise claims any Sangamo [*] Know-How.

1.175 "**Sangamo [***] means all Sangamo [*] Know-How and Sangamo [*] Patent Rights.

1.176 "**Sangamo [*] Patent Right**" means any Patent Right Controlled by Sangamo or its Affiliates that Covers or otherwise claims any Inventions developed or invented [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Invention to [*] or any Affiliate of [*] that [*], but expressly excluding [*] Know-How.

1.177 "**Sangamo [*] Patent Rights**" means any Patent Rights Controlled by Sangamo or any of its Affiliates during the Term that Cover or otherwise claim any [*] Know-How that is (a) [*] and (b) [*], but expressly excluding [*] Patent Rights.

1.178 "**Sangamo [*] Technology**" means all [*] Technology and all [*] Technology.

1.179 "**Sangamo Indemnitees**" has the meaning set forth in Section 14.2 (Indemnification by Biogen).

1.180 "**Sangamo Manufacturing Activities**" has the meaning set forth in Section 7.2 (Sangamo Supply Obligations).

1.181 "**Sangamo Manufacturing Know-How**" means all Licensed Know-How that is used by or on behalf of Sangamo in the course of the Sangamo Manufacturing Activities to Manufacture any Product or component thereof.

1.182 "**Sangamo [*] Technology**" means any Know-How or Patent Rights Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term that [*].

1.183 "**Sangamo [*] Know-How**" means all Inventions developed or invented [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Invention to [*] or any Affiliate of [*] employees, agents, or independent contractors or any Persons contractually required to assign or license such Invention to [*] or any Affiliate of [*], that (a) [*] and (b) [*], including all [*] Know-How, but expressly excluding all [*] Know-How and [*] Know-How.

1.184 "**Sangamo [*] Patent Right**" means any Patent Right that Covers or otherwise claims any Sangamo [*] Know-How, including all Sangamo [*] Patent Rights.

1.185 "**Sangamo [*] Technology**" means all Sangamo [*] Know-How and all Sangamo [*] Patent Rights.

1.186 "**Sangamo [*] Technology**" means any Know-How or Patent Rights Controlled by Sangamo or its Affiliates as of the Effective Date or during the Term that [*], in each case, that [*].

1.187 "**Sangamo Proprietary Activities**" has the meaning set forth in Section 2.1(a)(v) (License Grants).

1.188 "**Sangamo Research Activities**" has the meaning set forth in Section 4.3(a) (Sangamo Research Activities).

1.189 "**Sangamo's Knowledge**" means the actual knowledge, after reasonable inquiry , of the following: Sangamo's [*].

1.190 "**Selection Date**" means (a) with respect to Tau, SNCA or [*], the Effective Date and (b) with respect to any Collaboration Target that is not Tau, SNCA or [*], the date on which Biogen pays the Collaboration Target Selection Fee to Sangamo in accordance with Section 9.2 (Collaboration Target Selection Fee).

1.191 "[*]" means [*].

1.192 "**Specifically Bind**" means, with respect to a ZFP or other therapeutic agent and a Target, that such ZFP or therapeutic agent [*] binds to such Target [*] that are [*].

1.193 "**Specifications**" has the meaning set forth in Section 7.2(a).

1.194 "[*]" has the meaning set forth in [*].

1.195 "**Stock Purchase Agreement**" means that certain Stock Purchase Agreement, dated as of the Execution Date, by and between Sangamo and BIMA.

1.196 "**Subcontractor**" means a Third Party contractor (including contract research organizations or contract manufacturing organizations) engaged by a Party on a fee-for-service to perform certain obligations of such Party or exercise certain rights on behalf of such Party, in each case, under this Agreement, but excluding all Sublicensees.

1.197 "**Sublicensee**" means any Third Party to whom a Party or any of its Affiliates grants a sublicense of its rights hereunder to Exploit any Product.

1.198 "**Supply Agreement**" has the meaning set forth in Section 7.2 (Sangamo Supply Obligations).

1.199 "**Target**" means any human gene (other than an Excluded Target) the expression or activity of which is demonstrated to (through published research in a peer-reviewed scientific or medical publication with supporting data), as a primary effect, treat, prevent or otherwise have a disease-modifying effect, on any neurological or psychiatric disease (including any neuromuscular or ophthalmological disease) other than brain cancer.

1.200 "**Target Selection Term**" means the time period commencing on Effective Date and expiring upon the earlier of (a) the fifth (5^{th}) anniversary of the Effective Date; and (b) the date on which the last Collaboration Target is selected pursuant to Section 4.7 (Selection of Collaboration Targets) but excluding all Replacement Targets selected pursuant to Sections 4.7(f) (Selection of Collaboration Targets).

1.201 "**Term**" has the meaning set forth in Section 12.1 (Term).

1.202 "[*]" has the meaning set forth in [*].

1.203 "**Terminated Products**" has the meaning set forth in Section 12.4(a) (General).

1.204 "**Terminated Region**" has the meaning set forth in Section 12.4(a) (General).

1.205 "**Terminated Target**" means (a) any Collaboration Target with respect to which this Agreement is terminated or expires pursuant to Article 12 (Term and Termination), (b) any Collaboration Target that is replaced with a Replacement Target pursuant to Section 4.7(f) (Replacement Targets) and (c) in the event of termination or expiration of this Agreement in its entirety, all Collaboration Targets.

1.206 "**Territory**" means worldwide.

1.207 "**Therapeutic Candidate**" means any ZFP-containing molecule (including a Zinc Finger Nuclease or Zinc Finger Transcription Factor) that (a) [*] to a Collaboration Target, (b) is the subject of Sangamo Research Activities under the applicable Research Plan and (c) [*] under the applicable Research Plan.

1.208 "**Therapeutic Field**" means the treatment or prevention of disease in humans or animals in any and all indications.

1.209 "**Third Party**" means any Person other than a Party or an Affiliate of a Party.

1.210 "**Third Party Distributor**" means, with respect to a Product in any country, any Third Party that purchases its requirements for such Product in such country from Biogen or its Affiliates or Sublicensees and is appointed by Biogen or its Affiliate or Sublicensee as a distributor to distribute, market and resell such Product in such country, even if such Third Party is granted ancillary rights to Develop, package or obtain Regulatory Approval for such Product in order to distribute, market or sell such Product in such country.

1.211 "**Trademarks**" means all trademarks, service marks, trade names, service names, internet domain names, brand names, logos, protectable slogans and trade dress rights, whether registered or unregistered, and all applications, registrations and renewals thereof.

1.212 "**Transition Plan**" has the meaning set forth in Section 12.5(b) (Transition to Sangamo).

1.213 "**Unauthorized Inventing Party**" has the meaning set forth in Section 10.1(d) (Unauthorized Inventions).

1.214 "**Unauthorized Inventions**" has the meaning set forth in Section 10.1(d) (Unauthorized Inventions).

1.215 "**United States**" or "**U.S.**" means the United States of America, including its territories and possessions.

1.216 "**Upfront Payment**" has the meaning set forth in Section 9.1 (Upfront Payment).

1.217 "**Upstream License**" means any agreement between Sangamo (or any of its Affiliates) and any Third Party (such Third Party, an "**Upstream Licensor**") under which such Third Party grants Sangamo a license under any of the Licensed Technology, but expressly

excluding any Excluded Upstream License. The Upstream Licenses existing as of the Execution Date are set forth in Schedule 1.217 (Upstream Licenses).

1.218 "**U.S. Milestone Payments**" means Milestone Payments [*].

1.219 "**U.S. Registration Trial**" means a Clinical Trial of a Product that is designed to, and for which the FDA has provided guidance that the design of such Clinical Trial is sufficient to, ascertain efficacy and safety of such Product in support of the preparation and submission of an MAA for such Product to the FDA, regardless of whether such trial is referred to as a phase 2, phase 2b or phase 3 clinical trial. If a Clinical Trial of a Product is not initially designed as a U.S. Registration Trial but is later re-designed, converted or expanded into such a trial, then it shall be deemed to be a U.S. Registration Trial as of the date of such re-design, conversion or expansion. If Biogen, its Affiliate or Sublicensee publicly describes (including in public announcements or information on its web site) a Clinical Trial of a Product that has not otherwise been classified as a U.S. Registration Trial pursuant to this Section 1.219 (U.S. Registration Trial) as a registration trial or a phase 3 clinical trial for the United States, then such Clinical Trial shall be deemed to be a U.S. Registration Trial as of the first date that such description is available to the public.

1.220 "**Valid Claim**" means either (a) a claim of an issued and unexpired Patent Right that (i) has not been revoked or held unenforceable, unpatentable or invalid by a decision of a court or other Governmental Authority of competent jurisdiction that is not appealable or has not been appealed within the time allowed for appeal, and (ii) that has not been canceled, withdrawn, abandoned, disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer or otherwise, or (b) a claim of a Patent Right that is a pending patent application that (i) has not been cancelled, withdrawn, abandoned or finally rejected by an administrative agency action from which no appeal can be taken, and (ii) has been pending for less than [*] years from the earliest date on which such claim claims priority.

1.221 "**VAT**" means (a) in relation to any jurisdiction within the European Union, the tax imposed by the EC Council Directive on the common system of value added tax (2006/112/EC) and any successor or equivalent legislation and any national legislation implementing that directive together with legislation supplemental thereto and the equivalent tax (if any) in that jurisdiction; and (b) in any other jurisdiction, any other value added, goods and services, consumption or similar tax chargeable on the supply or deemed supply of goods or services under applicable legislation or regulation; but, in each event, excluding any US sales tax.

1.222 "**ZFP**" means a zinc finger protein.

1.223 "**Zinc Finger Nuclease**" means a fusion protein comprising a ZFP and a nuclease domain.

1.224 "**Zinc Finger Transcription Factor**" means a fusion protein comprising a ZFP and a transcriptional regulatory domain or an epigenetic factor domain such as a histone deacetylase, acetyltransferase, or methylase.

1.225 Interpretation. Except where the context expressly requires otherwise, (a) the use of any gender herein shall be deemed to encompass references to either or both genders, and the use of the singular shall be deemed to include the plural (and vice versa), (b) the words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation," (c) the word "will" will be construed to have the same meaning and effect as the word "shall," (d) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (e) any reference herein to any Person shall be construed to include the Person's successors and assigns, (f) the words "herein," "hereof" and "hereunder," and words of similar import, shall be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (g) all references herein to Sections or Schedules shall be construed to refer to Sections or Schedules of this Agreement, and references to this Agreement include all Schedules hereto, (h) the word "notice" means notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Agreement, (i) the term "or" will be interpreted in the inclusive sense commonly associated with the term "and/or," (j) provisions that require that a Party, the Parties or any committee hereunder "agree," "consent," "determine to approve," "approve" or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise (but excluding instant messaging) and (k) references to any specific law, rule or regulation, or article, section or other division thereof, shall be deemed to include the then-current amendments thereto or any replacement or successor law, rule or regulation thereof.

ARTICLE 2
LICENSES; EXCLUSIVITY

2.1 Licenses to Biogen.

(a) License Grants.

(i) Subject to the terms and conditions of this Agreement and the applicable Upstream Licenses, Sangamo hereby grants to Biogen an exclusive (even as to Sangamo and its Affiliates except as provided in Section 2.1(c)) (Retained Rights), royalty-bearing, worldwide license (or, to the extent any Licensed Technology is Controlled by Sangamo pursuant to an Upstream License, a sublicense), with the right to sublicense solely as provided in Section 2.1(b) (Sublicenses), under the Licensed Technology to Develop, Manufacture, perform Medical Affairs, Commercialize, and otherwise Exploit Products throughout the Territory (A) in the Therapeutic Field and (B) [*] in the Diagnostic Field. Except with respect to [*], during the Term, Sangamo shall not grant any Third Party a license under any Licensed Technology to Develop, Manufacture, perform Medical Affairs, Commercialize or otherwise Exploit any Product in the Diagnostic Field.

(ii) Subject to the terms and conditions of this Agreement and the applicable Upstream Licenses, Sangamo hereby grants to Biogen an exclusive, worldwide license

(or, to the extent any Licensed Technology is Controlled by Sangamo pursuant to a Upstream License, a sublicense), with the right to grant sublicenses only to its Affiliates and Subcontractors (solely to the extent such Subcontractors are permitted under this Agreement in accordance with Section 4.9 (Subcontractors)), under the Research Activities Licensed Technology, solely to perform the Biogen Research Activities, including the [*] Research Activities, during the Research Term.

(iii) Subject to the terms and conditions of this Agreement (including Section 2.5 (Exclusivity)), Sangamo hereby grants to Biogen [*] license, under [*] for [*].

(iv) Notwithstanding any provision in this Agreement to the contrary, on a Collaboration Target-by-Collaboration Target basis, Biogen shall not exercise any rights granted to it under Section 2.1(a) (License Grants) with respect to Therapeutic Candidates or Products directed to a given Collaboration Target until Biogen pays Sangamo the Collaboration Target Selection Fee in respect of such Collaboration Target in accordance with Section 9.2 (Collaboration Target Selection Fee).

(v) Notwithstanding anything to the contrary in this Agreement, the licenses granted by Sangamo to Biogen hereunder do not include any right to (A) (i) [*] or (ii) [*] (the activities in the foregoing clauses (i) and (ii), the "**Sangamo Proprietary Activities**"), (B) Develop, Manufacture or Commercialize any [*], (C) clinically Develop, Manufacture or Commercialize any [*] or (D) Develop, Manufacture or Commercialize any [*].

(b) Sublicenses.

(i) Subject to the terms and conditions of this Agreement and the applicable Upstream Licenses, Biogen shall have the right to grant to its Affiliates or Third Parties (through one or more tiers) sublicenses under the licenses granted by Sangamo to Biogen under Section 2.1(a) (License Grants), *provided* that: (A) each sublicense agreement shall be consistent with the terms and conditions of this Agreement and the applicable terms and conditions of the Upstream Licenses that are set forth on Schedule 2.4 (Upstream License Provisions Applicable to Biogen) that are applicable to each Sublicensee as if it were Biogen; (B) Biogen shall remain responsible for the performance of all of its Sublicensees to the same extent as if such activities were conducted by Biogen and for any payments due hereunder with respect to any activities of any Sublicensees; and (C) Biogen shall ensure that its Sublicensees comply with the terms and conditions of this Agreement and the terms and conditions of the applicable Upstream Licenses that are set forth on Schedule 2.4 (Upstream License Provisions Applicable to Biogen). In addition, within [*] days after the execution of any sublicense agreement with (1) a Third Party (other than an agreement [*] unless such agreement [*] pursuant to which [*]), or (2) to the extent required under an Upstream License, an Affiliate, in each case ((1) and (2)), Biogen shall provide Sangamo with a true and complete copy of such sublicense agreement, *provided* that Biogen may redact certain terms of such sublicense agreement to the extent not pertinent to either Party's rights or obligations under this Agreement or necessary to verify compliance with the requirements of this Agreement and any applicable Upstream Licenses.

(ii) If Biogen cannot grant further sublicenses under a particular Upstream License, then at Biogen's request in conjunction with Biogen's granting of a sublicense under this Section 2.1(b) (Sublicenses), Sangamo shall grant a sublicense under such Upstream License directly to such sublicensee for no additional consideration to Sangamo (but subject to Section 2.1(b)(iii)) (Sublicenses) on terms that are consistent with such Upstream License, the sublicense granted by Biogen to such sublicensee and the terms of this Agreement.

(iii) Biogen shall be solely responsible for paying any sublicense issuance and sublicense maintenance fees owed to Third Parties pursuant to the applicable Upstream Licenses that (A) are specifically attributable to the grant of a sublicense by Biogen (or further sublicenses by Sublicensees) or by Sangamo at Biogen's request pursuant to Section 2.1(b)(ii) (Sublicenses) and (B) are specifically identified on Schedule 2.4 (Upstream License Provisions Applicable to Biogen) or that Biogen otherwise agrees to pay.

(iv) Upon termination of this Agreement for any reason and within [*] days after such termination, upon the request of any Sublicensee that (A) has been granted rights to Develop or Commercialize any Terminated Product in any Terminated Region, (B) is not [*], (C) is not, [*], (D) is not then in breach of its sublicense agreement with Biogen and (E) provides such request to Sangamo within [*] days after such termination, Sangamo will negotiate in good faith with such Sublicensee to attempt to agree upon reasonable terms and conditions pursuant to which Sangamo and such Sublicensee would enter into a new license agreement pursuant to which Sangamo would grant such Third Party a direct license with the same license scope, territory and duration as such Sublicensee's sublicense from Biogen (each a "**New License Agreement**"). Under such New License Agreement, Sangamo will not be bound by any grant of rights broader than, and will not be required to perform any obligation other than, those rights and obligations contained in this Agreement and all applicable rights of Sangamo set forth in this Agreement shall be included in such New License Agreement. Notwithstanding the foregoing, Sangamo will not be obligated to enter into a New License Agreement with any Sublicensee.

(c) Retained Rights. Notwithstanding the exclusive licenses granted by Sangamo to Biogen under Section 2.1(a) (License Grants), Sangamo retains the rights under the Licensed Technology to perform its obligations and to exercise its rights under this Agreement, whether directly or through one or more Subcontractors (subject to Section 4.9 (Subcontractors)). In addition, subject to Section 2.5 (Exclusivity), Sangamo retains the exclusive right to practice and license the Licensed Technology outside the scope of the licenses granted to Biogen under Section 2.1(a) (License Grants), including the right to develop, manufacture, and commercialize research reagents directed to any Target.

2.2 Licenses to Sangamo.

(a) Subject to the terms and conditions of this Agreement, Biogen hereby grants to Sangamo a non-exclusive, fully paid, royalty-free, worldwide license, with the right to grant sublicenses only to its Affiliates and Subcontractors (solely to the extent such Subcontractors are permitted under this Agreement in accordance with Section 4.9 (Subcontractors)), under all Biogen

Licensed Technology, solely to perform the Research Activities, the activities under each CMC Plan and Sangamo's other obligations under this Agreement.

(b) Subject to the terms and conditions of this Agreement (including Section 2.5 (Exclusivity)), Biogen hereby grants to Sangamo [*] license under [*] for [*].

2.3 No Implied Licenses; Negative Covenant. Except as expressly set forth herein, neither Party shall acquire any license or other intellectual property interest, by implication or otherwise, under or to any Patent Rights, Know-How or other Intellectual Property owned or Controlled by the other Party. Neither Party shall, nor shall permit any of its Affiliates or sublicensees to, practice any Patent Rights or Know-How licensed to it by the other Party outside the scope of the licenses granted to it under this Agreement.

2.4 Upstream Licenses.

(a) Compliance. The licenses granted to Biogen in Section 2.1(a)(i) and 2.1(a)(ii) (License Grants) include sublicenses under Licensed Technology or Research Activities Licensed Technology that is licensed to Sangamo pursuant to the Upstream Licenses, which sublicenses are subject to the terms of such Upstream Licenses. Schedule 2.4 (Upstream License Provisions Applicable to Biogen) sets forth those obligations under the Upstream Licenses that are obligations of Biogen under this Agreement. Biogen acknowledges and agrees to be bound by [*] and agrees not to take or fail to take any action that would cause Sangamo to be in breach of any Upstream License, [*]. Biogen acknowledges and agrees that certain of the licenses granted to Sangamo under the Upstream Licenses are non-exclusive and that Biogen's sublicense pursuant to Section 2.1(a)(i) (License Grants) with respect to the relevant Licensed Technology is exclusive only with respect to Sangamo and not with respect to the Upstream Licensor. [*] such Licensed Technology Sangamo is granting to Biogen on an exclusive basis only with respect to Sangamo. Without limiting the foregoing, Biogen shall provide Sangamo, in a timely manner, all information necessary for Sangamo to comply with its obligations under each Upstream License to the extent such requirements are expressly set forth on Schedule 2.4 (Upstream License Provisions Applicable to Biogen).

(b) Additional Third Party Agreements. If between the Execution Date and the Effective Date or during the Term, Sangamo desires to enter into any agreement with a Third Party pursuant to which it obtains a sublicensable (in accordance with the terms of this Agreement) license from such Third Party under any Know-How or Patent Rights that [*], Develop, Manufacture, Commercialize or otherwise Exploit any Product in the Field in the Territory, then Sangamo shall notify Biogen in writing, including a description of such Know-How or Patent Rights and any payments that Sangamo would be obligated to pay in connection with the grant, maintenance or exercise of a sublicense to or by Biogen under such Know-How or Patent Rights. Upon Biogen's request, Sangamo shall provide the terms of any such Third Party agreement in advance of Sangamo entering into such Agreement, for Biogen's review and comment, and Sangamo shall consider in good faith any such comments so provided by Biogen. If, within [*] days after the receipt of such notice, Biogen provides Sangamo with written notice in which (i) Biogen consents to adding the applicable Know-How or Patent Rights to the Licensed

Technology and such license agreement as an Upstream License, (ii) Biogen agrees to be responsible for (A) if such agreement is [*], then [*] all royalty payments owed under such agreement that are attributable to Net Sales of Products sold by Biogen, its Affiliates or Sublicensees and (B) if such agreement is [*], [*] all payments owed under such agreement, (iii) Biogen agrees to make all such payments when due and provide all reports required under such license agreement in connection with the grant, maintenance or exercise of a sublicense to or by Biogen under such Know-How and Patent Rights, including Biogen's and its Affiliates' and sublicensees' Development, Manufacture and Commercialization of Products; and (iv) Biogen acknowledges and agrees in writing that its sublicense under such license agreement is subject to the terms and conditions of such license agreement, then such license agreement shall be deemed an Upstream License and such Know-How and Patent Rights, to the extent falling within the definition of Licensed Technology, shall be added to Licensed Technology and sublicensed to Biogen under this Agreement, and Schedule 2.4 (Upstream License Provisions Applicable to Biogen) shall be updated to include the applicable terms and conditions contained in such Upstream License. If Biogen does not provide such a written notice to Sangamo within such [*] day period, then such license agreement shall be deemed an Excluded Upstream License and such Know-How and Patent Rights shall be excluded from Licensed Technology under this Agreement. [*] Know-How or Patent Rights [*] after the Effective Date [*] unless [*], and if [*] such Know-How or Patent Rights [*], then such Know-How or Patent Rights [*], as applicable. Notwithstanding any provision to the contrary set forth in this Agreement, if at any time during the Term, [*] any Patent Rights or Know-How [*] that are [*] in accordance with this Agreement, then [*], all financial and other obligations, including royalties, due from [*] to such Third Party and such Patent Rights or Know-How shall [*] within the definition of Licensed Know-How or Licensed Patent Rights and shall [*] pursuant to this Agreement.

2.5 Exclusivity.

(a) Exclusivity Obligations. Subject to the exceptions set forth in Section 2.5(a) (Exclusivity Obligations) and Section 2.5(b) (Exception):

(i) On a Collaboration Target-by-Collaboration Target basis, during the time period starting on the Selection Date for such Collaboration Target (which date, for Collaboration Targets Tau, SNCA and [*], shall be deemed to be the Effective Date) and ending upon the earliest of:

(1) the date that such Target ceases to be a Collaboration Target;

(2) the expiration or earlier termination of this Agreement with respect to such Collaboration Target; and

(3) the date of cessation of all Research Activities under the Research Plan of which such Collaboration Target is the subject, either [*] to cease all such Research Activities or [*] to cease all Research Activities, if [*] prior to such cessation date [*] with respect to any Therapeutic Candidate or Product directed to such Collaboration Target, which [*] no more than [*]; and

(4) the end of any [*] month period prior to the [*] for a Product directed to such Collaboration Target, which period (A) shall commence no earlier than (1) completion of the Sangamo Research Activities under the applicable Research Plan or (2) the date of cessation of Research Activities under the applicable Research Plan, either [*] to cease all such Research Activities or [*] to cease all further Research Activities under the applicable Research Plan and (B) shall be [*], or [*] in accordance with this Agreement or [*] or otherwise [*] in accordance with this Agreement, in which Biogen or its Affiliates or Sublicensees do not [*] Products directed to such Collaboration Target as applicable based on [*] as set forth in Table 2.5 below, which [*]:

Table 2.5		
[*]	[*]	
	[*]	[*]
[*]	[*]	
(four rows omitted)		

(each such period, a "**Collaboration Target Exclusivity Period**"), except for activities conducted pursuant to this Agreement, Sangamo shall not, whether by itself or with or through any of its Affiliates or any Third Party, and shall not enable or facilitate any of its Affiliates or any Third Party to, Develop, Manufacture, perform Medical Affairs, Commercialize or otherwise Exploit any [*] (1) except for [*] or (2) except for [*];

(ii) On a Collaboration Target-by-Collaboration Target basis, during the applicable Collaboration Target Exclusivity Period, except for activities conducted pursuant to this Agreement, Biogen shall not, whether by itself or with or through any of its Affiliates or any Third Party, and shall not enable or facilitate any of its Affiliates or any Third Party to, Develop, Manufacture, perform Medical Affairs, Commercialize or otherwise Exploit [*] or [*];

(iii) On a Reserved Target-by-Reserved Target basis, during the time period starting on the Effective Date and ending upon the earlier of (A) the expiration of the Target Selection Term or (B) the date that such Target ceases to be a Reserved Target (each such period, a "**Reserved Target Exclusivity Period**"), Sangamo shall not [*] (1) except for [*] or (2) except for [*]. Notwithstanding any provision to the contrary set forth in this Agreement, Sangamo retains the right (by itself or with or through its Affiliates or Subcontractors) to [*], but Sangamo shall not [*] before the expiration of the Reserved Target Exclusivity Period for such Reserved Target; and

(iv) Notwithstanding any provision to the contrary set forth in this Agreement, nothing in this Section 2.5(a) (Exclusivity Obligations) shall restrict or prevent (A) Sangamo or its Affiliates from (1) [*] or (2) [*] (*provided* that Sangamo does not [*]) or (B) Sangamo or its Affiliates or its or their Third Party licensees (including any direct or indirect sublicensees thereof and any Third Parties acting on behalf of such Third Party licensees or sublicensees) from Developing, Manufacturing or Commercializing (1) any [*], (2) solely to the extent [*], any [*] or (3) solely to the extent [*], any [*].

(b) Exception. Notwithstanding Section 2.5(a) (Exclusivity Obligations), if (A) a Third Party becomes an Affiliate of a Party during (1) the Collaboration Target Exclusivity Period for a particular Collaboration Target or (2) the Reserved Target Exclusivity Period for a particular Reserved Target, in each case ((1) and (2)), through merger, acquisition, consolidation or other similar transaction and (B) such new Affiliate, as of the effective date of such transaction, is engaged in Development, Manufacturing, Commercialization or other Exploitation activities that, if conducted by such Party, such Party would violate the exclusivity obligations set forth above with respect to such Collaboration Target or Reserved Target (as applicable) (such activities,

together with any further Development, Manufacturing, Commercialization or other Exploitation of the applicable products, a "**Competing Program**"):

(i) If such transaction results in a Change of Control of such Party, then such new Affiliate (an "**Acquiror**") may Exploit products that are the subject of such Competing Program that was in existence as of the effective date of such transaction and such Party will not be in violation of its exclusivity obligations set forth in Section 2.5(a) (Exclusivity Obligations) with respect to the applicable Target, as long as (A) no Licensed Technology or Biogen Licensed Technology is used by or on behalf of such Party, its Acquiror and their respective Affiliates in more than a *de minimis* fashion in connection with any activities conducted under such Competing Program, and (B) such Party, its Acquiror and their respective Affiliates institute commercially reasonable technical and administrative safeguards to ensure the requirements set forth in the foregoing clause (A) are met, including by creating "firewalls" between the personnel working under such Competing Program and the personnel teams charged with working on any Product or having access to data from activities performed under this Agreement or Confidential Information of the Parties.

(ii) If such transaction does not result in a Change of Control of such Party, then such Party and its new Affiliate (an "**Acquiree**") shall have [*] months from the closing date of such transaction to wind down or divest all rights, title and interests in and to such Competing Program to a Third Party, and during such [*] month period, such Acquiree's conduct of such Competing Program shall not constitute a breach by such Party of its exclusivity obligations set forth in Section 2.5(a) (Exclusivity Obligations), as long as during such [*]-month period, (A) no Licensed Technology or Biogen Licensed Technology is used by or on behalf of such Party, its Acquiree and their respective Affiliates in more than a *de minimis* fashion in connection with any activities conducted under such Competing Program, and (B) such Party, its Acquiree and their respective Affiliates institute commercially reasonable technical and administrative safeguards to ensure the requirements set forth in the foregoing clause (A) are met, including by creating "firewalls" between the personnel working under such Competing Program and the personnel teams charged with working on any Product or having access to data from activities performed under this Agreement or Confidential Information of the Parties. Such Party will keep the other Party reasonably informed of its efforts and progress in effecting such divesture until the Acquiree completes the same.

ARTICLE 3
GOVERNANCE

3.1 Alliance Managers. Promptly after the Effective Date, each Party shall appoint a representative to act as its alliance manager under this Agreement (each, an "**Alliance Manager**") by providing written notification to the other Party. The Alliance Managers shall be primarily responsible for facilitating the flow of information and otherwise promoting communication, coordination and collaboration between the Parties under this Agreement. Unless otherwise agreed upon in writing by the Alliance Managers, all requests for information from one Party to the other Party shall be made through the Alliance Managers or directly to the JRC or JMC. The Alliance Managers shall have the right to attend all meetings of the JSC, JRC, JMC and all other

Committees (if any) as non-voting members, and shall bring matters to the attention of the relevant Committee if the Alliance Manager reasonably believes that such matter warrants such attention. Each Party may replace its Alliance Manager at any time upon written notice to the other Party. The Alliance Managers shall keep a list of all Biogen Licensed Know-How and shall promptly update such list when new Know-How becomes Biogen Licensed Know-How.

3.2 Joint Steering Committee. The Parties hereby establish a joint steering committee (the "**JSC**"), composed of three (3) (or a larger number agreed by the Parties) representatives of Biogen and three (3) (or a larger number agreed by the Parties) representatives of Sangamo, each of whom will have the appropriate experience and expertise to perform its responsibilities on the JSC. The JSC shall in particular:

(a) review, discuss and determine whether to approve all Research Plans and amendments (including the Research Budget set forth therein) thereto;

(b) discuss and determine whether to cease all further Research Activities under a given Research Plan;

(c) establish joint subcommittees as it deems necessary or advisable to further the purpose of this Agreement;

(d) review, discuss and determine whether to approve the written plan for the Manufacturing Technology Transfer for each Product;

(e) direct and oversee the operation of the JRC, the JMC and any other joint subcommittee established by JSC, including resolving any disputed matter of such Committees;

(f) review, discuss and determine whether to approve all CMC Plans (including the CMC Budget set forth therein) and amendments thereto; and

(g) perform such other functions as appropriate to further the purposes of this Agreement, as expressly set forth in this Agreement or allocated to it by the Parties' written agreement.

3.3 Joint Research Committee. The Parties hereby establish a joint research committee (the "**JRC**"), composed of three (3) (or a larger number agreed by the Parties) representatives of Biogen and three (3) (or a larger number agreed by the Parties) representatives of Sangamo, each of whom will have the appropriate experience and expertise to perform its responsibilities on the JRC. The JRC shall in particular:

(a) coordinate the Research Collaboration and facilitate communications between the Parties with respect to the Research Collaboration;

(b) prepare, review, discuss and submit to the JSC to determine whether to approve all Research Plans and amendments (including the Research Budget set forth therein) thereto;

(c) discuss the results of performance of the Research Plans and the anticipated timeline for initiating and completing the activities set forth therein;

(d) review and discuss any updates or reports prepared by either Party pursuant to Section 4.6 (Research Report);

(e) review any Data Package provided by Sangamo with respect to a given Reserved Target;

(f) discuss and make a recommendation to the JSC as to whether to cease all further Research Activities under a given Research Plan;

(g) discuss any Development activities for any Therapeutic Candidate or Product that Biogen desires or intends to conduct during the Research Term for such Collaboration Target outside the scope of the applicable Research Plan; and

(h) perform such other functions as appropriate to further the purposes of this Agreement, as expressly set forth in this Agreement or allocated to it by the Parties' written agreement.

3.4 Joint Manufacturing Committee. The Parties hereby establish a joint manufacturing committee (the "**JMC**") as a joint subcommittee under the JSC, composed of three (3) (or a larger number agreed by the Parties) representatives of each Party, each of whom will have the appropriate experience and expertise to perform its responsibilities on the JMC. The JMC shall in particular:

(a) oversee and facilitate communication between the Parties with respect to the Manufacture and supply of Products under this Agreement;

(b) coordinate the Manufacture and supply of the Products under this Agreement;

(c) prepare a CMC Plan for each Collaboration Target (including the CMC Budget set forth therein) and amendments to existing CMC Plans, and submit the CMC Plans and amendments to the JSC to review, discuss and determine whether to approve;

(d) oversee the implementation of the CMC Plans and discuss the progress and results of activities performed under the CMC Plans;

(e) prepare, review, discuss and submit to the JSC to determine whether to approve the technology transfer plan for each Manufacturing Technology Transfer, submit such plans to the JSC to review, discuss and determine whether to approve, and coordinate the Parties' activities with respect to each Manufacturing Technology Transfer; and

(f) perform such other functions related to the Manufacture of the Products as appropriate to further the purposes of this Agreement, as expressly set forth in this Agreement or allocated to it by the Parties' written agreement.

3.5 Committee Membership and Meetings.

(a) Committee Members. Within fifteen (15) days after the Effective Date, each Party shall appoint its representatives on the JSC, JRC and JMC, each of whom will have the appropriate experience and expertise to perform its responsibilities on the JSC, JRC or JMC, respectively, by providing written notification to the other Party. Each Party may replace its representatives on any Committee with similarly qualified individuals on written notice to the other Party, but each Party shall strive to maintain continuity in the representation of its Committee members.

(b) Meetings. The JSC and JRC shall each hold meetings at such times as it elects to do so, but in no event shall such meetings be held less frequently than once every Calendar Quarter until completion of the Research Collaboration. The JMC shall hold meetings at such times as it elects to do so, but in no event shall such meetings be held less frequently than once every six (6) months until completion of the final Manufacturing Technology Transfer pursuant to Section 7.7 (Manufacturing Technology Transfer). Committee meetings may be held in person, by audio or video teleconference; *provided* that unless otherwise agreed by both Parties, at least one (1) meeting per year shall be held in person. All in-person meetings shall alternate between locations in the San Francisco Bay area and Boston. Each Party shall be responsible for all of its own costs and expenses of participating in any Committee meetings. No action taken at any Committee meeting shall be effective unless at least one (1) representative of each Party is participating. The Alliance Managers will be responsible, on behalf of each Committee, for setting the agenda for meetings of such Committee with input from the other members and for conducting the meetings of such Committee. The Alliance Managers will prepare and disseminate agendas and presentations no later than five (5) Business Days in advance of each Committee meeting unless otherwise agreed to by the Parties in writing. The Alliance Managers will jointly prepare and circulate minutes for each Committee meeting within ten (10) Business Days after each such meeting and will ensure that such minutes are reviewed and approved by their respective companies within thirty (30) days thereafter.

(c) Ad Hoc Meetings. On ten (10) Business Days' prior written notice, either Party may request an ad-hoc meeting of a Committee if such Party reasonably believes that a significant matter must be addressed before the next regularly scheduled Committee meeting, and such Party will provide the relevant Committee materials reasonably adequate to enable an informed discussion by its members no later than five (5) Business Days before the special meeting. Ad-hoc meetings may occur via audio or video teleconference or in-person as the Parties may agree.

(d) Non-Member Attendance. Each Party may from time to time invite a reasonable number of participants, in addition to its representatives, to attend the Committee meetings in a non-voting capacity; *provided* that if either Party intends to have any Third Party

(including any consultant) attend such a meeting, then such Party shall provide at least five (5) days prior written notice to the other Party and obtain the other Party's approval for such Third Party to attend such meeting, which approval shall not be unreasonably withheld or delayed. Such Party shall ensure that such Third Party is bound by confidentiality and non-use obligations consistent with the terms of this Agreement.

3.6 Decision-Making.

(a) Consensus; Escalation. A quorum for a meeting of any Committee will require the presence of at least one (1) representative from each Party. Each Party will cause a quorum of their representatives to each Committee to attend all meetings thereof. All decisions within the authority of the JSC, JRC or JMC or other joint subcommittee shall be made by unanimous vote, with each Party's representatives collectively having one (1) vote. If the JRC, JMC or another joint subcommittee is unable to reach agreement as to a particular matter within such Committee's jurisdiction within [*] days (or a later date mutually agreed to by the Parties) after such matter has been brought to such Committee for resolution, then such disagreement shall be referred to the JSC for resolution and in the case of disagreement of the JSC, such disagreement shall be referred to the Executive Officers of the Parties for resolution.

(b) Final Decision Making. If the Executive Officers do not fully resolve any matter within any Committee's authority and referred to them under Section 3.6(a) (Consensus; Escalation) within [*] days (or a later date agreed to by each of the Parties) of the matter being referred to them, then Biogen shall have the final decision-making authority on any such disputed matter, except that the Parties must agree and Biogen shall not have the final decision-making authority to:

(i) make any decisions regarding [*] for any Therapeutic Candidate or Product [*] or [*] (including whether and how [*] or [*]), or to approve any [*];

(ii) approve any [*], including the [*];

(iii) change the [*], in each case, [*];

(iv) change the [*] of (A) the [*], (B) the [*], including any [*] or [*] or (C) the [*];

(v) change the [*] set forth in any [*];

(vi) change the [*] set forth in any [*];

(vii) increase the [*] of the activities [*], except as permitted under [*];

(viii) change the [*] of activities [*];

(ix) [*], except as permitted under [*];

(x) require [*], of any Know-How [*] or any subject matter Covered or otherwise claimed by any Patent Right [*];

(xi) require Sangamo to perform any work that is [*] (except for [*]), or that Sangamo reasonably believes [*];

(xii) require Sangamo to [*] or [*], without [*];

(xiii) require Sangamo to perform any [*] (A) for [*], with respect to [*] or (B) for [*] or [*], with respect to [*] that (1) is [*] and (2) was [*];

(xiv) impose obligations on Sangamo that violate or would cause Sangamo to breach its obligations under any agreement between Sangamo (or its Affiliate) and any Third Party, including Upstream Licenses, *provided* that Sangamo provides reasonable evidence thereof upon Biogen's request; or

(xv) impose obligations on Sangamo that would cause Sangamo to violate any applicable Law.

3.7 Limitations of Committee Authority. Each Committee shall only have the powers expressly assigned to it in this Article 3 (Governance) and elsewhere in this Agreement and shall not have the authority to: (a) modify or amend the terms and conditions of this Agreement; (b) waive or determine either Party's compliance with the terms and conditions of under this Agreement; or (c) decide any issue in a manner that would conflict with the express terms and conditions of this Agreement.

3.8 Dissolution of JSC and the JRC. The JSC and the JRC will each cease to have decision-making authority with respect to a Collaboration Target upon the Parties' completion of Research Activities under the Research Plan for such Collaboration Target. The JRC will be dissolved and its responsibilities under this Agreement will terminate upon the earlier of (a) the Parties' completion of Research Activities under each Research Plan for each Collaboration Target or (b) the termination of this Agreement. Upon the termination of the JRC, the JRC will have a final meeting thereafter to review the results of the all Research Activities and will thereafter have no further authority with respect to the activities hereunder. The JSC will be dissolved and its responsibilities under this Agreement will terminate upon the later of the completion of the final Manufacturing Technology Transfer and the completion of the Research Collaboration.

3.9 Dissolution of JMC. The JMC will cease to have decision-making authority with respect to Manufacture of Products that Specifically Bind to a Collaboration Target upon the completion of the Manufacturing Technology Transfer for such Products pursuant to Section 7.7 (Manufacturing Technology Transfer). The JMC will be dissolved and its responsibilities under this Agreement will terminate upon the earlier of (a) the Parties' completion of the Manufacturing Technology Transfers for all Research Plans for which [*] or (b) the termination of this Agreement.

ARTICLE 4
RESEARCH COLLABORATION; TARGET SELECTION

4.1 General. Subject to the terms and conditions of this Agreement, the Parties shall undertake a research collaboration for multiple Collaboration Targets (the "**Research Collaboration**") to (a) discover and research, [*], ZFPs (which may be Zinc Finger Nucleases or Zinc Finger Transcription Factors) for use in the Therapeutic Field that Specifically Bind to a Collaboration Target, with the goal of [*] for subsequent Development and Commercialization by Biogen, and (b) discover and optimize [*].

4.2 Research Plans.

(a) The Research Collaboration shall be carried out for each Collaboration Target pursuant to a separate written research plan for such Collaboration Target that is agreed by the Parties (each, a "**Research Plan**"). Each Research Plan shall set forth:

(i) a description of (A) [*], (B) [*] and (C) [*];

(ii) the research activities to be undertaken by Sangamo to [*] for the applicable Collaboration Target, [*] included in such plan;

(iii) the [*] Criteria for such components and the data needed to determine whether such criteria have been met;

(iv) the [*] Criteria and the data needed to determine whether such criteria have been met;

(v) the [*] to be conducted by Sangamo in mice or other animals;

(vi) the research activities to be undertaken by Sangamo to develop and optimize [*], including [*];

(vii) the [*] Criteria for the applicable ZFP product and the data needed to determine whether such criteria have been met;

(viii) all [*] in the performance of the Research Activities under the Research Plan or [*] any Therapeutic Candidate or Product, as well as [*] in the Research Plan or [*] such Therapeutic Candidate or Product;

(ix) all deliverables, if any, to be provided by a Party to the other Party with respect to the activities allocated to such Party under such Research Plan;

(x) the date by which the Parties anticipate that [*] and timelines for desired completion of activities allocated to either Party under such Research Plan;

(xi) the dedicated (if any) and planned resources to be provided by each Party in furtherance of performing all such activities set forth in the Research Plan; and

(xii) all research activities, if any, to be undertaken by Biogen, which activities shall be designed to support Sangamo's activities under such Research Plan.

(b) As of the Execution Date, the Parties have agreed upon initial Research Plans for the first three Initial Targets (*i.e.*, Tau, SNCA and [*]), which plans are attached to this Agreement as Schedule 4.2 (Initial Research Plans). The Parties acknowledge that as of the Execution Date, Sangamo is engaged in the development of [*] directed to Tau and [*] directed to SNCA, and the Research Plan for Tau and the Research Plan for SNCA shall be directed to the further Development of Sangamo's existing ZFPs for such Target, as applicable. Accordingly, neither the Research Plan for Tau nor the Research Plan for SNCA shall contain those items listed in subsection (a) above that were completed by Sangamo with respect to such Collaboration Target prior to the Execution Date.

(c) From time to time but no less than annually, the Parties (through the JRC) shall prepare an amendment to each of the then-current Research Plans and submit each such amendment to the JSC to review, discuss and determine whether to approve. Once approved by the JSC, such amended Research Plan shall become effective and replace the prior Research Plan.

(d) If the terms of any Research Plan contradicts, or creates inconsistencies or ambiguities with, the terms of this Agreement, then the terms of this Agreement shall govern.

4.3 Research Activities.

(a) Sangamo Research Activities. Sangamo will (i) perform all activities assigned to it under each Research Plan (the "**Sangamo Research Activities**") in the manner set forth in such Research Plan, (ii) apply the Sangamo Platform Technology in the performance of such activities to the extent applicable and (iii) use Commercially Reasonable Efforts to perform such activities in accordance with the timeline specified in such Research Plan. Sangamo will use Commercially Reasonable Efforts to identify [*] Therapeutic Candidates and [*] Therapeutic Candidate that [*] set forth in the applicable Research Plan.

(b) Biogen Research Activities. Biogen will (i) perform all activities assigned to it under each Research Plan in the manner set forth in such Research Plan (the "**Biogen Research Activities**," and together with the Sangamo Research Activities, the "**Research Activities**") and (ii) use Commercially Reasonable Efforts to perform such activities in accordance with the timeline specified in such Research Plan. Biogen will deliver Results related to such Collaboration Target in accordance with this Agreement and the applicable Research Plan, including the preparation of all reports in accordance with Section 4.6 (Research Report).

(c) Conduct of Research. Each Party shall conduct its respective Research Activities in good scientific manner, in compliance with all applicable Laws, including cGMP, GLP and GCP, as applicable.

(d) Performance of Research Activities. Each Party will (i) provide all resources specified in the Research Plan for it to perform its Research Activities and (ii) perform all of its Research Activities with reasonable care and skill in accordance with all applicable Laws

and the terms of this Agreement. Each Party will ensure that its personnel who perform its Research Activities are suitably qualified and trained to be capable of carrying out its Research Activities set forth under each Research Plan in a professional workmanlike standard and will provide such personnel with all reasonably necessary materials and facilities therefor.

(e) **[*] Research Activities**. Notwithstanding any provision in this Agreement to the contrary, if:

(i) (A) [*] set forth in [*] and (B) [*] has provided written notice to [*], then (1) within [*] days after [*] of such notice, the Parties will meet to [*] as described in such written notice, and (2) if [*] or otherwise [*], in any event within [*] days of such meeting, and [*]; or

(ii) [*] the applicable Research Plan [*] the activities to be performed by either Party under such Research Plan (*provided* that such activities [*] the Research Collaboration) or otherwise [*] performed by each Party under such Research Plan, and [*t], following the [*] in accordance with the [*];

then in each case ((i) and (ii)), (A) [*] the applicable Research Plan, in the case of clause (i), such that [*] under the Research Plan, or in the case of clause (ii) [*], (B) [*] activities shall be deemed "[*] **Research Activities**" and shall thereafter [*] Research Activities and (C) in the case of clauses (i) and (ii) above, [*] Research Activities [*]. Notwithstanding the foregoing, [*] any rights under clauses (A)-(C) [*] regarding (1) [*] under clauses (i) or (iii) of [*] pursuant to clause (i) above, (2) [*] pursuant to clause (i) or (3) [*] pursuant to clause (i) above or [*] and [*] described in with [*]; *provided* that if [*], then [*] to the extent [*] pursuant to [*] and consistent with the terms and conditions of this Agreement.

4.4 Research Costs.

(a) Each Research Plan will include a written budget pursuant to which the Parties or their respective authorized Third Party designees will perform the Research Activities allocated to such Party under the Research Plan, which budget will include a good-faith estimate of (i) the number of FTEs to be dedicated by each Party under such Research Plan and (ii) any Out-of-Pocket Costs expected to be incurred in the performance of such Research Activities to the extent specifically identified in the applicable Research Plan (each such budget, the "**Research Budget**"). All internal personnel and resources of each Party under each Research Budget will be expressed in terms of FTEs plus any Out-of-Pocket Costs to be incurred (*e.g.*, from the use of contract research organizations) in connection with the performance of Research Activities as outlined in the applicable Research Plan and such budgeted FTE costs will be calculated using the relevant FTE Rate.

(b) Except as set forth under Section 4.3(e), Section 4.4(a) - 4.4(f), the Parties shall share [*] the Research Costs incurred by each Party to perform the Research Activities assigned to it under the applicable Research Plan to the extent in accordance with the Research Budget set forth therein, *plus* any Allowable Overruns (the "**Reimbursable Research Costs**"). If either Party incurs or expects to incur Research Costs in excess of the Reimbursable Research

Costs with respect to the applicable Research Activities performed during such Calendar Year, then the Parties, through the JSC, will discuss whether to approve an increase in the amount budgeted in the Research Budget. Unless the JSC so approves such an increase to the Research Budget, the non-incurring Party will not be obligated to reimburse the incurring Party for any costs or expenses in excess of the Reimbursable Research Costs (either before or after such costs have been incurred) for such Research Activities, and, in any event, such incurring Party will not be relieved of its obligations to perform such Research Activities pursuant to the Research Plan.

(c) Within [*] days after the end of each Calendar Quarter during the performance of the Research Collaboration, each Party shall submit to the other Party a reasonably detailed report (accompanied by reasonable supporting documents evidencing such Reimbursable Research Costs) setting forth the Reimbursable Research Costs incurred by such Party in such Calendar Quarter to perform activities assigned to it under a Research Plan in accordance with budget set forth therein (and evidence in the same level of detail as set forth in the applicable Research Budget that such costs were incurred in accordance with such budgeted amounts). Within [*] days after the receipt of such reports from both Parties, the Parties shall jointly prepare a Reimbursable Research Cost reconciliation report for such Calendar Quarter. Within forty [*] days after the preparation of the reconciliation report, the Party that [*] the Reimbursable Research Costs for such Calendar Quarter shall make a payment to the other Party pursuant to the reconciliation report so that [*] the Reimbursable Research Costs for such Calendar Quarter.

(d) If a Party disputes in good faith any portion of a report or invoice for Research Costs provided by the other Party pursuant to this Section 4.4 (Research Costs), then such Party shall promptly notify the other Party and the Parties shall use good faith efforts to resolve such dispute expediently. Any Reimbursable Research Costs subject to such dispute shall be shared as described above within [*] days after the resolution of such dispute. Any Reimbursable Research Costs not subject to dispute shall be shared as described above pursuant to the timeline set forth above.

(e) In the event [*] cease all further Research Activities under a given Research Plan, then all non-cancellable costs and expenses incurred by or on behalf of either Party to orderly wind down the conduct of such Research Activities shall be deemed Reimbursable Research Costs and, notwithstanding Section 4.4(b) and Section 4.4(c), *provided* that [*] to minimize such costs, [*] of such Reimbursable Research Costs.

(f) In the event the Parties agree to [*] under a Research Plan, then all Research Costs incurred by or on behalf of either Party in performing [*] pursuant to such Research Plan shall be deemed Reimbursable Research Costs and, notwithstanding Section 4.4(b) and Section 4.4(c), [*] of such Reimbursable Research Costs.

4.5 Research Records. During the applicable Research Term and for [*] years thereafter, each Party will maintain records of all of its Research Activities in sufficient detail and in good scientific manner, appropriate for scientific, patent and regulatory purposes, which records will be complete and properly reflect all work done and results achieved in the performance of its Research Activities by or on behalf of such Party. In addition, each Party will calculate and

maintain records of FTE effort and Out-of-Pocket Costs, in each case, incurred by it in accordance with the summary reports in the form to be agreed to by the JSC and in accordance with Section 4.6 (Research Report).

4.6 Research Report. Each Party shall keep the other Party reasonably informed on the status, progress and results of its activities under the Research Plans through the regularly scheduled JRC meetings.

(a) On a Calendar Quarterly basis during the applicable Research Term and also upon the reasonable written request of either Party, each Party will furnish to the JRC:

(i) an update on such Party's progress under the Research Plan with respect to the performance of such Party's Research Activities, including a written summary of any Results generated by such Party under the applicable Research Plan, but excluding (A) [*] unless and until [*] pursuant to this Agreement and (B) [*], *provided* that (1) if with respect to Products being Developed [*] pursuant to this Agreement, then [*] and (2) if with respect to any other Product being Developed [*] and [*], then [*], *provided*, *further* that [*], with respect to any Products described in this Section 4.6(a)(i)(B)(2), to [*] and [*];

(ii) a summary report or presentation in the form to be agreed to by the JRC, along with reasonable supporting documentation evidencing the costs and expenses incurred in the performance of such Party's applicable Research Activities during such Calendar Quarter; and

(iii) a forecast of the Reimbursable Research Costs that such Party expects to incur in respect of such Party's Research Activities during the upcoming four Calendar Quarters, which must be in accordance with the Research Plan and Research Budget.

Additionally, in the event Biogen desires or intends to conduct any Development activities for any Therapeutic Candidate or Product in furtherance of any Exploitation activities with respect to a given Therapeutic Candidate, Product or Collaboration Target outside the scope of the applicable Research Plan during the Research Term for such Collaboration Target, then Biogen shall first discuss its plan for the conduct of such activities with the JRC (and shall reasonably consider any comments provided by Sangamo with respect to the plan for such activities) and on a Calendar Quarterly basis during the applicable Research Term, Biogen will furnish to the JRC an update on such Development activities and a written summary of any results, data, summaries and analyses generated pursuant to the performance such activities.

(b) In addition, Sangamo will deliver to Biogen [*] promptly upon [*] and [*].

(c) No later than [*] days after the earlier of (i) Sangamo's completion of its Research Activities under a Research Plan and (ii) Biogen's request, Sangamo shall provide to Biogen a final study report summarizing all Results generated under the applicable Research Plan that are necessary or useful to [*] but excluding (A) [*] and (B) [*]. If Sangamo generates any such additional Results under the applicable Research Plan following the delivery of such final report, then Sangamo shall promptly notify Biogen thereof and promptly deliver to Biogen either

an amended final study report or an additional study report summarizing such Results, but in each case excluding (A) [*] and (B) [*].

4.7 Selection of Collaboration Targets.

(a) Initial Targets. During the period starting on the Effective Date and ending on the [*] anniversary of the Effective Date, Biogen shall have the right to select, at Biogen's discretion and by written notice to Sangamo, one (1) Target that will become the Collaboration Target that is the fourth (4th) Initial Target, upon Biogen's selection thereof if such Target is a Reserved Target, or in accordance with Section 4.7(c) (Notice of Target Nomination) if such Target is not a Reserved Target. If Biogen fails to make such selection before the [*] anniversary of the Effective Date, then Biogen's right to select the fourth (4th) Initial Target shall expire at such time.

(b) Selection of Collaboration Targets. In addition, during the Target Selection Term, Biogen shall have the right to select, at Biogen's discretion and by written notice to Sangamo, up to eight (8) Targets as Collaboration Targets under this Agreement; *provided*, *however* that:

(i) if Biogen fails to select at least [*] as a Collaboration Target under this Section 4.7(b) (Selection of Collaboration Targets) before the [*] anniversary of the Effective Date, then (A) Biogen shall only have the right to select up to [*] Targets as Collaboration Targets under this Section 4.7(b) (Selection of Collaboration Targets) during the remainder of the Target Selection Term after such [*] anniversary and (B) if Biogen fails to select at least [*] under this Section 4.7(b) (Selection of Collaboration Targets) as Collaboration Targets between the [*] anniversary of the Effective Date and the [*] anniversary of the Effective Date, then Biogen shall only have the right to select up to [*] Targets under this Section 4.7(b) (Selection of Collaboration Targets) as Collaboration Targets during the remainder of the Target Selection Term after such [*] anniversary; and

(ii) if Biogen selects at least [*] as a Collaboration Target under this Section 4.7(b) (Selection of Collaboration Targets) before the [*] anniversary of the Effective Date but fails to select a total of at least [*] under this Section 4.7(b) (Selection of Collaboration Targets) before the [*] anniversary of the Effective Date (which total shall include all Targets selected pursuant to this Section 4.7(b) (Selection of Collaboration Targets) prior to the [*] anniversary of the Effective Date), then Biogen shall only have the right to select up to [*] Targets under this Section 4.7(b) (Selection of Collaboration Targets) as Collaboration Targets during the remainder of the Target Selection Term after such [*] anniversary; and

(iii) if a Target selected by Biogen fails to become a Collaboration Target because it is a Blocked Target, then, notwithstanding the time periods set forth in Section 4.7(b)(i) and Section 4.7(b)(ii) (as applicable), Biogen shall have an additional [*] days to select an alternative Target as a Collaboration Target (and so on until any such selected Target becomes a Collaboration Target).

(c) Notice of Target Nomination. Biogen's notice for nominating, as a Collaboration Target, a gene that is not a Reserved Target shall include the GenBank reference number for such gene, the identity of the neurological or psychiatric disease(s) (including any neuromuscular or opthamological disease) caused by mutation of such gene and any other information reasonably necessary to confirm that it qualifies as a Target. The Target nominated by Biogen shall automatically be selected as a Collaboration Target under this Agreement (i) if it is then a Reserved Target, at the time of its nomination, or (ii) if it is not then a Reserved Target, at the time of Sangamo's notification to Biogen pursuant to Section 4.7(d) (Blocked Targets) that either (A) it is not a Blocked Target as set forth under Section 4.7(d) or (B) Sangamo, in its sole discretion, is permitting such Target to become a Collaboration Target despite the fact that it is then a Blocked Target. For clarity, a gene nominated by Biogen will not be designated as a Collaboration Target if it does not qualify as a Target or if it is a Blocked Target (unless Sangamo provides consent for such selection in its sole discretion as set forth in the foregoing clause (i)(B)). In the event the Parties dispute in good faith whether a gene qualifies as a Target due to whether a primary effect of such gene is to treat, prevent or otherwise have a disease-modifying effect on any neurological or psychiatric disease (including any neuromuscular or opthamological disease), then the Parties agree to submit the dispute to an independent Third Party expert agreed by the Parties with at least ten (10) years of experience in researching biological mechanisms of action for genetic targets for final determination of whether such gene qualifies as a Target, which determination shall be made by the Third Party expert within [*] days of the appointment thereof and shall be final and binding on the Parties.

(d) Blocked Targets. If the Target nominated by Biogen is not a Reserved Target, then within [*] days after the receipt of the notice from Biogen nominating such Target as a Collaboration Target, Sangamo shall notify Biogen in writing confirming whether (i) [*] with respect to such Target [*] that is [*] and that are [*]; (ii) such Target is [*] and is [*]; or (iii) such Target [*] under which [*] and [*] (each of (i) through (iii), a "**Pre-Existing Restriction**," and any such Target described in clauses (i) through (iii), a "**Blocked Target**"). If the Target nominated by Biogen is a Blocked Target, then Biogen may nominate another Target pursuant to Section 4.7(b) (Blocked Targets) (and another if such new Target is also a Blocked Target, and so on), until such time that Biogen selects a Target that is not a Blocked Target. If at any time during the Target Selection Term, any Pre-Existing Restriction that precluded Biogen from selecting as Collaboration Target a Target that Biogen previously proposed to Sangamo under Section 4.7(b) (Selection of Collaboration Targets) later expires, terminates or is otherwise modified such that such proposed Target would no longer be a Blocked Target, then Sangamo will promptly notify Biogen of such expiration, termination or modification (as applicable).

(e) Data Packages.

(i) Delivery of Data Package. If Sangamo performs internal discovery and research activities directed to a Reserved Target and [*], then, for no more than [*] Reserved Targets in any consecutive [*] month period during the Target Selection Term, Sangamo shall have the right (but not the obligation) to provide Biogen with a report setting forth the results of such discovery and research activities, which report must include the information set forth on

Schedule 4.7(e) (Data Package) for such Reserved Target (such report, a "**Data Package**") and require Biogen to decide whether to select such Reserved Target as a Collaboration Target.

(ii) Incomplete Data Packages. Within [*] after the receipt of a Data Package for a Reserved Target, Biogen will notify Sangamo if such Data Package is missing any information required under Schedule 4.7(e) (Data Package), which notice will describe such information that Biogen believes to be missing. Sangamo will provide Biogen with any such missing information identified in such notice no later than [*] Business Days after the date of Biogen's request therefor.

(iii) Due Diligence. Without limiting Section 4.7(e)(ii) (Incomplete Data Packages) above, during Data Package Review Period, Biogen shall have the right to consult with Sangamo in conducting due diligence to decide whether to select the applicable Reserved Target as a Collaboration Target. Sangamo shall promptly respond to Biogen's reasonable questions regarding such Reserved Target and otherwise reasonably cooperate with Biogen in its evaluation of such Reserved Target, but, in providing such responses and cooperation, Sangamo shall not be required to generate or obtain any information it does not already possess or to disclose any information it does not Control.

(iv) Extension of Data Package Review Period. If any information is provided to Biogen following the receipt of a Data Package for a Reserved Target (A) pursuant to Section 4.7(e)(ii) (Incomplete Data Packages) or (B) pursuant to a request made by Biogen under Section 4.7(e)(iii) (Due Diligence) within [*] of Biogen's receipt of such Data Package, and, in the case of (A) or (B), such information is, [*], material information not previously provided to Biogen and required to be provided as part of the Data Package for such Reserved Target, then the applicable Data Package Review Period for such Reserved Target will automatically be extended such that there are [*] days between Biogen's receipt of such material information and the expiration of such Data Package Review Period.

(v) Data Package Review Period. During the Data Package Review Period for a given Reserved Target, Biogen shall have the right (but not the obligation) to select such Reserved Target as a Collaboration Target under Section 4.7 (Selection of Collaboration Targets). If Biogen selects such Reserved Target as a Collaboration Target within such Data Package Review Period, then such Target shall cease to be a Reserved Target upon such selection, and the Parties (through the JSC) shall promptly prepare a Research Plan for such Target in accordance with Section 4.7(g) (Research Plans for New Collaboration Targets). If Biogen fails to select such Reserved Target as a Collaboration Target within the applicable Data Package Review Period, then such Reserved Target shall cease to be a Reserved Target upon the expiration of the applicable Data Package Review Period (but for clarity shall remain eligible for selection as a Collaboration Target pursuant to Section 4.7(b) (Selection of Collaboration Targets)).

(f) Replacement Targets. If none of the ZFPs (including screening of different functional domains and promoters) tested by Sangamo in a [*] assay for a particular Collaboration Target (other than [*], or [*]) meet the [*] Criteria for such Collaboration Target set forth in the applicable Research Plan, then Sangamo shall promptly disclose the results of such

testing to Biogen and Biogen shall have [*] right (but not the obligation) to replace such Collaboration Target by (i) providing notice thereof to Sangamo within [*] days after Biogen's receipt of such results (and such gene shall cease to be a Collaboration Target upon Sangamo's receipt of such notice), (ii) nominating a new Target as a Collaboration Target in accordance with Section 4.7(c) (Notice of Target Nomination) no later than [*] days after such notice and (iii) following the procedures set forth in Section 4.7 (Selection of Collaboration Targets) for such Target to be selected and become a Collaboration Target (such new Target selected as a Collaboration Target pursuant to this Section 4.7(f) (Replacement Targets), a "**Replacement Target**").

(g) Research Plans for New Collaboration Targets. After Biogen select a new Target as a Collaboration Target pursuant to this Section 4.7 (Selection of Collaboration Targets), the Parties shall promptly prepare (through the JRC) a new Research Plan for such Target and submit each such plan to the JSC to review, discuss and determine whether to approve. If no new Research Plan has been approved by the JSC for a new Collaboration Target within [*] days (or any later date agreed in writing by the Parties) following the date on which Biogen nominates such Target as a Collaboration Target (the "**RP Adoption Period**"), then:

(i) Biogen may elect in its sole discretion to pay to Sangamo the Collaboration Target Selection Fee for such Collaboration Target in accordance with Section 9.2 (Collaboration Target Selection Fee), and following such payment, (A) the approved Research Plan for such Collaboration Target will be deemed to include all sections of the latest draft Research Plan on which the Parties have agreed (including upon the Research Budget therefor) and (B) the Parties shall continue to work in good faith to discuss finalize any other sections of the Research Plan on which they did not agree. If Biogen does not elect to pay the Collaboration Target Selection Fee for a given Collaboration Target in accordance with this Section 4.7(g) (Research Plans for New Collaboration Targets) prior to the end of such [*] day period, then such Target shall [*] and shall [*]; or

(ii) Biogen may nominate one (1) Target to replace such Collaboration Target and the terms of this Section 4.7 (Selection of Collaboration Targets) (including the relevant timelines and procedures with respect to such Target herein) shall apply once again and the Target that was replaced pursuant to this clause (ii) shall cease to be a Collaboration Target.

(h) Commencement of Research Activities. Until Biogen pays the Collaboration Target Selection Fee in respect of a given Collaboration Target in accordance with Section 9.2 (Collaboration Target Selection Fee) (and Section 4.7(g) (Research Plans for New Collaboration Targets) above, if applicable), Sangamo will not be required to and Biogen shall not be allowed to commence any Research Activities with respect to such Collaboration Target.

4.8 Materials. To facilitate the conduct of the Research Collaboration or the performance of other activities under this Agreement, either Party may provide to the other Party certain compositions of matter, biological materials or chemical compounds Controlled by the supplying Party for use by the other Party (such materials or compounds and any progeny and derivatives thereof, collectively, "**Materials**"). Except as otherwise set forth in this Agreement, all

such Materials shall remain the sole property of the supplying Party, shall be used only in the fulfillment of obligations or exercise of rights under this Agreement expressly in accordance with the applicable Research Plan or other written agreement by the Parties as to the use thereof, subject to any limitations specified in writing by the supplying Party in connection with such provision, shall not be used or delivered to or for the benefit of any Third Party without the prior written consent of the supplying Party (except as expressly permitted under the applicable Research Plan) and shall not be used in research or testing involving human subjects, unless expressly agreed by the supplying Party. Without limiting the foregoing, Biogen shall not reverse engineer, disassemble, compile or determine the composition of any ZFPs Controlled by Sangamo and provided to Biogen hereunder. Except as otherwise set forth in this Agreement, THE MATERIALS ARE PROVIDED "AS IS" AND WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY WARRANTY THAT THE USE OF THE MATERIALS WILL NOT INFRINGE OR VIOLATE ANY PATENT OR OTHER PROPRIETARY RIGHTS OF ANY THIRD PARTY.

4.9 Subcontractors. Each Party shall have the right to engage Subcontractors to exercise its rights or perform its obligations under this Agreement, including the activities assigned to such Party under any Research Plan; *provided* that any such Subcontractor is bound by written obligations of confidentiality and non-use consistent with this Agreement and has agreed to assign to such Party (or exclusively license to such Party, with the right to grant sublicenses) all Inventions or other Intellectual Property developed or invented by such Subcontractor in the course of performing such subcontracted work that specifically relate to the Products or their use, manufacture or sale. Each Party shall be responsible for providing oversight of its respective Subcontractors, for any obligations that have been delegated or subcontracted to any Subcontractor and for the performance of its Subcontractors.

4.10 [*]. The Parties will agree upon and set forth in each Research Plan [*] that a ZFP product that [*] a particular Collaboration Target [*] a Therapeutic Candidate, which [*] shall be [*] and shall be [*] (the "[*]"). If upon the completion of Research Activities under a particular Research Plan under which [*] Therapeutic Candidate that [*] the applicable Collaboration Target and [*], the Parties shall use good faith efforts to agree [*] that [*]. If the Parties do not agree [*] within a period of [*] days despite such efforts, then upon a Party's notice to the other Party, [*] to the extent necessary so that [*].

ARTICLE 5
DEVELOPMENT

5.1 Development and Medical Affairs. Subject to the terms and conditions of this Agreement, on a Collaboration Target-by-Collaboration Target basis, other than with respect to the Research Activities set forth in the applicable Research Plan for such Collaboration Target, Biogen shall have sole control over and decision-making authority with respect to the Development and performance of all Medical Affairs with respect to all Products for such Collaboration Target in the Field in the Territory, at its own cost and expense.

5.2 Development Diligence. On a Collaboration Target-by-Collaboration Target basis, following the completion of all Research Activities under the applicable Research Plan with respect to such Collaboration Target, Biogen shall (by itself or with or through its Affiliates or Sublicensees) use Commercially Reasonable Efforts to Develop and obtain Regulatory Approval for one Product directed to each Collaboration Target in the Therapeutic Field in the Territory. Except as set forth in this Section 5.2 (Development Diligence), Biogen will have no other diligence obligations under this Agreement to Develop or obtain Regulatory Approval for any Products. With respect to any material breach of Biogen's diligence obligations under this Section 5.2 (Development Diligence), [*], Sangamo shall have the right to [*] terminate this Agreement with respect to the applicable Terminated Product or Terminated Region in accordance with Section 12.2(b) (Termination for Material Breach) [*].

5.3 Technology Transfer and Assistance.

(a) Technology Transfer. Subject to the remainder of this Section 5.3 (Technology Transfer and Assistance), after the completion of all Research Activities allocated to Sangamo in the applicable Research Plan for a given Collaboration Target, (i) Sangamo shall, within [*] days such completion, transfer to Biogen copies of all Licensed Know-How existing and not previously provided to Biogen that is used in, or is necessary to enable Biogen to continue to Exploit, any Therapeutic Candidate or Product (in the form such Therapeutic Candidate or Product exists as of the date of the completion of such Research Activities) that Specifically Binds to such Collaboration Target and (ii) Sangamo shall, within [*] days after receipt of a written request from Biogen, transfer to Biogen copies of all specifically and reasonably requested Licensed Know-How existing and not previously provided to Biogen that is useful to enable Biogen to continue to Exploit any Therapeutic Candidate or Product that Specifically Binds to such Collaboration Target. Within [*] days following [*] of a Research Plan that sets forth any Biogen Research Activities, including any [*] Research Activities, Sangamo shall transfer to Biogen copies of all Research Activities Licensed Know-How existing and not previously provided to Biogen that is necessary or useful for the performance of such Biogen Research Activities. Notwithstanding the foregoing, nothing in this Section 5.3 (Technology Transfer and Assistance) shall require Sangamo to transfer or disclose any Know-How related to [*]. Sangamo does not have any obligation to transfer or disclose any Know-How [*].

(b) Assistance. In connection with such technology transfer, upon reasonable request by Biogen, Sangamo shall also provide Biogen with reasonable technical assistance in connection with the practice of the Licensed Technology in the Exploitation of the Therapeutic Candidates and Products that Specifically Bind to such Collaboration Target, including reasonable access to Sangamo's technical personnel involved in the Exploitation of the applicable Therapeutic Candidates and Products, to the extent reasonably required to enable Biogen to practice under the Licensed Technology in connection with the Exploitation of such Therapeutic Candidates and Products.

(c) AAV Vector Know-How Disclosure. In addition to the reports regarding the Research Activities to be provided pursuant to Section 4.6 (Research Report), on a [*] basis during each Research Term and for a period of [*] months after the expiration of the last Research

Term under this Agreement, Sangamo will furnish to the JRC an update on its discovery, optimization and pre-clinical Development activities with respect to AAV Vectors that are [*] and [*] that are [*], by providing a written summary in the form attached hereto as Schedule 5.3(c) (Form of AAV Vector Report).

5.4 Support Costs. Sangamo will be responsible for its internal costs and out-of-pocket expenses incurred by Sangamo to provide the assistance to Biogen described in Section 5.3 (Technology Transfer and Assistance), Section 5.7 (Assistance), Section 6.1 (General), Section 7.7 (Manufacturing Technology Transfer) and Section 7.9 (Sangamo Manufacturing Support) for up to the first [*] FTE hours incurred in total, after which Biogen will reimburse Sangamo for its internal costs (at the applicable FTE Rate) and reasonable out-of-pocket expenses incurred in the provision of such assistance reasonably requested by Biogen. Sangamo may invoice Biogen for the internal costs and documented out-of-pocket expenses reasonably incurred with such assistance in excess of such [*] initial FTE hours, and Biogen will pay the undisputed invoiced amounts within [*] days after the date of such invoice.

5.5 Conduct of Development. Biogen shall conduct all Development work for the Products in good scientific manner and in compliance with all applicable Laws, including cGMP, GLP and GCP, as well as regulations involving investigations of human subjects.

5.6 Development Reports. Biogen shall keep Sangamo reasonably informed as to the progress and results of its and its Affiliates' and Sublicensees' Development activities under this Agreement. Without limiting the foregoing, following the end of the Research Term with respect to a given Collaboration Target, Biogen will provide Sangamo on a [*] basis a report providing a reasonably detailed summary of Biogen's Development activities with respect to Products directed to such Collaboration Target, including (a) any material developments related to such Products achieved since the last such Development report and anticipated to be achieved in the next [*], such as the filing of any INDs or MAAs in the U.S. and the Ex-U.S. Major Markets and the anticipated dates of achievement of any Development related Milestone Events, (b) upcoming meetings with Regulatory Authorities in the U.S. and the Ex-U.S. Major Markets relating to Products and (c) planned strategy for obtaining Regulatory Approval in the U.S. and the Ex-U.S. Major Markets. Any reports delivered under this Section 5.6 (Development Reports) will be Biogen's Confidential Information under this Agreement. Upon Sangamo's reasonable request and no more frequently than [*], the Parties will schedule either an in-person meeting or teleconference to discuss the status, progress and results of such Development activities, and during such meeting or teleconference Biogen shall promptly respond to Sangamo's reasonable questions or requests for additional information relating to such Development activities.

5.7 Assistance. The Parties understand and agree that following completion of the Research Activities under a given Research Plan, from time to time it may be necessary for Biogen to seek assistance and cooperation from Sangamo in connection with the further Exploitation of Therapeutic Candidates and Products. Sangamo will provide any such assistance and cooperation reasonably requested by Biogen during the [*] year period following completion of such Research Activities. Solely to the extent provided under Section 5.4 (Support Costs), Sangamo may invoice

Biogen for the internal costs (at the FTE Rate) and documented Out-of-Pocket Costs incurred in connection with providing such assistance and cooperation.

ARTICLE 6
REGULATORY

6.1 General. Subject to the terms and conditions of this Agreement, Biogen shall have sole control over and decision-making authority with respect to all regulatory activities related to obtaining and maintaining Regulatory Approval and Pricing Approval for the Products in the Field in the Territory, at its own cost and expense, including all communications with any Regulatory Authorities and submissions thereto, in each case, regarding any Therapeutic Candidate or Product. Biogen may file all such applications in its own name (or in the name of its designee), and Biogen will own and control all such applications. Without limiting the generality of Section 5.7 (Assistance), Sangamo will reasonably assist Biogen in its efforts to prepare and submit any Regulatory Materials to obtain, support or maintain Regulatory Approvals and Pricing Approvals for all Products, including by providing to Biogen, upon Biogen's reasonable request, all data, written reports and other documentation (other than [*]) related to such Product Controlled by Sangamo or its Affiliates (which assistance and data generation must be in accordance with applicable Law and requirements and standards by applicable Regulatory Authorities) as well as any necessary samples and materials. Sangamo will and will cause its Affiliates to cooperate with Biogen and its Affiliates in the event of any inspection by a Regulatory Authority related to any Product or any activities to be performed under this Agreement. Sangamo may invoice Biogen for the internal costs (at the FTE Rate) and documented expenses incurred in connection with providing such assistance and cooperation solely to the extent provided under Section 5.4 (Support Costs).

6.2 Regulatory Materials and Update. Biogen shall provide Sangamo with copies of (a) any [*] submitted by Biogen (or its Affiliates and Sublicensees) relating to any Product in the U.S. or any Ex-U.S. Major Market and (b) any Regulatory Materials submitted by Biogen (or its Affiliates and Sublicensees) to any Regulatory Authority in the Territory or received by Biogen (or its Affiliates and Sublicensees) from any Regulatory Authority in the Territory that are related to [*] any Product. Sangamo shall have the right to review and comment on drafts of such Regulatory Materials, and Biogen shall consider such comments in good faith, to the extent that such review and comment shall not delay the submission of any Regulatory Materials by Biogen. In addition, Biogen shall promptly notify Sangamo in writing of any decision by any Regulatory Authority [*] regarding any Regulatory Approval for any Product and will use reasonable efforts to notify Sangamo in writing of any decision by any other Regulatory Authority in the Territory regarding the receipt of any Regulatory Approval for any Product.

6.3 Product Recalls. In the event that any Regulatory Authority issues or requests a recall or takes similar action in connection with any Product, or in the event a Party reasonably believes that an event, incident or circumstance has occurred that may result in the need for a voluntary or mandatory recall, market withdrawal or other corrective action regarding any Product, such Party shall promptly advise the other Party thereof by telephone or facsimile. Biogen shall decide and have control over whether to conduct a recall or market withdrawal (except in the event

of a recall or market withdrawal mandated by applicable Law or Regulatory Authority, in which case it shall be required) or to take other corrective action in any country and the manner in which any such recall, market withdrawal or corrective action shall be conducted, and Biogen shall be solely responsible for the costs and expenses of such recall, market withdrawal or corrective action; *provided* that Biogen shall notify Sangamo prior to making any public disclosure of the recall, market withdrawal or corrective action and shall keep Sangamo regularly informed regarding any such recall, market withdrawal or corrective action.

ARTICLE 7
MANUFACTURE AND SUPPLY

7.1 General. Except as otherwise set forth in this Agreement (including Section 7.2 (Sangamo Supply Obligations) below), Biogen will have the exclusive right to, and sole control over and decision-making authority with respect to, the Manufacture of Therapeutic Candidates and Products by itself or through one or more Affiliates or Third Parties selected by Biogen in its sole discretion.

7.2 Sangamo Supply Obligations.

(a) Subject to the terms and conditions of this Agreement, on a Collaboration Target-by-Collaboration Target basis, Sangamo shall supply to Biogen any and all requirements of (i) research grade Products to be used in the conduct of the Research Activities by or on behalf of Sangamo or Biogen, (ii) one research grade Product that Specifically Binds to each Collaboration Target to be used in the conduct [*] conducted by or on behalf of Biogen and (iii) for only the first three (3) Products that [*], Clinical Trial Material to be used in the conduct of the first Phase 1 Clinical Trial for such Products, in each case ((i)-(iii)), in a form as agreed to by the Parties and in accordance with the applicable specifications set forth in the applicable Research Plan or CMC Plan, as applicable (the "**Specifications**"). Sangamo shall have no obligation to Manufacture or supply any Product that (A) [*], (B) with respect to Clinical Trial Material, [*] that [*] or (C) [*].

(b) Promptly after the Effective Date, the Parties shall negotiate in good faith and enter into a supply agreement for Manufacture and supply of the Products to be supplied by Sangamo to Biogen under Section 7.2(a)(ii) and Section 7.2(a)(iii) (the "**Supply Agreement**"), which Supply Agreement shall be consistent with this Article 7 (Manufacture and Supply) and the Parties shall negotiate in good faith and enter into a quality agreement (the "**Quality Agreement**") that addresses the quality control terms and conditions related to the supply of Products pursuant to the Supply Agreement.

(c) Subject to the terms and conditions of this Agreement, Sangamo shall also perform all manufacture process development work required for Sangamo to Manufacture (or have Manufactured) the Products that Sangamo is obligated to supply under Section 7.2(a). Sangamo shall perform such manufacture process development work for each Collaboration Target pursuant to a written manufacture process development plan that sets forth all material process development work to be conducted for one Product that Specifically Binds to each Collaboration Target, the timeline for performance thereof, and the Specifications (each, a "**CMC Plan**"). The CMC Plans

shall include all process development work required for the Manufacture of research grade Product [*] and, for each of the first three (3) Collaboration Targets only, also for the Manufacture of GMP grade Clinical Trial Materials for the first Phase 1 Clinical Trial for the first Product that Specifically Binds to such Collaboration Target. Any process development activities required to Manufacture research grade Product for use in the Research Activities will be separately included under the applicable Research Plan. Each CMC Plan shall also set forth (i) a detailed budget for such process development work, including both internal costs (at the FTE Rate) and out-of-pocket costs (each, a "**CMC Budget**") and (ii) the quantities of the applicable Product to be ordered by Biogen and the estimated delivery date for such Product, which shall be consistent with the forecast provided by Biogen in accordance with a forecasting schedule to be agreed by the Parties in the Supply Agreement. Through the JMC, the Parties shall prepare and submit to the JSC to review, discuss and determine whether to approve each initial CMC Plan (including the CMC Budget) for each Collaboration Target promptly after the commencement of Research Activities under the applicable Research Plan. Through the JMC, the Parties shall prepare and submit to the JSC any updates and amendments to each CMC Plan as needed from time to time thereafter (including the CMC Budget included therein and any change in Specifications required by applicable Regulatory Authorities, contemplated by the CMC Plan or requested by Biogen). Each CMC Plan (including updates and amendment thereto) shall become effective upon approval by the JSC.

(d) Sangamo may perform its obligations set forth under this Section 7.2(d) (Sangamo Supply Obligations) (the "**Sangamo Manufacturing Activities**") itself or through a Third Party contract manufacturer ("**CMO**") approved in writing by Biogen (which approval shall not be unreasonably withheld). As of the Effective Date, Biogen has approved the CMOs set forth in Schedule 7.2(d) (Approved CMOs).

7.3 Product Delivery. Sangamo shall deliver all Product supplied pursuant to Section 7.2 (Sangamo Supply Obligations) to Biogen or its designee Ex Works (Incoterms 2010) at Sangamo's or its CMO's Manufacturing facility. Title and risk of loss for all such Product shall transfer to Biogen upon such delivery. For any Manufacture and supply of Product pursuant to Section 7.2 (Sangamo Supply Obligations) conducted by Sangamo's CMO, all warranties, representations, disclaimers and remedies for the Manufacture and supply of such Product under the Supply Agreement shall be consistent with the warranties, representations, disclaimers and remedies provided by such CMO to Sangamo pursuant to the applicable agreement between Sangamo and such CMO. For any Manufacture and supply of Product pursuant to Section 7.2 (Sangamo Supply Obligations) conducted directly by Sangamo, under the Supply Agreement Sangamo shall provide Biogen at least the same level of assurances and accountability as Sangamo receives from its CMOs providing equivalent Manufacturing services.

7.4 Manufacture by CMO. Unless otherwise agreed by the Parties, if Sangamo is performing the Sangamo Manufacturing Activities through one or more CMOs, then, in connection with the transition of any Manufacturing responsibilities to Biogen for a given Product, the Parties will discuss in good faith the assignment or transfer to Biogen of the agreements between Sangamo and one or more of such CMOs. Sangamo will use reasonable efforts to ensure that any such agreement between Sangamo and such a CMO that is specific to a Product under this Agreement permits Sangamo to assign such agreement to Biogen.

7.5 Manufacturing Costs.

(a) The Manufacturing Costs of the research grade Products Manufactured and supplied by Sangamo and used in the conduct of the Research Activities (whether conducted by or on behalf of Biogen or Sangamo) shall be included in Research Cost and shared [*] by the Parties pursuant to Section 4.4 (Research Costs).

(b) Biogen shall pay Sangamo for the Manufacture and supply of the research grade Products [*] at a price equal to [*] of the Manufacturing Costs of such research grade Product, which amounts shall be paid in accordance with the terms and conditions of the Supply Agreement.

(c) Biogen shall pay Sangamo for the Manufacture and supply of the Clinical Trial Materials at a price equal to [*] of the Manufacturing Costs of the Clinical Trial Materials, which amounts shall be paid in accordance with the terms and conditions of the Supply Agreement.

(d) In addition to the amounts to be paid by Biogen pursuant to Section 7.2(a) through Section 7.2(c), Biogen shall reimburse Sangamo for all costs (at the FTE Rate) and documented out-of-pocket costs incurred by Sangamo in the performance of the Sangamo Manufacturing Activities under each CMC Plan, with no additional mark-up to the extent that such costs and expenses are incurred in accordance with the applicable CMC Plan and do not exceed the amounts budgeted for such activities in the applicable CMC Budget by more than [*] without the JMC's written approval. Sangamo may invoice Biogen for such costs so incurred in accordance with this Section 7.5(d), and Biogen will pay the undisputed invoiced amounts within forty [*] days after the date of such invoice.

7.6 Observation by Biogen. Before the completion of the Manufacturing Technology Transfer with respect to Products that Specifically Bind to a given Collaboration Target, Sangamo will provide Biogen with the opportunity, upon Biogen's reasonable request during normal business hours, to observe the Manufacturing processes and procedures for such Products (*e.g.*, review assays, batch records, and release processes and procedures) for the purpose of enabling Biogen (or a CMO designated by Biogen) to Manufacture such Products pursuant to Section 7.7 (Manufacturing Technology Transfer). If Sangamo utilizes a CMO for the Manufacture of any Product, then Sangamo will take all reasonable actions, including entering into a three party agreement with Biogen and such CMO, to enable Biogen to exercise its rights under Section 7.1 (General) and this Section 7.6 (Observation by Biogen).

7.7 Manufacturing Technology Transfer.

(a) In addition to the initial technology transfer set forth in Section 5.3 (Technology Transfer and Assistance) and subject to the remainder of this Section 7.7 (Manufacturing Technology Transfer), upon Biogen's request with respect to a Product that Sangamo is Manufacturing pursuant to Section 7.2 (Sangamo Supply Obligations) at any time and upon reasonable advance notice to Sangamo, Sangamo will work with Biogen to transfer to Biogen or one of its CMOs (i) all Sangamo Manufacturing Know-How that is [*], to the extent not previously transferred to Biogen under this Agreement, by providing copies or samples of relevant

documentation, materials and other embodiments of any such Sangamo Manufacturing Know-How (including research cell banks and master cell banks) and by making available its qualified technical personnel on a reasonable basis to consult with Biogen with respect to such Know-How, and (ii) any materials (as well as any intermediates and impurities of such materials) used by Sangamo or its Affiliates or subcontractors in the Manufacture of such Product, including any Materials, intermediates and impurities for such Product (for each Product, the "**Manufacturing Technology Transfer**").

(b) Regardless of whether to Biogen itself or its CMO, for each of the first three Products for which Sangamo is responsible for the Manufacture and supply of the Clinical Trial Material for the first Phase 1 Clinical Trial as set forth under clause (iii) of Section 7.2(a), Sangamo shall provide one (1) Manufacturing Technology Transfer, which shall be for the Manufacture of GMP-grade Product, unless Biogen requests such Manufacturing Technology Transfer before the GMP-grade Manufacturing process is complete, in which case Sangamo shall only be required to provide such requested Manufacturing Technology Transfer of the Manufacturing process as it exists at the time of such transfer and shall not thereafter be required to perform a Manufacturing Technology Transfer for any GMP-grade Clinical Trial Material for any Product that Specifically Binds to such Collaboration Target.

(c) For all Products (that contain Therapeutic Candidates) other than the first three Products, Sangamo shall only be required to provide one (1) Manufacturing Technology Transfer for such research grade Product.

(d) Each such Manufacturing Technology Transfer will be conducted pursuant to and will be subject to a written plan developed by the Parties (through the JMC) in good faith at least [*] days prior to the anticipated commencement of such Manufacturing Technology Transfer, the purpose of which plan will be to ensure the complete and timely transfer of such Sangamo Manufacturing Know-How and Materials in a manner that is consistent with then-current and reasonable internal technology transfer corporate standards (or equivalent policy) of Biogen and each such plan will include the internal costs (at the FTE Rate) and out-of-pocket costs to be incurred in the performance of the activities set forth under such plan. The JMC will submit each such plan to the JSC to review, discuss and determine whether to approve. Without limiting the foregoing, in connection with the development of each plan for a Manufacturing Technology Transfer, Sangamo will identify to Biogen any Third Party Intellectual Property or any Materials used by Sangamo in the performance of the Sangamo Manufacturing Activities that may contain restrictions or conditions applicable to the use of such Third Party Materials or Intellectual Property by or on behalf of Biogen. If requested by Biogen, Sangamo will use reasonable efforts to facilitate Biogen's access to or right to use or have used any such Materials or Intellectual Property.

(e) In accordance with Section 5.4 (Support Costs), Biogen shall reimburse Sangamo for all costs and expenses incurred by Sangamo to perform each Manufacturing Technology Transfer to the extent in accordance with the written plan for such Manufacturing Technology Transfer, including both internal costs (at the FTE Rate) and documented out-of-pocket costs (including any technology transfer fee or license fee charged by the CMOs), except

that [*]. Sangamo may invoice Biogen for such costs so incurred in accordance with this Section 7.7(e), and Biogen will pay the undisputed invoiced amounts within [*] days after the date of such invoice.

(f) Upon Biogen's request, Sangamo shall introduce Biogen to Sangamo's CMOs and reasonably cooperate with Biogen in its negotiation with such CMOs regarding technology transfer and supply of the Products by such CMO directly to Biogen.

(g) After completion of Manufacturing Technology Transfer for a Product, Biogen shall be solely responsible for and have sole control and decision-making with respect to the Manufacture and supply of such Product.

7.8 Restrictions on Sublicenses to Manufacturing Technology. Notwithstanding any provision to the contrary set forth herein, on a Collaboration Target-by-Collaboration Target basis, the license granted to Biogen pursuant to Section 2.1(a)(i) shall not include a sublicense under any Patent Rights or Know-How licensed to Sangamo pursuant to [*] unless and until Sangamo conducts a Manufacturing Technology Transfer pursuant to Section 7.7 (Manufacturing Technology Transfer) with respect to a Product that Specifically Binds to such Collaboration Target and that includes a transfer of such Patent Rights or Know-How licensed to Sangamo pursuant to such agreement, as applicable. At such time Schedule 2.4 shall thereafter include the terms and conditions set forth on Schedule 7.8 ([*] Provisions) for purposes of this Agreement.

7.9 Sangamo Manufacturing Support. Without limiting the generality of Section 5.7 (Assistance), the Parties understand and agree following the Manufacturing Technology Transfer contemplated by Section 7.7 (Manufacturing Technology Transfer) it may be necessary for Biogen from time to time to seek assistance and cooperation from Sangamo in connection with the Manufacture of Products, including with respect to scale-up activities. Sangamo will use reasonable efforts to provide any such assistance and cooperation reasonably requested by Biogen following the completion of each Manufacturing Technology Transfer. Sangamo may invoice Biogen for the internal costs (at the FTE Rate) and documented out-of-pocket costs incurred in connection with providing such assistance and cooperation solely to the extent provided under Section 5.4 (Support Costs).

ARTICLE 8
COMMERCIALIZATION

8.1 General. Subject to the terms and conditions of this Agreement, Biogen shall have sole control over and decision-making authority with respect to, at its sole cost and expense, the Commercialization of Products in the Field throughout the Territory, including: (a) developing and executing a commercial launch and pre-launch plan for each Product; (b) negotiating with applicable Governmental Authorities regarding the price and reimbursement status of each Product; (c) marketing and promotion; (d) booking sales and distribution and performance of related services; (e) handling all aspects of order processing, invoicing and collection, inventory and receivables; (f) providing customer support; and (g) ensuring its practices and procedures relating to the marketing and promotion of the Products comply with applicable Law.

8.2 Commercial Diligence. Following receipt of Regulatory Approval for the first Product directed to a Collaboration Target in a particular country or jurisdiction, Biogen shall (by itself or with or through its Affiliates or Sublicensees) use Commercially Reasonable Efforts to Commercialize in the Therapeutic Field at least one Product directed to each such Collaboration Target in such country or jurisdiction; *provided* that the Parties acknowledge and agree that in some countries or jurisdictions, based on the size of the market or other relevant commercialization factors, Commercially Reasonable Efforts might not require Commercialization of the Product in such country or jurisdiction and, *provided*, *further*, that in determining compliance with this Section 8.2 (Commercial Diligence), overall level of efforts to Commercialize such Product in the Territory as a whole will be considered. Except as set forth in this Section 8.2 (Commercial Diligence), Biogen will have no other diligence obligations under this Agreement to Commercialize any Products. With respect to any material breach of Biogen's diligence obligations under this Section 8.2 (Commercial Diligence), [*], Sangamo shall have the right to [*] terminate this Agreement with respect to the applicable Terminated Product or Terminated Region in accordance with Section 12.2(b) (Termination for Material Breach) [*].

8.3 Commercialization Reports. During the Royalty Term for each Product, for so long as Biogen or its Affiliates or Sublicensees are Commercializing such Product, Biogen shall keep Sangamo reasonably informed as to the progress and results of its and its Affiliates' and Sublicensees' Commercialization of such Products on a [*] basis by providing to Sangamo a reasonably detailed summary regarding the status of the Commercialization activities of Biogen and its Affiliates and Sublicensees with respect to such Product, including a summary of the Commercialization activities performed since the last such Commercialization report and the planned future Commercialization activities and the anticipated dates of achievement of any commercial Milestone Events. Any reports delivered under this Section 8.3 (Commercialization Reports) will be Biogen's Confidential Information under this Agreement. Upon Sangamo's reasonable request and no more frequently than [*], the Parties will schedule either an in person meeting or teleconference to discuss the status, progress and results of such Commercialization activities, and during such meeting or teleconference, Biogen shall promptly respond to Sangamo's reasonable questions or requests for additional information relating to such Commercialization activities.

8.4 Trademarks. Biogen shall have the right to brand the Products using Trademarks it determines appropriate, which may vary by country or within a country. Biogen shall own all rights in such Trademarks and may register and maintain such Trademarks in the countries and regions that it determines, at Biogen's cost and expense.

ARTICLE 9
FINANCIAL PROVISIONS

9.1 Upfront Payment and Equity Investment.

(a) Biogen shall pay to Sangamo a one-time upfront payment of one hundred twenty five million Dollars ($125,000,000) (the "**Upfront Payment**") within thirty (30) days after the Effective Date.

(b) Concurrently with the execution of this Agreement, BIMA and Sangamo shall enter into the Stock Purchase Agreement, pursuant to which BIMA shall purchase from Sangamo, and Sangamo shall sell to BIMA newly issued shares of common stock of Sangamo on the terms and conditions set forth therein.

9.2 Collaboration Target Selection Fee. If Biogen nominates as a Collaboration Target a Target that (a) would not be one of the four (4) Initial Targets in accordance with Section 4.7 (Selection of Collaboration Targets) and (b) would not be a Replacement Target, then following the JSC's approval of the Research Plan for such Target (or at an earlier time upon Biogen's election in accordance with Section 4.7(g) (Research Plans for New Collaboration Targets)), Biogen shall pay to Sangamo a one-time, payment of (i) [*] if Sangamo provided to Biogen a Data Package for such Target pursuant to Section 4.7(e) (Data Packages) or (ii) [*] if Sangamo did not provide to Biogen a Data Package for such Target pursuant to Section 4.7(e) (Data Packages) (each such payment, in the case of (i) and (ii), a "**Collaboration Target Selection Fee**"). Biogen will pay such Collaboration Target Selection Fee no later than [*] days following Biogen's receipt of an undisputed invoice therefor, which invoice Sangamo may not provide to Biogen unless and until (A) the JSC so approve the Research Plan for such Collaboration Target in accordance with Section 4.7(g) (Research Plans for New Collaboration Targets) or (B) Biogen requests in writing to pay such Collaboration Target Selection Fee prior to the date on which the Parties so approve such Research Plan in accordance with Section 4.7(g) (Research Plans for New Collaboration Targets).

9.3 Milestone Payments.

(a) Milestone Events. Subject to the remainder of this Section 9.3(a) (Milestone Payments), on a Collaboration Target-by-Collaboration Target basis, Biogen shall pay to Sangamo the payments set forth in Table 9.3(a) below (each, a "**Milestone Payment**") one-time upon the first occurrence of the applicable event listed below (each a "**Milestone Event**") by the first Product directed toward each Collaboration Target, as applicable depending on the identity of such Collaboration Target:

Table 9.3(a)		
Milestone Event	**Milestone Payment**	
	Tau	**Collaboration Targets other than Tau**
[*]	[*]	[*]
(One page omitted)		

(b) Milestone Conditions.

(i) Each Milestone Payment shall be due and payable only once for each Collaboration Target, upon the first achievement thereof by a Product directed toward such

Collaboration Target, regardless of how many times such Milestone Event is achieved or the number of Products that achieve such Milestone Event.

(ii) Each Milestone Payment shall be due and payable irrespective of whether such Milestone Event is achieved by Biogen or its Affiliates or Sublicensees.

(iii) If one or more Milestone Events are skipped for a Product directed to a particular Collaboration Target, then subject to Section 9.3(b)(viii), such skipped Milestone Event(s) will be deemed achieved and payable upon the first achievement of the subsequent Milestone Event by a Product directed toward the same Collaboration Target, except that a Milestone Event in one country or jurisdiction will not be deemed to be achieved and payable solely because a subsequent Milestone Event was achieved in a different country or jurisdiction (*e.g.*, [*] of a Product in [*] will not be deemed to trigger a Milestone Payment for [*] of such Product in [*] if such [*] of such Product has not yet occurred in [*]). In addition, if Biogen or any of its Affiliates or Sublicensees [*] for the first Product directed to a given Collaboration Target prior to paying the Milestone Payment due upon achievement of Milestone Event [*] in Table 9.3(a) above, then the Milestone Payment that would have been due upon achievement of Milestone Event [*] shall become due and payable in accordance with Section 9.3(c) (Notice and Payment).

(iv) If Biogen or its Affiliates or Sublicensees achieve all Milestone Events (regardless of the number of times such events occur or the number of Products that trigger such event), then the maximum amount payable by Biogen with respect to Products directed to Tau is [*], and the maximum amount payable by Biogen with respect to Products directed toward any other Collaboration Target is [*] for such Collaboration Target.

(v) If a Reserved Target is selected by Biogen as a Collaboration Target, and [*] such Collaboration Target is [*], then the Milestone Payments for achievement of Milestone Events [*] shall be [*] unless and until [*].

(vi) For the Sales Milestone Payment, the Net Sales of all Products directed to the same Collaboration Target shall be aggregated together for each Calendar Year.

(vii) If [*] is not [*] but is later [*], then for purposes of determining whether Milestone Event [*] or Milestone Event [*] (as applicable) has been triggered, the [*] shall be deemed to occur as of the date of [*].

(viii) Notwithstanding any provision in this Agreement to the contrary, the maximum amount payable by Biogen with respect to Products directed toward any Collaboration Target as a result of Milestone Event [*] and Milestone Event [*] for such Collaboration Target is [*] for Products directed to Tau and [*] for Products directed to any other Collaboration Target. In the event Milestone Event [*] for a Collaboration Target has been achieved prior to the achievement of Milestone Event [*] for such Collaboration Target, then the Milestone Payment paid by Biogen due upon the achievement of Milestone Event [*] for such Collaboration Target shall be creditable against the Milestone Payment due upon achievement of Milestone Event [*] for such Collaboration Target. In the event Milestone Event [*] for a

Collaboration Target has been achieved prior to Milestone Event [*] for such Collaboration Target, then no Milestone Payment shall be due for achievement of Milestone Event [*] for such Collaboration Target.

(c) Notice and Payment.

(i) For Milestone Events [*] through [*], Biogen will notify Sangamo in writing of the achievement by Biogen or its Affiliates or Sublicensees of such Milestone Event no later than [*] days after Biogen becomes aware of the achievement thereof. Following the earlier of (A) such notification by Biogen or (B) any public announcement that such Milestone Event has been achieved, Sangamo will provide Biogen with an invoice for the corresponding Milestone Payment, and Biogen will pay to Sangamo such Milestone Payment no later than [*] days after its receipt of invoice for such Milestone Payment.

(ii) For the Sales Milestone Payment, Biogen will notify Sangamo in writing of the achievement by Biogen or its Affiliates or Sublicensees of such Sales Milestone Payment no later than [*] days after the end of the Calendar Year in which the Sales Milestone Payment is payable. Thereafter, Sangamo will provide Biogen with an invoice for the Sales Milestone Payment, and Biogen will pay to Sangamo the Sales Milestone Payment no later than [*] days after its receipt of invoice for the Sales Milestone Payment.

9.4 Royalty Payments.

(a) Royalty Rates. Subject to the remainder of this Section 9.4 (Royalty Payments), on a Collaboration Target-by-Collaboration Target basis, Biogen shall make quarterly royalty payments to Sangamo on the worldwide Net Sales of all Products directed to a given Collaboration Target that are sold by Biogen and its Affiliates and Sublicensees, as calculated by multiplying the applicable royalty rate set forth in Table 9.4 below for the applicable Collaboration Target by the corresponding amount of incremental annual worldwide Net Sales of such Products in the applicable Calendar Year.

Table 9.4

For that portion of worldwide Net Sale in a Calendar Year of all Products Directed to a Given Collaboration Target:		**Royalty Rate for the Applicable Collaboration Target**	
		Tau	***Collaboration Targets other than Tau***
1) Less than or equal to	[*]	[*]	[*]
2) Greater than but less than or equal to	[*] [*]	[*]	[*]
3) Greater than but less than or equal to	[*] [*]	[*]	[*]

4) Greater than	[*]	[*]	[*]

(b) Aggregation of Net Sales. For the purposes of determining the applicable royalty tier set forth above in Table 9.4, the Net Sales of all Products that are directed to the same Collaboration Target shall be aggregated together.

(c) Royalty Term. Biogen's royalty payment obligations under Section 9.4(a) (Royalty Rates) shall commence in a country upon the First Commercial Sale of a Product to a Third Party (other than a Sublicensee) for distribution, use or consumption in a country and shall expire, on a Product-by-Product and country-by-country basis, upon the latest of: (i) the tenth (10^{th}) anniversary of such First Commercial Sale of such Product in such country; (ii) the expiration of the last-to-expire Valid Claim within the Licensed Patent Rights or Joint Patent Rights that Covers [*] (to the extent [*]of the Product) of such Product in such country (collectively, "**Royalty Bearing Patent Rights**"); and (iii) the expiration of all Regulatory Exclusivity for such Product in such country (the "**Royalty Term**").

(d) Royalty Reductions.

(i) Loss of Patent Coverage. If a Product is sold in a country in the Territory during the applicable Royalty Term at a time when there is no Valid Claim within the Royalty Bearing Patent Rights that Covers [*] (to the extent [*] of the Product) of such Product in such country, then the royalty rates payable by Biogen pursuant to Section 9.4(a) (Royalty Rates) for such Product in such country during such time shall be reduced by [*], subject to Section 9.4(d)(iv) (Cumulative Adjustments).

(ii) Biosimilar Competition. If, on a Product-by-Product, Calendar Quarter-by-Calendar Quarter and country-by-country basis, there is (A) a sale of one or more Biosimilar Products with respect to a Product in a country and (B) [*] decrease in revenue for Biogen on sales of such Product to Third Party purchasers (including Third Party Distributors) in any given Calendar Quarter as compared to the average revenue received by Biogen on sales of such Product during the immediately preceding [*]Calendar Quarters, then the royalty rates payable by Biogen pursuant to Section 9.4(a) (Royalty Rates) for such Product in such country shall be reduced by [*] for the remainder of the Royalty Term for such Product in such country, subject to Section 9.4(d)(iv) (Cumulative Adjustments).

(iii) Third Party Patent Rights. If Biogen obtains a license or otherwise acquires rights (including [*]) to any Patent Right (or Know-How licensed or otherwise acquired with such Patent Rights) owned or controlled by a Third Party that [*] of a Product in a country in the Territory (or, solely with respect to [*] a Product in a country in the Territory), then Biogen shall have the right to deduct from any royalty payment that would otherwise have been due pursuant to this Section 9.4 (Royalty Payments) with respect to such Product in such country in a particular Calendar Quarter up to [*] of the [*] paid by Biogen to such Third Party pursuant to such agreement in respect of such Product in such country during such Calendar Quarter, subject to Section 9.4(d)(iv) (Cumulative Adjustments).

(iv) Cumulative Adjustments. Notwithstanding the reductions set forth in Section 9.4(d)(i) (Loss of Patent Coverage) through Section 9.4(d)(iii) (Third Party Patent Rights), in no event shall the operation of such reductions, individually or in combination, reduce the royalty payments paid to Sangamo with respect to any Product in the Territory in any Calendar Quarter to less than[*] of the royalty payments that would otherwise have been due pursuant to Section 9.4(a) (Royalty Rates). Biogen may carry forward any such reductions permitted under Section 9.4(d)(i) (Loss of Patent Coverage) through Section 9.4(d)(iii) (Third Party Patent Rights) that are incurred or accrued in a Calendar Quarter but are not applied against royalties due to Sangamo in such Calendar Quarter as a result of the foregoing floor and apply such amounts against royalties due to Sangamo in any subsequent Calendar Quarter (subject to the minimum floor set forth in this Section 9.4(d)(iv) (Cumulative Adjustments)) until the amount of such reduction has been fully applied against royalties due to Sangamo.

(e) Reports and Payment. Within [*] days after each Calendar Quarter, commencing with the Calendar Quarter during which any Net Sales of any Products are made anywhere in the Territory, Biogen will deliver a report to Sangamo specifying on a Product-by-Product and country-by-country basis: (i) the amount of gross sales of the Products in the relevant Calendar Quarter, (ii) Net Sales in the relevant Calendar Quarter; (iii) to the extent such Net Sales include sales not denoted in U.S. Dollars, a summary of the current exchange rate methodology then in use by Biogen, (iv) a calculation of any adjustments to such royalties under Section 9.4(d) (Royalty Reductions) and (v) a calculation of the final royalties payable to Sangamo on such Net Sales. All royalty payments due under this Section 9.4 (Royalty Payments) for each Calendar Quarter will be due and payable within [*] days after the end of each Calendar Quarter. Biogen's or its representatives' reports delivered to Sangamo under this Section 9.4(e) (Reports and Payment) will be Biogen's Confidential Information for purposes of this Agreement.

9.5 Payment Allocations. With respect to the Upfront Payment, BIG will pay [*] of such amount in consideration of the rights granted outside of the U.S. and BIMA will pay [*] of such amount in consideration of the rights granted in the U.S. With respect to the Collaboration Target Selection Fees, BIG will pay a percentage of each such amount in consideration of the rights granted outside of the U.S. and BIMA will pay a percentage each such amount in consideration to the rights granted in the U.S., such percentages, in each case, to be determined by Biogen at the time at which such amounts are due. BIG will pay the Ex-U.S. Milestone Payments when such amounts become due and payable in accordance with Section 9.3(a) (Milestone Payments) and BIMA will pay the U.S. Milestone Payments when such amounts become due and payable in accordance with Section 9.3(a) (Milestone Payments). BIMA will pay the portion of the Sales Milestone Payment based on the *pro rata* allocation of the Calendar Year Net Sales attributable to sales of the applicable Product in the U.S. and BIG will pay the portion of the Sales Milestone Payment based on the *pro rata* allocation of the Calendar Year Net Sales attributable to sales of the applicable Product outside of the U.S. With respect to all Milestone Payments that are not Ex-U.S. Milestone Payments, U.S. Milestone Payments or the Sales Milestone Payment, BIG will pay a percentage of each such amount in consideration of the rights granted outside of the U.S. and BIMA will pay a percentage each such amount in consideration to the rights granted in the U.S., such percentages, in each case, to be determined by Biogen at the time in which such amounts are due.

9.6 Currency; Exchange Rate. All amounts payable and calculations under this Agreement shall be in Dollars. All payments to be made by one Party to the other Party under this Agreement shall be made in Dollars by bank wire transfer in immediately available funds to a bank account designated by written notice from such other Party. The rate of exchange to be used in computing the amount of currency equivalent in Dollars shall be the rate of exchange utilized by Biogen in its worldwide accounting system and calculated in accordance with GAAP consistently applied.

9.7 Late Payments; Refunds. Except as otherwise permitted under this Agreement, any undisputed payments or portions thereof due hereunder will be non-refundable and non-creditable. Any undisputed payments or portions thereof due hereunder that are not paid when due will accrue interest from the date due until paid at a per-annum rate of [*] over the then-current prime rate reported in *The Wall Street Journal* or the maximum rate allowable under applicable Law, whichever is lower. Each Party shall promptly notify the other Party regarding any invoice or payment dispute and the Parties shall diligently work in good faith to timely resolve any such disputes.

9.8 Tax.

(a) Duties on [*]. [*] will pay all duties, levies, tariffs and similar charges arising as a result of the [*] (together "**Duties**") however designated, arising from [*] by or on behalf of [*], including those imposed as a result of the [*].

(b) VAT.

(i) All payments or amounts due under this Agreement, whether monetary or non-monetary, are exclusive of VAT and their equivalents. Any Party receiving a supply under this Agreement will pay any such VAT that is properly chargeable on such supply and accountable to a tax authority by the other Party in addition to, and at the same time as payment of, any amounts due under this Agreement. Where the prevailing legislation requires a VAT reverse charge, the receiving Party will correctly account for VAT in respect of the services received. The supplying Party will provide a tax invoice (or equivalent document) to support the charge (including a reverse charge) to VAT. For the avoidance of doubt, the Parties shall generally issue invoices in accordance with prevailing VAT legislation and irrespective of whether sums or consideration may be netted for settlement purposes.

(ii) Any supply of goods or services under this Agreement shall be taxed in accordance with the prevailing VAT legislation. All Parties will reasonably cooperate to enable the use of any VAT exemptions, suspensions or other reliefs to the extent reasonably practicable.

(iii) Where [*] makes a supply to [*] in respect of which [*] is required to account for VAT to a tax authority [*] (other than as a result of any taxable presence or establishment, as applicable, of [*] in a particular jurisdiction for VAT purposes) and this is paid by [*] in accordance with (i) above, [*] shall take all reasonable steps to recover any such VAT (including registering for VAT where legally permissible and submitting regular claims). [*] shall provide all information that [*] reasonably requests in respect of its supply to [*] to assist [*]in

recovering such VAT. If such VAT cannot legally be so recovered, then, [*] shall [*] any and all [*] or where necessary, [*] these amounts and [*] such amounts within [*]days following [*] thereof.

(c) Withholding Taxes. Except as otherwise provided under this Agreement, in the event any payments made by one Party to another Party pursuant to this Agreement are subject to withholding taxes under the laws or regulation of any jurisdiction, the payor shall deduct and withhold the amount of such taxes to the extent required by applicable Laws. Notwithstanding the foregoing, the Parties acknowledge and agree that as of the Execution Date of this Agreement and under applicable Laws, no withholding tax is applicable to payments made by one Party to the other Party pursuant to this Agreement.

(d) Tax Cooperation. To the extent that Biogen is required to deduct and withhold taxes on any payments under this Agreement, Biogen shall pay the amounts of such taxes to the proper Governmental Authority in a timely manner and promptly transmit to Sangamo an official tax certificate or other evidence of such withholding sufficient to enable Sangamo to claim such payments of taxes. Biogen shall request from Sangamo any tax forms that may be reasonably necessary in order for Biogen not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral income tax treaty. Sangamo shall use reasonable efforts to provide any such tax forms to Biogen at least [*] days prior to the due date for any payments for which Sangamo desires that Biogen apply a reduced withholding rate. Each Party shall provide the other with reasonable assistance to enable the recovery, as permitted by Law, of withholding taxes, VAT, or similar obligations resulting from payments made under this Agreement, such recovery to be for the benefit of the Party bearing such withholding tax or VAT.

(e) Biogen Withholding Tax Action. Notwithstanding any provision in this Agreement to the contrary, if an action taken by Biogen (including any assignment (including pursuant to Section 16.2 (Assignment)), any sublicense of its rights or obligations under this Agreement, a change in tax residency of BIG or BIMA, or payments arise or are deemed to arise through a breach of this Agreement by Biogen, any transfer or payment obligations hereunder, or any failure to comply with applicable Laws or filing or record retention requirements) leads to the imposition of withholding tax liability on payment to Sangamo that would not have been imposed in the absence of such action (each, a "**Biogen Withholding Tax Action**"), then the sum payable by Biogen (in respect of which such deduction or withholding is required to be made) shall be increased by the amount necessary to ensure that Sangamo receives an amount equal to the amount it would have received had no Biogen Withholding Tax Action occurred. Any payments due to Sangamo pursuant to this section shall promptly be paid by Biogen upon request from Sangamo.

9.9 Records and Audit. Each Party shall maintain complete and accurate records in sufficient detail to permit the other Party to confirm the accuracy of the amount of Research Costs subject to sharing or reimbursement, royalty payments, Manufacturing Costs, achievement of sales milestones and other amounts payable under this Agreement. Upon reasonable prior notice, such records shall be open during regular business hours for a period of [*] years from the creation of individual records for examination by an independent certified public accountant selected by the auditing Party and reasonably acceptable to the audited Party for the sole purpose of verifying for

the auditing Party the accuracy of the financial reports furnished by the audited Party pursuant to this Agreement or of any payments made, or required to be made, by or to the audited Party pursuant to this Agreement. Such audits may occur no more often than once each Calendar Year and will be limited to the pertinent books and records for any Calendar Year ending not more than [*]months before the date of the request. Such auditor shall not disclose the audited Party's Confidential Information to the auditing Party, except to the extent such disclosure is necessary to verify the accuracy of the financial reports furnished by the audited Party or the amount of payments to or by the audited Party under this Agreement. Any undisputed amounts shown to be owed but unpaid, or overpaid and in need of refund, shall be paid or refunded (as the case may be) within [*] days after the accountant's report. If the audited Party is the Party that is required to make such additional payment or refund, then the audited Party shall also pay interest (as set forth in Section 9.7) (Late Payments) from the original due date (unless challenged in good faith by the audited Party). The auditing Party shall bear the full cost of such audit unless such audit reveals an overpayment to, or an underpayment by, the audited Party that resulted from a discrepancy in the financial report provided by the audited Party for the audited period, which underpayment or overpayment is more than [*] of the amount set forth in such report, in which case the audited Party shall reimburse the auditing Party for the costs for such audit.

ARTICLE 10
INTELLECTUAL PROPERTY RIGHTS

10.1 Ownership of Inventions.

(a) By Inventorship. Except as set forth in Section 10.1(b) (Assignment by Biogen) and Section 10.1(c) (Assignment by Sangamo) below, ownership of all Inventions shall be based on inventorship, as determined in accordance with the Laws of inventorship in the United States. and (i) each Party shall solely own any Inventions made solely by its and its Affiliates' and Sublicensees' employees, agents, or independent contractors and (ii) the Parties shall jointly own any Inventions that are made jointly by employees, agents or independent contractors of one Party and its Affiliates and sublicensees together with employees, agents, or independent contractors of the other Party and its Affiliates and sublicensees. Except to the extent either Party is restricted by the licenses granted to the other Party under this Agreement, each Party shall be entitled to practice, license (through multiple tiers), assign and otherwise exploit the Joint Technology [*] in all countries and jurisdictions without the duty of accounting or seeking consent from the other Party. Each Party will grant and hereby does grant to the other Party all further permissions, consents and waivers with respect to, and all licenses under, the Joint Technology, throughout the world necessary to provide the other Party with full rights of use and Exploitation of the Joint Technology.

(b) Assignment by Biogen.

(i) Assignment. Notwithstanding Section 10.1(a) (By Inventorship), Sangamo shall solely own all [*] Technology and shall own a joint and undivided interest in and to all [*] Technology. Biogen shall and hereby does assign and transfer to Sangamo, without additional consideration, (A) all rights, title and interests in and to [*] Technology and (B) a joint

and undivided interest in and to all [*] Technology, and Sangamo hereby accepts such assignment. All [*] Know-How shall be deemed Sangamo's Confidential Information (and not the Confidential Information of Biogen) and all [*] Know-How shall be deemed the Confidential Information of both Parties.

(ii) Covenants in Support of Assignment. Biogen will take (and cause its Affiliates and Sublicensees, and their respective employees, agents, and contractors to take) such further actions reasonably requested by Sangamo to evidence such assignment and to assist Sangamo in obtaining Patent Rights and other Intellectual Property protection for Inventions within the [*] Technology, including executing further assignments, consents, releases, and other commercially reasonable documentation and providing good faith testimony by affidavit, declaration, in-person, or other proper means in support of any effort by Sangamo to establish, perfect, defend, or enforce its rights in any [*] Technology through prosecution of governmental filings, regulatory proceedings, litigation, and other means, including through the filing, prosecution, maintenance and enforcement of the Patent Rights included in the [*] Technology. Biogen will obligate its Affiliates, Sublicensees, and Subcontractors to assign all [*] Technology to Biogen (or directly to Sangamo) so that Biogen can comply with its obligations under this Section 10.1(b) (Assignment by Biogen), and Biogen will promptly obtain such assignment. Without limitation, Biogen will cooperate with Sangamo if Sangamo applies for U.S. or foreign patent protection for Inventions within the [*] Technology and will obtain the cooperation of the individual inventors of any such [*] Technology. If Biogen is unable to assign any [*] Technology as set forth in Section 10.1(b)(i) (Assignment), then Biogen hereby grants and agrees to grant to Sangamo a royalty-free, fully paid-up, worldwide, exclusive, perpetual, irrevocable license (with the right to grant sublicenses through multiple tiers) under such [*] Technology for any and all purposes.

(c) Assignment by Sangamo.

(i) Assignment. Notwithstanding Section 10.1(a) (By Inventorship), Biogen shall solely own all [*] Technology and shall own a joint and undivided interest in and to all [*] Technology. Sangamo shall and hereby does assign and transfer to Biogen, without additional consideration, (A) all rights, title and interests in and to [[*] Technology and (B) a joint and undivided interest in and to all [*] Technology, and Biogen hereby accepts such assignment. All [*] Know-How shall be deemed Biogen's Confidential Information (and not the Confidential Information of Sangamo).

(ii) Covenants in Support of Assignment. Sangamo will take (and cause its Affiliates and Sublicensees, and their respective employees, agents, and contractors to take) such further actions reasonably requested by Biogen to evidence such assignment and to assist Biogen in obtaining Patent Rights and other Intellectual Property protection for Inventions within the [*] Technology, including executing further assignments, consents, releases, and other commercially reasonable documentation and providing good faith testimony by affidavit, declaration, in-person, or other proper means in support of any effort by Biogen to establish, perfect, defend, or enforce its rights in any [*] Technology through prosecution of governmental filings, regulatory proceedings, litigation, and other means, including through the filing,

prosecution, maintenance, and enforcement of the [*]Patent Rights. Sangamo will obligate its Affiliates, Sublicensees, and Subcontractors to assign all [*] Technology to Sangamo (or directly to Biogen) so that Sangamo can comply with its obligations under this Section 10.1(c) (Assignment by Sangamo), and Sangamo will promptly obtain such assignment. Without limitation, Sangamo will cooperate with Biogen if Biogen applies for U.S. or foreign patent protection for Inventions within the [*] Technology and will obtain the cooperation of the individual inventors of any such [*] Technology. If Sangamo is unable to assign any [*] Technology, then Sangamo hereby grants and agrees to grant to Biogen a royalty-free, fully paid-up, worldwide, exclusive, perpetual, irrevocable license (with the right to grant sublicenses through multiple tiers) under such [*] Technology for any and all purposes.

(d) Unauthorized Inventions.

(i) Assignment. Notwithstanding anything to the contrary set forth herein, in the event either Party (the "**Unauthorized Inventing Party**") or its Affiliates, licensees, Sublicensees, Subcontractors, employees, agents or independent contractors or any Person contractually required to assign or license intellectual property rights to such Party or any Affiliate of such Party, discovers, generates, conceives or reduces to practice any Know-How through use or practice of Know-How or Patent Rights licensed to such Party pursuant to Section 2.1(a) or Section 2.2, as applicable, by the other Party (the "**Licensor Party**") outside of the scope of such license grant and in breach of this Agreement (each, an "**Unauthorized Invention**"), then the Licensor Party shall own all such Unauthorized Inventions. With respect to each Unauthorized Invention, the applicable Unauthorized Inventing Party shall and hereby does assign and transfer to the applicable Licensor Party, without additional consideration, all rights, title and interests in and to such Unauthorized Invention, such Licensor Party hereby accepts such assignment and such Unauthorized Intention shall be deemed such Licensor Party's Confidential Information (and not the Confidential Information of the Unauthorized Inventing Party).

(ii) Covenants in Support of Assignment. With respect to each Unauthorized Invention, the applicable Unauthorized Inventing Party will take (and cause its Affiliates and Sublicensees, and their respective employees, agents, and contractors to take) such further actions reasonably requested by the applicable Licensor Party to evidence such assignment and to assist the Licensor Party in obtaining Patent Rights and other Intellectual Property protection for such Unauthorized Invention, including executing further assignments, consents, releases, and other commercially reasonable documentation and providing good faith testimony by affidavit, declaration, in-person, or other proper means in support of any effort by Licensor Party to establish, perfect, defend, or enforce its rights in such Unauthorized Invention through prosecution of governmental filings, regulatory proceedings, litigation, and other means, including through the filing, prosecution, maintenance, and enforcement of Patent Rights that Cover or otherwise claim such Unauthorized Invention. The Unauthorized Inventing Party will obligate its Affiliates, Sublicensees, and Subcontractors to assign such Unauthorized Invention to the Unauthorized Inventing Party (or directly to Licensor Party) so that the Unauthorized Inventing Party can comply with its obligations under this Section 10.1(d) (Unauthorized Inventions), and the Unauthorized Inventing Party will promptly obtain such assignment. Without limitation, the Unauthorized Inventing Party will cooperate with Licensor Party if Licensor Party applies for U.S.

or foreign patent protection for such Unauthorized Invention and will obtain the cooperation of the individual inventors of any such Unauthorized Invention. If the Unauthorized Inventing Party is unable to assign such Unauthorized Invention, then the Unauthorized Inventing Party hereby grants and agrees to grant to Licensor Party a royalty-free, fully paid-up, worldwide, exclusive, perpetual, irrevocable license (with the right to grant sublicenses through multiple tiers) under such Unauthorized Invention for any and all purposes.

(e) Disclosure. During the Term, (i) Biogen will promptly disclose to Sangamo all [*] Know-How and [*] Know-How, (ii) Sangamo will promptly disclose to Biogen all [*] Know-How, and (iii) each Party will promptly disclose to the other Party all Inventions within the Joint Know-How and [*] Know-How, in each case ((i) through (iii)), that it develops or invents, whether solely or jointly with others (in any event, prior to the filing of any patent application with respect to such Inventions), including all invention disclosures or other similar documents submitted to such Party by its or its Affiliates' employees, agents, or independent contractors relating thereto. Each Party shall also respond promptly to reasonable requests from the other Party for additional information relating to such Inventions.

(f) Personnel Obligations. Each employee, agent or independent contractor of a Party or its respective Affiliates or Sublicensees performing work under this Agreement shall, prior to commencing such work, be bound by invention assignment obligations, including: (i) promptly reporting any invention, discovery, process or other Intellectual Property; (ii) presently assigning to the applicable Party all of his or her rights, title and interests in and to any invention, discovery, process or other Intellectual Property; (iii) cooperating in the Prosecution and Maintenance and enforcement of any patent and patent application; and (iv) performing all acts and signing, executing, acknowledging and delivering any and all documents required for effecting the obligations and purposes of this Agreement. It is understood and agreed that such invention assignment agreement need not reference or be specific to this Agreement.

10.2 Patent Prosecution.

(a) Biogen-Prosecuted Patent Rights.

(i) As between the Parties, Biogen will have (A) the sole right, but not the obligation, to control the preparation, filing, prosecution (including any oppositions, interferences, reissue proceedings, reexaminations, post-grant proceedings, supplemental examinations, post grant review proceedings, *inter partes* review proceedings, patent interference proceedings, opposition proceedings, derivation proceedings, reissue and reexamination, maintenance and defense) (such activities collectively, the "**Prosecution and Maintenance**") of the [*] Patent Right Rights and [*] Patent Rights (such Patent Rights, the "**Biogen Sole-Prosecuted Patent Rights**") and (B) the first right, but not the obligation, to control the Prosecution and Maintenance and defense [*], of (1) all [*] Patent Rights that [*] that [*] that are otherwise [*] (irrespective of whether such Know-How Covered or otherwise claimed by such [*] Patent Right was discovered, generated, conceived or reduced to practice [*] or [*]), and (2) any [*] Patent Rights[*] (such Patent Rights described in clause (B), the "**Biogen First Right Patent Rights**," and together with the Biogen Sole-Prosecuted Patent Rights, the "**Biogen-Prosecuted**

Patent Rights"). Biogen will be the Prosecuting Party with respect to all Biogen-Prosecuted Patent Rights. Biogen will be responsible for and pay all future costs and expenses incurred in connection with the Prosecution and Maintenance of the Biogen-Prosecuted Patent Rights and will keep Sangamo reasonably informed as to material developments with respect to the preparation, filing, prosecution, issuance, and maintenance of the Biogen First Right Patent Rights, including providing to Sangamo notice in advance of abandoning any such Biogen First Right Patent Rights. In addition, Biogen will provide to Sangamo drafts of all filings related to any Biogen First Right Patent Rights and will reasonably incorporate any reasonable comments timely provided by Sangamo with respect thereto.

(ii) If, during the Term, Biogen decides that it is no longer interested in the Prosecution and Maintenance of a particular Biogen First Right Patent Right, then it will promptly provide written notice to Sangamo of such decision at least [*]days prior to any filing or payment due date or any other due date that requires action in order to avoid loss of rights in connection with such Patent Right. Sangamo may, upon written notice to Biogen, assume the Prosecution and Maintenance of such Patent Right at Sangamo's sole cost and expense. In such event Sangamo will be responsible for [*] of the costs and expenses of the Prosecution and Maintenance of such Patent Right, and Sangamo will thereafter be the "Prosecuting Party" with respect thereto for all purposes under this Agreement.

(b) Sangamo-Prosecuted Patent Rights.

(i) As between the Parties, Sangamo will have (A) the sole right, but not the obligation, to control the Prosecution and Maintenance of the [*] Patent Rights (other than any [*]Patent Rights and specifically including [*] Patent Rights and [*]Patent Rights) (such Patent Rights, the "**Sangamo Sole-Prosecuted Patent Rights**"), and (B), the first right, but not the obligation, to control the Prosecution and Maintenance of [*], the (1) [*]Patent Rights that [*] (irrespective of whether such Know-How or invention Covered or otherwise claimed by such [*] Patent Right was discovered, generated, conceived or reduced to practice [*] and (2) any [*] Patent Rights [*] (such Patent Rights, the "**Sangamo First Right Patent Rights**," and together with the Sangamo Sole-Prosecuted Patent Rights, the "**Sangamo-Prosecuted Patent Rights**") in accordance with this Agreement. Sangamo will be the Prosecuting Party with respect to all Sangamo-Prosecuted Patent Rights. Sangamo will be responsible for and pay all future costs and expenses incurred in connection with the Prosecution and Maintenance of the Sangamo-Prosecuted Patent Rights and will keep Biogen reasonably informed as to material developments with respect to the preparation, filing, prosecution, issuance and maintenance of the Sangamo-Prosecuted Patent Rights and will keep Biogen reasonably informed as to material developments with respect to the preparation, filing, prosecution, issuance and maintenance of the Sangamo First Right Patent Rights, including providing to Biogen notice in advance of abandoning any such Sangamo First Right Patent Rights. In addition, Sangamo will provide to Biogen drafts of all filings related to any Sangamo First Right Patent Rights for Biogen's review and comment, and Sangamo will reasonably incorporate any reasonable comments timely provided by Biogen with respect thereto.

(ii) If, during the Term, Sangamo decides that it is no longer interested in the Prosecution and Maintenance of a particular Sangamo First Right Patent Right, then it will

promptly provide written notice to Biogen of such decision at least [*]days prior to any filing or payment due date or any other due date that requires action in order to avoid loss of rights in connection with such Patent Right. Biogen may, upon written notice to Sangamo, assume the Prosecution and Maintenance of such Patent Right at Biogen's sole cost and expense. In such event Biogen will be responsible for [*]of the costs and expenses of the Prosecution and Maintenance of such Patent Right, and Biogen will thereafter be the "Prosecuting Party" with respect thereto for all purposes under this Agreement.

(c) [*] **Patent Rights**. As used in this Agreement, "[*] **Patent Rights**" means any [*] Patent Rights that (a) [*] and (b) [*]. During the [*] or such other time as agreed upon by the Parties, [*] will file [*] Patent Right for [*]. [*] for each Collaboration Target, [*] responsibility for the Prosecution and Maintenance of all [*] Patent Rights [*] such Collaboration Target. With respect to any new patent applications within the [*] Patent Rights filed after [*] that [*], [*] will [*] or [*]. If [*] in the immediately foregoing sentence and [*] after receipt of notice thereof from [*], then such Patent Right shall thereafter be deemed a [*] Patent Right for purposes of this Agreement.

(d) [*] **Patent Rights**.

(i) If either Party seeks to file any [*] Patent Rights, then (A) such Party shall notify the other Party in writing, (B) the Parties will discuss in good faith to determine whether to file any such Patent Rights and (C) if the Parties so determine to file any such [*] Patent Rights, then the Parties will also determine which Party will be the Prosecuting Party with respect to such Patent Rights and accordingly will control the Prosecution and Maintenance of such Patent Rights.

(ii) If the Parties cannot agree as to (A) whether to file any [*] Patent Rights that Cover or otherwise claim any [*] Know-How or (B) which Party will be the Prosecuting Party with respect to such Patent Rights, in each case ((A) and (B)), within [*] days of a Party's notice with respect thereto, then subject to the remainder of this Section 10.2(d) ([*] Patent Rights):

(1) if such [*] Know-How was [*], then [*] shall have final decision-making authority with respect to the matters described in clauses (A) and (B) above;

(2) if such [*] Know-How was [*], then [*] shall have final decision-making authority with respect to the matters described in clauses (A) and (B) above; and

(3) if such [*] Know-How was [*], then such disputes shall be first referred for resolution to the Senior Vice President and Chief Intellectual Property Counsel of Biogen and the Vice President, Intellectual Property of Sangamo. If such Persons are unable to resolve such dispute within [*] days following the date on which such matter was referred to them, then such dispute shall be referred to the general counsel of each Party for resolution. If the general counsel of the Parties cannot resolve the dispute within [*] days following the date on which such matter was referred to them, then either Party may pursue any and all remedies available under Section 16.8 (Jurisdiction; Venue).

(iii) Notwithstanding any provision in this Agreement to the contrary, the Prosecuting Party will provide to the non-Prosecuting Party drafts of all filings related to any [*] Patent Rights and will incorporate any reasonable comments from the non-Prosecuting Party related to such filings or the prosecution or maintenance of any [*] Patent Rights. [*] will be responsible for [*] the costs and expenses of the Prosecution and Maintenance of all [*] Patent Rights and the non-Prosecuting Party will pay to the Prosecuting Party all undisputed amounts set forth in any invoice issued by the Prosecuting Party for such costs no later than [*] days after the non-Prosecuting Party's receipt thereof. If either Party does not bear its share of costs and expenses of the Prosecution and Maintenance of any [*] Patent Rights, then the non-paying Party will lose its right to be the Prosecuting Party or to offer comments, in each case, with respect to such [*] Patent Rights and the other Party will thereafter be the Prosecuting Party with respect to such [*]Patent Rights and will have assume the sole rights with respect to the Prosecution and Maintenance of such Patent Right at its sole cost and expense.

(e) Cooperation. The non-Prosecuting Party will (i) obtain and deliver to the Prosecuting Party any necessary documents for the Prosecuting Party to exercise its rights to prepare, prosecute, defend, and maintain all Patent Rights pursuant to this Section 10.2 (Patent Prosecution), (ii) render all signatures that will be necessary in connection with all such patent filings and (iii) assist the Prosecuting Party in all other reasonable ways that are necessary for the issuance of those Patent Rights for which such Prosecuting Party is responsible, as well as for the Prosecution and Maintenance of such Patent Rights.

(f) Coordination in Prosecution. Notwithstanding Biogen's right to prepare, file, prosecute and maintain the Biogen-Prosecuted Patent Rights or Sangamo's right to prepare, file, prosecute and maintain the Sangamo-Prosecuted Patent Rights, the Parties will, and will cause their Affiliates to, cooperate and implement reasonable patent filing and prosecution strategies (including filing divisionals, continuations or otherwise) so that, to the extent reasonably feasible [*] Patent Rights and [*] Patent Rights are pursued [*].

10.3 Patent Enforcement.

(a) Notification. Each Party will promptly notify the other in the event of any actual, likely, or suspected infringement of any Biogen-Prosecuted Patent Right, Sangamo-Prosecuted Patent Right or [*] Patent Right (an "**Infringement**"), including any Infringement that arises as a result of the making, using, offering to sell, selling or importing of a product that [*] (a "**Competitive Infringement**"). In addition, each Party will promptly notify the other in the event such Party becomes aware of any action by a Third Party for a declaration that any of the Biogen First Right Patent Rights, Sangamo First Right Patent Rights or [*] Patent Rights (as applicable) are not infringed, are invalid or unenforceable. In all cases, each Party will provide any available evidence of such Infringement or other conduct with such notification.

(b) Competitive Infringements.

(i) During the Term, Biogen will have (A) the sole right, but not the obligation, to initiate an infringement or other appropriate suit (an "**Infringement Action**") against any Competitive Infringement with respect to any Biogen Sole-Prosecuted Patent Rights, (B) the

first right, but not the obligation, to initiate an Infringement Action against a Competitive Infringement with respect to any Biogen First Right Patent Rights and any [*] Patent Rights that Biogen is prosecuting pursuant to Section 10.2(d), in each case ((A) and (B)), at Biogen's sole discretion and at Biogen's sole cost and expense.

(ii) During the Term, if Biogen fails to initiate an Infringement Action against any Competitive Infringement with respect to any Biogen First Right Patent Rights within [*] days after written notice of such Competitive Infringement is first provided by a Party under Section 10.3(b)(i), then Sangamo will have the right to initiate and control an Infringement Action with respect to such Competitive Infringement by counsel of its own choice, at its own discretion and at Sangamo's cost and expense and Biogen will have the right, at its own expense, to be represented in any such action by counsel of its own choice; *provided* that if[*] during such [*]day period [*] institute any Infringement Action against such Competitive Infringement with respect to any Biogen First Right Patent Rights [*], then [*] the right to initiate and control an applicable Infringement Action with respect to such Competitive Infringement.

(iii) During the Term, Sangamo will have (A) the sole right, but not the obligation, to initiate an Infringement Action against any Competitive Infringement with respect to any Sangamo Sole-Prosecuted Patent Rights and (B) the first right, but not the obligation, to initiate an Infringement Action against a Competitive Infringement with respect to any Sangamo First Right Patent Rights and any [*] Patent Rights the Prosecution and Maintenance for which Sangamo is responsible pursuant to Section 10.2(d) (collectively, the "**Sangamo First Enforcement Right Patent Rights**"), in each case ((A) and (B)), at Sangamo's sole discretion and at Sangamo's sole cost and expense.

(iv) During the Term, if Sangamo fails to initiate an Infringement Action against any Competitive Infringement with respect to any Sangamo First Enforcement Right Patent Rights within [*] days after written notice of such Competitive Infringement is first provided by a Party under Section 10.3(b)(i), then Biogen will have the right to initiate and control an Infringement Action with respect to such Competitive Infringement by counsel of its own choice, at its own discretion and at Biogen's cost and expense and Sangamo will have the right, at its own expense, to be represented in any such action by counsel of its own choice.

(c) Infringement Actions for Infringements other than Competitive Infringements. During the Term, (i) Biogen will have the sole right, but not the obligation, to initiate an Infringement Action against any Infringement that is not a Competitive Infringement with respect to any Biogen Sole-Prosecuted Patent Rights, at Biogen's sole discretion and at Biogen's sole cost and expense, (ii) Sangamo will have the sole right, but not the obligation, to initiate an Infringement Action against any Infringement that is not a Competitive Infringement with respect to (A) any Licensed Patent Rights and any Patent Right Controlled by Sangamo that is not a Licensed Patent Right, at Sangamo's sole discretion and at Sangamo's sole cost and expense and (iii) the Parties shall jointly agree upon any initiation of an Infringement Action against any Infringement that is not a Competitive Infringement with respect to any [*] Patent Right or [*] Patent Right, *provided, that* neither Party shall unreasonably withhold its agreement

to initiate any such Infringement Action with respect to any [*] Patent Right or [*] Patent Right (as applicable) upon the reasonable request of the other Party.

(d) Collaboration. Each Party shall provide to the enforcing Party reasonable assistance in the enforcement action brought under this Section 10.3 (Patent Enforcement), at such enforcing Party's request and expense, including to be named in such action if required by applicable Laws to pursue such action. The enforcing Party shall keep the other Party regularly informed of the status and progress of such enforcement efforts, shall reasonably consider the other Party's comments on any such efforts, including determination of litigation strategy, filing of material papers to the competent court. The non-enforcing Party shall be entitled to separate representation in such matter by counsel of its own choice and at its own expense, but such Party shall at all times cooperate fully with the enforcing Party. The enforcing Party shall not settle any claim, suit or action that it brought under Section 10.3(b) (Enforcement Rights) in any manner that would limit the rights of the other Party or impose any obligation on the other Party, without the prior written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed.

(e) Expenses and Recoveries. The enforcing Party bringing a claim, suit or action under Section 10.3(b) (Competitive Infringement) shall be solely responsible for any expenses (including attorneys' fees and costs) incurred by such Party as a result of such claim, suit or action. If such Party recovers monetary damages in such claim, suit or action, then such recovery shall be allocated first to the reimbursement of any expenses incurred by the Party bringing suit, second to the reimbursement of any expenses incurred by the other Party in such litigation, and (i) if [*], any remaining amounts shall be [*] and [*] and (ii) if [*].

10.4 Defense of Claims. Each Party will promptly inform the other Party in writing if such Party receives written notice, or otherwise becomes aware, of alleged infringement, misappropriation, or other violation of a Third Party's Intellectual Property based upon such Party's performance of its obligations or exercise of its rights hereunder. Except as otherwise set forth under this Agreement (including under Article 14 (Indemnification; Liability; Insurance)), such Party will be solely responsible for the defense of any such claim brought against it. Such Party will each keep the other Party advised of all material developments in the conduct of any proceedings in defending any claim of alleged infringement, misappropriation or other violation related to any Therapeutic Candidates or Products and will reasonably cooperate with the other Party in the conduct of such defense. In no event may such Party settle any such infringement, misappropriation or other violation claim in a manner that would materially limit the rights of the other Party or impose any material obligation on the other Party, in each case, without the other Party's prior written consent, which consent will not be unreasonably withheld, delayed, or conditioned.

10.5 Patent Listing. Subject to the remainder of this Section 10.5 (Patent Listing), [*], to determine and control the listing of any [*] Patent Rights in the then-current edition of the FDA's Purple Book in connection with the Regulatory Approval of any Product, or in equivalent patent listings in any other country within the Territory. In addition, in the event [*] a Purple Book listing

with respect to any [*] Patent Rights, then, in each case, [*] shall be required to obtain [*] prior written consent, which consent will not be unreasonably withheld, conditioned or delayed.

10.6 Patent Extensions. [*]right, but not the obligation, to seek, [*], if so required, patent term extensions, patent term restorations and supplemental protection certificates or the like available under the Law, including 35 USC §156 and applicable foreign counterparts, in any country in the Territory in relation to the[*] Patent Rights, in each case where applicable to a Product. Sangamo and Biogen shall cooperate in connection with all such activities. [*], its agents and attorneys shall give due consideration to all suggestions and comments of [*] regarding any such activities, but in the event of a disagreement between the Parties, [*]; *provided*, *however*, that [*] to extend any [*] Patent Right or [*] Patent Right [*] including through the use of supplemental protection certificates and the like, unless s[*] such Patent Right may not be extended under Law [*].

10.7 Patent Rights Licensed From Third Parties. Each Party's rights under Sections 10.2 (Patent Prosecution), 10.3 (Patent Enforcement) and 10.5 (Patent Extensions) with respect to any Licensed Patent Right that is licensed by Sangamo from a Third Party shall be subject to the rights retained by such Third Party.

ARTICLE 11
CONFIDENTIALITY; PUBLICATION

11.1 Confidential Information. It is understood and agreed by the Parties that:

(a) the terms and conditions of this Agreement will be considered Confidential Information of both Parties and kept confidential by each of the Parties in accordance with this Article 11 (Confidentiality; Publication);

(b) the Biogen Licensed Technology, all royalty reports provided to Sangamo pursuant to Section 9.4(e) (Reports and Payment), all Development reports provided to Sangamo pursuant to Section 5.6 (Development Reports), all Commercialization reports provided to Sangamo pursuant to Section 8.3 (Commercialization Reports), all reports provided to Biogen pursuant to Section 4.6 (Research Report), the identities of the Reserved Targets, the Collaboration Targets, the Therapeutic Candidates and the Products will each be considered the Confidential Information of Biogen; and

(c) all Licensed Technology and [*] will be considered the Confidential Information of Sangamo.

11.2 Duty of Confidence. Subject to the other provisions of this Article 11 (Confidentiality; Publication), during the Term and for [*] years thereafter, all Confidential Information of a Party (the "**Disclosing Party**") shall be maintained in confidence and otherwise safeguarded by the other Party (the "**Receiving Party**") and its Affiliates using at least the same degree of care with which the Receiving Party holds its own confidential information (but in no event less than a reasonable degree of care) and will not (a) disclose such Confidential Information to any Person without the prior written approval of the Disclosing Party, except, solely to the extent

necessary to exercise its rights or perform its obligations under this Agreement, to its employees, Affiliates, Sublicensees, and Subcontractors, consultants or agents who have a need to know such Confidential Information, all of whom will be similarly bound by confidentiality, non-disclosure and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement and for whom the Receiving Party will be responsible, or (b) use such Confidential Information for any purpose other than for the purposes contemplated by this Agreement. The Receiving Party will use diligent efforts to cause the foregoing Persons to comply with the restrictions on use and disclosure set forth in this Section 11.2 (Duty of Confidence), and will be responsible for ensuring that such Persons maintain the Disclosing Party's Confidential Information in accordance with this Article 11 (Confidentiality; Publication). Each Party will promptly notify the other Party of any misuse or unauthorized disclosure of the other Party's Confidential Information.

11.3 Exceptions. Information of a Disclosing Party will not be Confidential Information of such Disclosing Party to the extent that the Receiving Party can demonstrate through competent evidence that such information:

(a) is already in the possession of the Receiving Party at the time of its receipt without an obligation of confidentiality, and not through a prior disclosure by the Disclosing Party, as documented by the Receiving Party's contemporaneous written records;

(b) is in the public domain before its receipt from the Disclosing Party, or thereafter, other than through any act or omission of the Receiving Party or any of its Affiliates or any disclosure in breach of this Agreement, such information enters the public domain;

(c) is subsequently disclosed to the Receiving Party by a Third Party without obligation of confidentiality who may rightfully do so and is not under a conflicting obligation to the Disclosing Party; or

(d) is discovered or developed by the Receiving Party independently and without use of, reference to or reliance upon any Confidential Information received from the Disclosing Party, as documented by the Receiving Party's contemporaneous written records.

Any combination of features or disclosures shall not be deemed to fall within the foregoing exclusions merely because individual features are published or available to the general public or in the rightful possession of the Receiving Party unless the combination itself and principle of operation are published or available to the general public or in the rightful possession of the Receiving Party.

11.4 Authorized Disclosures. In addition to the exceptions contained in Sections 11.2 (Duty of Confidence) and 11.3 (Exceptions), a Party may disclose the other Party's Confidential Information (including this Agreement and the terms herein) to the extent that such disclosure is reasonably necessary in the following instances:

(a) the prosecution and maintenance of Biogen-Prosecuted Patent Rights or Sangamo-Prosecuted Patent Rights, in each case, as contemplated by this Agreement;

(b) disclosure of the existence and applicable terms of this Agreement and the status and results of Exploitation of one or more Therapeutic Candidates or Products to actual or *bona fide* potential investors, acquirors, Sublicensees, lenders and other financial or commercial partners, and their respective attorneys, accountants, banks, investors and advisors, solely for the purpose of evaluating or carrying out an actual or potential investment, acquisition, sublicense, debt transaction or collaboration; *provided* that, in each such case, on the condition that such Persons are bound by obligations of confidentiality, non-disclosure and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement or otherwise customary for such type and scope of disclosure, and that any such disclosure is limited to the maximum extent practicable for the particular context in which it is being disclosed;

(c) such disclosure is to a Governmental Authority and necessary or desirable (i) to obtain or maintain INDs, Regulatory Approval or Pricing Approvals for any Product within the Territory, or (ii) in order to respond to inquiries, requests or investigations by such Governmental Authority relating to Products or this Agreement, in each case ((i) and (ii)), as necessary for the Exploitation of a Therapeutic Candidate or Product;

(d) to the extent required by applicable Law, judicial or administrative process, including the United States Securities and Exchange Commission or equivalent foreign agency or regulatory body, *provided* that in such event such Party shall promptly inform the other Party of such required disclosure and provide the other Party, unless prohibited by Law, an opportunity to challenge or limit the disclosure obligations, *provided* that (i) Confidential Information that is disclosed pursuant to Section 11.4(c) or this Section 11.4(d) shall remain otherwise subject to the confidentiality and non-use provisions of this Article 11 (Confidentiality; Publication) (*provided* that such disclosure is not a public disclosure) and (ii) in each such event, as promptly as reasonably practicable and to the extent not prohibited by applicable Law or judicial or administrative process, such Party will notify the other Party of such required disclosure and provide a draft of the disclosure to the other Party reasonably in advance of such filing or disclosure for the other Party's review and comment. The non-disclosing Party will provide any comments as soon as practicable, and the disclosing Party will consider in good faith any timely comments provided by the non-disclosing Party; *provided* that the disclosing Party may or may not accept such comments in its sole discretion. Confidential Information that is disclosed in order to comply with applicable Law or by judicial or administrative process pursuant to this Section 11.4(d), in each case, will remain otherwise subject to the confidentiality and non-use provisions of this Article 11 (Confidentiality; Publication) with respect to the Party disclosing such Confidential Information, and such Party will take all steps reasonably necessary, to seek continued confidential treatment of such Confidential Information, and each Party will be responsible for its own legal and other external costs in connection with any such filing or disclosure pursuant to this Section 11.4(d);

(e) to prosecute or defend litigation and to enforce, protect or defend Patent Rights in connection with the Receiving Party's rights and obligations pursuant to this Agreement, *provided* that, in each case, reasonable prior written notice is given by the Receiving Party before filing;

(f) to allow the Receiving Party to exercise its rights and perform its obligations hereunder, *provided* that such disclosure is covered by terms of confidentiality and non-use at least as restrictive as those set forth herein; or

(g) any such disclosures reasonably necessary for Sangamo to comply with its obligations under any Upstream Licenses.

11.5 Confidential Treatment. Notwithstanding any provision to the contrary set forth in this Agreement, if a Party is required or permitted to make a disclosure of the other Party's Confidential Information pursuant to Section 11.4 (Authorized Disclosures), then it will, to the extent not prohibited by applicable Law or judicial or administrative process, except where impracticable, give reasonable advance notice to the other Party of such proposed disclosure and use reasonable efforts to secure confidential treatment of such information and will only disclose that portion of Confidential Information that is legally required to be disclosed as advised by its legal counsel. In any event, each Party agrees to take all reasonable action to avoid disclosure of Confidential Information of the other Party hereunder.

11.6 Technical Publication.

(a) Biogen acknowledges that prior to the Execution Date, Sangamo has submitted for publication [*] relating to [*] and Sangamo shall retain the right to publish such submitted publications (in substantially the form submitted) without the obligation to comply with the review and comment provisions set forth in this Section 11.6(a). Additionally, Biogen acknowledges that as of the Execution Date, Sangamo is a party to the certain agreement with Third Party research and academic institution described on Schedule 11.6(a) (Academic Research Agreements) (such agreement and each additional agreement added pursuant to this Section 11.6(a), an "**Academic Research Agreement**") pursuant to which such Third Party research and academic institutions have or are performing research activities regarding [*] and have certain rights to publish and present on such activities conducted pursuant to such Academic Research Agreements. Sangamo shall have the right to allow such Third Party research and academic institutions to publish and present pursuant to the terms of the applicable Academic Research Agreement without the obligation to comply with the review and comment provisions set forth in Section 11.6(b); *provided* that Sangamo shall, to the extent permitted under the applicable Academic Research Agreement, allow Biogen to review and comment on such publications in accordance with Sangamo's rights under such agreement or, if Sangamo is not permitted to allow Biogen to review and comment on such publications, then Sangamo shall exercise such rights using its reasonable discretion and in good faith. No later than [*] days after Biogen's selection of a Target as a Collaboration Target pursuant to Section 4.7(a) or of Biogen's nomination of a Target as a Collaboration Target pursuant to Section 4.7(c), as applicable, Sangamo shall have the right to update Schedule 11.6(a) (Academic Research Agreements) to include any agreement with a Third Party academic or research institution relating to such Collaboration Target that gives such Third Party publication rights and such additional agreements shall be deemed Academic Research Agreements.

(b) [*] any publication rights with respect to the Therapeutic Candidates and the Products, and subject to this Section 11.6 (Technical Publication), [*] publish on the foregoing. Notwithstanding the foregoing, neither Party may publish peer reviewed manuscripts, or give other forms of public disclosure such as abstracts and presentations, of Results or otherwise relating to the Research Activities or a Therapeutic Candidate or Product without the opportunity for prior review and approval by the other Party (such approval not to be unreasonably withheld), except to the extent required by applicable Law or with respect to publication of [research on the Sangamo Platform Technology] performed by Sangamo in accordance with [*] (*provided* that Sangamo does not [*]). A Party seeking such publication shall provide the other Party the opportunity to review and comment on any proposed publication that relates to the Product at least [*] days prior to its intended submission for publication. The other Party shall provide the Party seeking publication with its comments in writing, if any, within [*] Business Days after receipt of such proposed publication. The Party seeking publication shall consider in good faith any comments thereto provided by the other Party and shall comply with the other Party's request to remove any and all of such other Party's Confidential Information from the proposed publication. In addition, the Party seeking publication shall delay the submission for a period up to [*] days in the event that the other Party can demonstrate reasonable need for such delay, including the preparation and filing of a patent application. If the other Party fails to provide its comments to the Party seeking publication within such [*] Business Day period, such other Party shall be deemed to not have any comments, and the Party seeking publication shall be free to publish in accordance with this Section 11.6 (Technical Publication) after the [*] day period has elapsed. The Party seeking publication shall provide the other Party a copy of the manuscript at the time of the submission. Each Party agrees to acknowledge the contributions of the other Party and its employees in all publications as scientifically appropriate.

11.7 Publicity.

(a) Initial Joint Press Release. Sangamo and Biogen have agreed on language of a joint press release announcing this Agreement, which, unless otherwise agreed by the Parties, will be issued by the Parties promptly after the Execution Date substantially in the form attached hereto as Schedule 11.7(a) (Press Release).

(b) Other Press Releases. Other than the joint press release set forth in Schedule 11.7(a) (Initial Joint Press Release) and disclosures under Section 11.4 (Authorized Disclosures), the Parties agree that any other news release or other public announcement relating to this Agreement or the performance hereunder that would disclose information other than that already in the public domain shall first be reviewed and approved by both Parties (with such approval not to be unreasonably withheld or delayed); *provided* notwithstanding the foregoing, Sangamo may disclose publicly (including in its securities filings and earnings calls): (i) the achievement of any milestone event and the receipt of any milestone payment, (ii) initiation, completion and key results (including top line data) of any Clinical Trials of any Product, (iii) nomination of any Collaboration Target and (iv) with the prior approval of Biogen (not to be unreasonably withheld, conditioned or delayed), anticipated achievement of any of Development or milestone events under this Agreement; *provided* that (A) Biogen shall have at least [*] days, except where not permitted under Law, to review and provide edits and comments to any public

disclosure proposed by Sangamo under this sentence related to any Clinical Trial for any Product and (B) Sangamo shall reasonably incorporate any edits and address any comments provided by Biogen in such proposed public disclosure, including any reasonable request to [*].

(c) Reissue Public Disclosures. The Parties agree that after a press release (including the initial press release) or other public announcement has been reviewed and approved by the other Party under this Section 11.7 (Publicity), the disclosing Party may reissue the public disclosures without having to obtain the other Party's prior consent and approval so long as the information in such press release or other public announcement remains true, correct and the most current information with respect to the subject matters set forth therein.

(d) Use of Names. Subject to Section11.7(a) (Initial Joint Press Release), neither Party shall use the name, trade name, service marks, trademarks, trade, dress or logos of the other Party (or any of its Affiliates) in publicity releases, advertising or any other publication, without the other Party's prior written consent in each instance; *provided* that, both Parties may, without the other Party's approval, use the other Party's name and corporate logo in presentations, company website and corporate overviews to describe the collaboration relationship, as well as in taglines of press release issued in accordance with Section 11.7 (Publicity).

11.8 Residual Knowledge. The Parties acknowledge the practical difficulty of policing the use of Confidential Information retained in the unaided memory of a Receiving Party or its Affiliates and its and their officers, directors, employees, and agents, and as such each Party agrees that the Receiving Party will not be liable for the use by any of its or its Affiliates' officers, directors, employees, or agents of specific Confidential Information of the Disclosing Party that is retained in the unaided memory of such officer, director, employee, or agent; *provided* that: (a) such officer, director, employee, or agent is not aware that such Confidential Information is the confidential information of the Disclosing Party at the time of such use; (b) the foregoing is not intended to grant, and will not be deemed to grant, the Receiving Party, its Affiliates, or its officers, directors, employees, and agents (i) a right to disclose the Disclosing Party's Confidential Information, or (ii) a license under any Patent Rights, Know-How, or other intellectual property right of the Disclosing Party outside the scope of this Agreement; (c) the Receiving Party has not directed or encouraged any of its officers, directors, employees or agents to intentionally memorize or retain such Confidential Information; and (d) such officer, director, employee or agent has not intentionally memorized or retained such Confidential Information.

ARTICLE 12
TERM AND TERMINATION

12.1 Term. Subject to Article 15 (Antitrust), the term of this Agreement shall commence upon the Effective Date and continue in full force and effect, on a Product-by-Product and country-by-country basis, until the expiration of the Royalty Term for such Product in such country, unless earlier terminated as set forth in Section 12.2 (Termination) below (the "**Term**"). Upon expiration (but not earlier termination) of this Agreement for a particular Product in a particular country, the licenses granted by Sangamo to Biogen under Section 2.1(a)(i) (License

Grants) for such Product in such country shall continue and shall become exclusive, full paid, royalty free, perpetual and irrevocable.

12.2 Termination.

(a) Termination by Biogen for Convenience. Biogen may terminate this Agreement on a Collaboration Target-by-Collaboration Target basis, or in its entirety, at any time after the Effective Date (i) upon [*] days' prior written notice to Sangamo thereof if Biogen has not [*] for any Product directed to such Collaboration Target for which the Agreement is being terminated or (ii) upon [*] days' prior written notice to Sangamo thereof if Biogen has [*]for any Product directed to such Collaboration Target.

(b) Termination for Material Breach.

(i) Breach Notice. If either Party believes that the other is in material breach of this Agreement following the Effective Date, then the non-breaching Party (the "**Non-Defaulting Party**") may deliver notice of such breach ("**Breach Notice**") to the other Party (the "**Defaulting Party**") that identifies the material breach and, if applicable, the actions or conduct that the non-breaching Party considers would be an acceptable cure of such material breach. If the Defaulting Party fails to cure such material breach within the applicable period set forth below, then subject to Section 12.2(b)(ii) (Disputes Regarding Material Breach) below, then the Non-Defaulting Party may terminate this Agreement effective on written notice of termination to the Defaulting Party [*]; *provided* that, if such material breach [*], then the Non-Defaulting Party may [*]. For all material breaches other than a failure to make a payment as set forth in this Agreement, the allegedly breaching Party shall have [*] days from such Breach Notice to cure such breach. For any material breach arising from a failure to make a payment set forth in this Agreement, the cure period shall be [*]days. Notwithstanding any provision in this Agreement to the contrary, if such material breach (other than a material breach arising from a failure to make a payment) cannot be reasonably cured during the foregoing cure period, but is capable of cure within [*] days, then the Defaulting Party may submit to the Non-Defaulting Party a reasonable cure plan to remedy such material breach that is reasonably acceptable to the Non-Defaulting Party, and upon such submission, the applicable cure period will automatically be extended for so long as the Defaulting Party continues to use commercially reasonable efforts to cure such material breach in accordance with such cure plan, but for no more than [*] days from receipt of such Breach Notice (subject to the dispute resolution procedures set forth in Section 12.2(b)(ii) (Disputes Regarding Material Breach) below).

(ii) Disputes Regarding Material Breach. In case the Defaulting Party disputes occurrence of such material breach, then the Defaulting Party shall give written notice of such dispute no later than [*] days after its receipt of the Breach Notice and the issue of whether the Non-Defaulting Party may properly terminate this Agreement on expiration of the applicable cure period will be resolved in accordance with Section 16.5 (Dispute Resolution). If as a result of such dispute resolution process, it is determined that the Defaulting Party committed a material breach of this Agreement and the Defaulting Party does not cure such material breach within (i) [*]days in the case of a failure to make a payment set forth in this Agreement or (ii) [*]

days in the case of any other material breach, as applicable, after the date of such determination, (the "**Additional Cure Period**"), then such termination will be effective as of the expiration of the Additional Cure Period. If the Parties dispute whether such material breach was so cured, then the Defaulting Party shall give written notice of such dispute within [*] days after the end of the applicable cure period and such dispute will also be determined in accordance with Section 16.5 (Dispute Resolution). This Agreement will remain in full force and effect during the pendency of any such dispute resolution proceeding and the cure periods set forth in this Section 12.2(b) (Termination for Material Breach), and any Additional Cure Period, in each case, will be tolled during any such dispute resolution proceeding, such proceeding will not suspend any obligations of either Party hereunder, and each Party will use reasonable efforts to mitigate any damage. If as a result of such dispute resolution proceeding it is determined that the Defaulting Party did not commit such material breach (or such material breach was cured in accordance with this 12.2(b) (Termination for Material Breach)), then no termination will be effective, and this Agreement will continue in full force and effect.

(c) Termination for Insolvency. To the extent permitted by applicable Law, either Party may terminate this Agreement following the Effective Date upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, upon the appointment of a receiver or trustee over all or substantially all property, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other Party; *provided*, *however*, that in the case of any involuntary bankruptcy proceeding such right to terminate will only become effective if the Party consents to the involuntary bankruptcy or such proceeding is not dismissed within [*]days after the filing thereof.

(d) Termination for Patent Challenge. If Biogen or any of its Affiliates or Sublicensees Challenges a Licensed Patent Right or any Patent Right within the Sangamo Platform Technology in any country in the Territory following the Effective Date, then Sangamo may, following written notice to Biogen and [*], terminate this Agreement. Notwithstanding any provision to the contrary set forth in this Section 12.2(d) (Termination for Patent Challenge) will not apply to, and Sangamo may not terminate this Agreement with respect to (i) any Challenge that [*]if Biogen [*] and Biogen [*] if [*] or (ii) any[*], whether [*]or [*] or [*].

12.3 Rights in Bankruptcy.

(a) All rights and licenses now or hereafter granted by either Party to the other Party under or pursuant to this Agreement are, for all purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property" as defined in the U.S. Bankruptcy Code. Upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, upon the appointment of a receiver or trustee over all or substantially all property, or upon an assignment of a substantial portion of the assets for the benefit of creditors by either Party, such Party agrees that the other Party, as licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code. Each Party will, during the Term, create and maintain current copies or, if not amenable to copying, detailed descriptions or other appropriate embodiments, to the extent feasible, of all Intellectual Property licensed by such Party under this Agreement. Each Party acknowledges and agrees that

"embodiments" of Intellectual Property rights within the meaning of Section 365(n) include laboratory notebooks, cell lines, product samples and inventory, research studies and data, all Regulatory Approvals (and all applications for Regulatory Approval) and rights of reference therein, the Licensed Technology, and all information related to the Licensed Technology. If (A) a case under the U.S. Bankruptcy Code is commenced by or against either Party, (B) this Agreement is rejected as provided in the U.S. Bankruptcy Code and (C) the other Party elects to retain its rights hereunder as provided in Section 365(n) of the U.S. Bankruptcy Code, the Party subject to such case (in any capacity, including debtor-in-possession) and its successors and assigns (including a trustee) will:

(i) provide the non-subject Party with all such Intellectual Property (including all embodiments thereof) held by the subject Party and such successors and assigns, or otherwise available to them, immediately upon the non-subject Party's written request. Whenever the subject Party or any of its successors or assigns provides to the non-subject Party any of the Intellectual Property licensed hereunder (or any embodiment thereof) pursuant to this Section 12.2(c) (Termination for Insolvency), the non-subject Party will have the right to perform the subject Party's obligations hereunder with respect to such Intellectual Property, but neither such provision nor such performance by the non-subject Party will release the subject Party from liability resulting from rejection of the license or the failure to perform such obligations; and

(ii) not interfere with the non-subject Party's rights under this Agreement, or any agreement supplemental hereto, to such Intellectual Property (including such embodiments), including any right to obtain such Intellectual Property (or such embodiments) from another entity, to the extent provided in Section 365(n) of the U.S. Bankruptcy Code.

(b) All rights, powers and remedies of the non-subject Party provided in this Section 12.2(c) (Termination for Insolvency) are in addition to and not in substitution for any other rights, powers, and remedies now or hereafter existing at law or in equity (including the U.S. Bankruptcy Code) in the event of the commencement of a case under the U.S. Bankruptcy Code with respect to the subject Party. The Parties intend the following rights to extend to the maximum extent permitted by applicable Law, and to be enforceable under U.S. Bankruptcy Code Section 365(n):

(1) the right of access to any Intellectual Property (and all embodiments thereof) of the subject Party or any Third Party that is licensed or sublicensed to the non-subject Party under this Agreement; and

(2) the right to contract directly with any Third Party to complete the contracted work.

12.4 General Effects of Termination.

(a) General. Upon termination of this Agreement, all licenses and other rights granted by Sangamo to Biogen under this Agreement shall terminate, all sublicenses granted by Biogen shall also terminate, and all Products with respect to which this Agreement is terminated shall become "**Terminated Products**," and any country with respect to which this Agreement is

terminated will be referred to herein as a "**Terminated Region**"; *provided*, *however*, that if this Agreement is terminated on a Product-by-Product or country-by-country basis, then this Section 12.3 (Effects of Termination) shall only apply to all Products directed to the same Collaboration Target, (and all such Products shall be Terminated Products and such Collaboration Target shall be a Terminated Target and shall cease to be a Collaboration Target) and shall only apply to the Terminated Regions (and if this Agreement is terminated in its entirety, then all Collaboration Targets will become Terminated Targets, all Products will become Terminated Products, and all countries in the Territory will become Terminated Regions).

(b) Return of Confidential Information. Except as otherwise provided herein, within [*] days after any termination of this Agreement, the Receiving Party shall destroy or return to the Disclosing Party (at the Disclosing Party's discretion) all tangible items bearing, containing, or contained in, any of the Confidential Information of the Disclosing Party (other than any Confidential Information required to continue to exercise the Receiving Party's rights that survive termination of this Agreement for as long as such rights survive termination of this Agreement), *provided*, however, copies may be retained and stored solely for the purpose of determining its obligations under this Agreement, subject to the non-disclosure and non-use obligation under this Article 11 (Confidentiality; Publication). In addition, the Receiving Party will not be required to return or destroy Confidential Information contained in any computer system back-up records made in the ordinary course of business; *provided* that such Confidential Information may not be accessed without the Disclosing Party's prior written consent or as required by applicable Law. If any such material is destroyed, the Receiving Party shall provide the Disclosing Party written certification of such destruction.

12.5 Additional Effects of Certain Terminations. Upon termination of this Agreement in its entirety or with respect to one or more Terminated Products, Terminated Targets or Terminated Regions by Biogen pursuant to [*] or by Sangamo pursuant to [*]:

(a) License to Sangamo under Biogen [*] **Technology**.

(i) Upon Sangamo's request, Biogen shall provide Sangamo with a reasonably detailed description of all Biogen [*] Technology related to each Terminated Product in the Field in the applicable Terminated Region and Biogen shall answer any reasonable questions by Sangamo related thereto. Upon Sangamo's request, Biogen shall grant and hereby does grant to Sangamo an exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses through multiple tiers, under the Biogen [*] Technology to Exploit the Terminated Products in the Field in the applicable Terminated Regions.

(ii) On a Terminated Product-by-Terminated Product basis and Terminated Region-by-Terminated Region basis, Sangamo will pay to Biogen a royalty on Net Sales of such Terminated Product in such Terminated Regions by Sangamo and its Affiliates and Sublicensees at the applicable rate set forth below based on the stage of Development of such Terminated Product as of the effective date of termination; *provided that*, for any royalties payable on Net Sales of any [*], the royalties payable to Biogen shall be capped at [*] with respect to the applicable Terminated Target.

Table 12.5(a)(ii)	
Stage of Development of the applicable Terminated Product as of the effective date of termination	***Royalty Rate***
[*]	[*]
(one page omitted)	

(iii) For the purposes of this Section 12.5(a) (License to Sangamo), the definition of "Net Sales" and the terms set forth in Sections 9.4(d) (Royalty Reductions), 9.4(e) (Reports and Payment), 9.7 (Late Payments), 9.8 (Tax) and 9.9 (Financial Records and Audit) shall apply *mutatis mutandis* to the calculation, payment, recording and auditing of Sangamo's obligations to make payments under this Section 12.5(a) (License to Sangamo under Biogen [*] Technology) as they apply to Biogen and, solely for such purpose, each reference in each such Section (and any related definitions) to (A) Biogen will be deemed a reference to Sangamo and (B) Sangamo will be deemed to be a reference of Biogen.

(iv) The obligation of Sangamo to make any royalty payments with respect to any Terminated Product under this Section 12.5 (License to Sangamo under Biogen [*] Technology) shall terminate on a Terminated Product-by-Terminated Product and country-by-country basis, upon [*].

(b) License to Sangamo under Biogen [*] **Technology**.

(i) Upon Sangamo's request, Biogen shall grant and hereby does grant to Sangamo an exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses through multiple tiers, under the Biogen[*] Technology to Exploit the Terminated Products in the Field in the applicable Terminated Regions.

(ii) [*] termination of this Agreement, [*] to exercise the license granted pursuant to this Section 12.5(b)(ii) (License to Sangamo under Biogen [*] Technology), [*]. [*] within a period of [*] days after the effective date of termination, then [*]. If [*], then [*].

(c) Sell-Off Right. Subject to the payment of all amounts required under Section 9.3 (Milestone Payments) and Section 9.4 (Royalties), Biogen will have the right to sell or otherwise dispose of any inventory of any Terminated Product on hand at the time of such termination or in the process of Manufacturing for a period of [*] months following the effective date of termination; *provided* that any revenue obtained from such disposal will be treated as Net Sales and the provisions of Article 9 (Financial Provisions) will apply to such Net Sales and, in the event that such sales result in the achievement of a Milestone Event, the Milestone Payment due upon achievement of such Milestone Event will be payable.

(d) Transition to Sangamo. Subject to Biogen's sell off right in Section 12.5(c) (Sell-Off Right), within a reasonable period of time following notice of termination with respect to one or more Terminated Products, the Parties shall meet to agree upon a transition plan to effect an orderly and timely transition to Sangamo of all Development, Manufacture and Commercialization activities and responsibilities with respect to such Terminated Products (such plan, a "**Transition Plan**"), which shall incorporate the following elements (which elements do not require agreement after notice of termination) and such other elements as may be agreed by the Parties and reasonably necessary to effectuate the transition of such activities to Sangamo:

(i) Upon Sangamo's written request, assignment and transfer to Sangamo (or its designee) of all Regulatory Materials [*] the Terminated Products (in the form such Terminated Products exist as of the effective date of termination) in the Territory (including any pending regulatory filings with respect to the Terminated Products). If Biogen is prohibited by applicable Law from assigning or transferring ownership of any of the foregoing items to Sangamo, then Biogen shall grant Sangamo (or its designee) a right of reference or use to such item and shall take other actions reasonably requested by Sangamo to provide Sangamo or its designee access to and the benefit of such Regulatory Materials, including the data contained or referenced therein. Each Party shall take actions reasonably necessary to effect such assignment and transfer or grant of right of reference or use to Sangamo (or its designee), including by making such filings with Regulatory Authorities in the Territory that may be necessary to record such assignment or effect such transfer.

(ii) Upon Sangamo's written request, assignment and transfer to Sangamo (or its designee) of all rights, title and interests in and to all pharmacological, toxicological and clinical test data and results, research data, reports and batch records, safety data and all other data Controlled by Biogen or its Affiliates generated in, and [*], the Development, Manufacture or Commercialization of any Terminated Product (in the form such Terminated Products exist as of the effective date of termination), subject to a retained right by Biogen to use such data to continue prosecution of any Patent Rights conceived by Biogen and its Affiliates in the course of conducting its activities under this Agreement. Such assigned data, results, reports and records shall be deemed the Confidential Information of both Parties.

(iii) Biogen shall promptly provide Sangamo with a copy of each agreement between Biogen (or its Affiliates) and a Third Party relating to any Terminated Product or the Development, Manufacture and Commercialization of any Terminated Product, solely to the extent that Biogen has the right to disclose such agreement to Sangamo without violating any confidentiality or other obligations to such Third Party, and upon Sangamo's request, Biogen shall use reasonable efforts to assign or sublicense, and shall ensure that its Affiliates use reasonable efforts to assign or sublicense, to Sangamo any such agreement that solely relates to Terminated Products, to the extent permitted under the terms thereof. Upon Sangamo's request, Biogen shall provide reasonable assistance to Sangamo in connection with any such agreement that is not assignable or sublicensable to Sangamo by introducing Sangamo to such Third Party and granting its consent or authorization, to the extent required, for such Third Party to contract directly with Sangamo with respect to the Development, Manufacture or Commercialization, as applicable, of any Terminated Product in the Terminated Region(s).

(iv) If, at the time of such termination, Biogen (or its Affiliates or Sublicensees) is conducting any Clinical Trials for any Terminated Product, then, at Sangamo's election on a trial-by-trial and site-by-site basis: (A) Biogen shall cooperate with Sangamo to transfer the conduct of all such Clinical Trials at such sites to Sangamo and Sangamo shall assume any and all liability for such Clinical Trials at such sites after the effective date of such termination; or (B) Biogen shall, at its expense, orderly wind down the conduct of any such Clinical Trial or site which is not assumed by Sangamo under clause (B).

(v) On a Terminated Product-by-Terminated Product basis, (A) if the Agreement is terminated with respect to a Terminated Product in all of the Territory after the First Commercial Sale of such Terminated Product, then upon Sangamo's written request and [*] assignment and transfer to Sangamo (or its designee) of all rights, title and interests in and to all Trademarks that are owned by Biogen (or its Affiliates) and are at such time used to Commercialize such Terminated Product (excluding the corporate name or logos of Biogen and its Affiliates or sublicensees) and (B) if the Agreement is terminated with respect to one or more Terminated Regions but not all of the Territory after the First Commercial Sale of in a Terminated Region, then upon Sangamo's written request and [*] Biogen shall grant and hereby grants Sangamo an exclusive license under all Trademarks that are owned by Biogen (or its Affiliates) and are at such time used to Commercialize such Terminated Product (excluding the corporate name or logos of Biogen and its Affiliates or sublicensees) for Sangamo and its Affiliates and Sublicensees to Commercialize such Terminated Product in the Terminated Region(s).

(vi) Following Biogen's sell-off period, if applicable, at Sangamo's request, Biogen shall deliver to Sangamo all or part of Biogen's or its Affiliate's inventory of the Terminated Product for the Terminated Region, and Sangamo shall reimburse Biogen for its cost [*] for such delivered inventory.

(vii) If Biogen is, itself or through its Affiliate, Manufacturing any Terminated Product at the time of the notice of termination, then Biogen shall, upon Sangamo's request, supply such Terminated Product to Sangamo at its cost of goods [*] for a reasonable period of time (not to exceed [*] months) until Sangamo establishes an alternative supplier (which alternative supplier Sangamo shall use reasonable efforts to establish) and reasonably assist Sangamo in establishing an alternative supplier for such Terminated Product.

12.6 Survival. Expiration or termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such expiration or termination. For clarity, termination of this Agreement for any reason shall be without prejudice to Sangamo's right to receive all payments (including milestone and royalties) accrued prior to the effective date of termination. Without limiting the foregoing, the following provisions shall survive the expiration or termination of this Agreement: [*].

12.7 Termination Not Sole Remedy; Cumulative Remedies. Termination is not the sole remedy under this Agreement and, whether or not termination is effected and except as expressly set forth in this Agreement, all other remedies shall remain available except as agreed to otherwise herein. Except as expressly set forth herein, no remedy referred to in this Agreement is

intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

ARTICLE 13
REPRESENTATIONS AND WARRANTIES

13.1 Mutual Representations and Warranties. Each Party represents and warrants to the other Party as of the Execution Date that:

(a) such Party is duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is organized;

(b) such Party: (i) has the requisite power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder, and (ii) has taken all requisite action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

(c) this Agreement has been duly executed on behalf of such Party and is a legal, valid and binding obligation on such Party, enforceable against such Party in accordance with its terms;

(d) all necessary consents, approvals and authorizations of all Governmental Authorities and other persons or entities required to be obtained by such Party in connection with the execution and delivery of this Agreement have been obtained; and

(e) the execution and delivery of this Agreement and the performance of such Party's obligations hereunder: (i) do not conflict with or violate any requirement of applicable Laws, regulations or orders of Governmental Authorities, (ii) do not conflict with, or constitute a breach or default under, any contractual obligation of such Party, including with respect to Sangamo any Upstream License or the exclusivity restrictions set forth therein and (iii) do not conflict with or result in a breach of any provision of the organizational documents of such Party.

13.2 Additional Representations and Warranties by Sangamo. Sangamo represents and warrants to Biogen as of the Execution Date that:

(a) it has the full right, power and authority to grant all of the licenses and rights granted to Biogen under this Agreement;

(b) (i) Sangamo does not own any Patent Rights that would otherwise qualify as Licensed Patent Rights but for the fact that it does not Control such Patent Rights, (ii) Sangamo owns or otherwise Controls all Patent Rights listed on Schedule 1.116 (Licensed Patent Rights) and (iii) except as otherwise noted on Schedule 1.116 (Licensed Patent Rights), Sangamo exclusively owns all rights, title and interests in and to such Patent Rights;

(c) attached hereto as Schedule 13.2(c) (Sangamo Platform Technology) is a complete and accurate list of all Patent Rights within the Sangamo Platform Technology that

Sangamo anticipates using to conduct the Research Activities pursuant to initial Research Plans for Tau, SNCA and [*] attached to this Agreement as Schedule 4.2 (Initial Research Plans);

(d) Except as set forth in Schedule 13.2(d) (Additional Representations and Warranties by Sangamo), since [*], there is no pending litigation or litigation that has been threatened in a writing delivered to Sangamo, that alleges, or any written communication delivered to Sangamo alleging, that Sangamo's practice of the Licensed Technology or the [*] has infringed, misappropriated or otherwise violated, or would infringe, misappropriate or otherwise violate, any Intellectual Property of any Third Party in any manner that would be reasonably expected to have any effect on the performance of activities under this Agreement;

(e) to Sangamo's Knowledge and except as disclosed to Biogen before the Execution Date, the composition of matter of the Therapeutic Candidate for Tau or SNCA existing as of the Execution Date does not infringe any issued patent of any Third Party or, if and when issued, any claim within any published patent application of any Third Party;

(f) there is no pending action by Third Party that challenges the ownership, scope, duration, validity, enforceability, priority or right to use any Licensed Patent Rights or the Patent Rights included in the [*] (including, by way of example, through the institution of or written threat of institution of interference, *inter partes* review, reexamination, protest, opposition, nullity, or similar invalidity proceeding before the United States Patent and Trademark Office or any foreign patent authority or court);

(g) to Sangamo's Knowledge, no Third Party is infringing, misappropriating or otherwise violating, or threatening to infringe, misappropriate or otherwise violate, the Licensed Technology or the [*] with respect to Tau, SNCA, [*] or any Reserved Target;

(h) all fees required to be paid by Sangamo in any jurisdiction where a Licensed Patent Right has issued in order to maintain such Licensed Patent Right in such jurisdiction have been timely paid and the Licensed Patent Rights that have issued are subsisting and, to Sangamo's Knowledge, valid and enforceable;

(i) Sangamo has not previously assigned, transferred, conveyed or granted any license or other rights under the Licensed Technology that would conflict with or limit the scope of any of the rights or licenses granted to Biogen hereunder;

(j) Sangamo's rights, title and interests to all Licensed Technology are free of any lien or security interest;

(k) Since [*], Sangamo has obtained, or caused its Affiliates, as applicable, to obtain, assignments from the inventors of any Licensed Technology and [*], in each case, who were employees of Sangamo or its Affiliates at the time of the invention, of all inventorship rights to such Licensed Technology and [*], and all such assignments are valid and enforceable;

(l) Since [*], the inventorship of the Licensed Patent Rights is properly identified on each issued patent or patent application in the Licensed Patent Rights for which all inventors were employees of Sangamo or its Affiliates at the time of such invention;

(m) except as set forth on Schedule 1.217 (Upstream Licenses), there are no Third Party agreements pursuant to which Sangamo Controls any of the Licensed Technology, and, except for any joint owners set forth on Schedule 1.116 (Licensed Patent Rights), no Third Party has any rights, title or interests in or to, or any license under, any of the Licensed Technology that would conflict with the rights and licenses granted to Biogen hereunder;

(n) Sangamo has provided Biogen with a redacted copy of each Upstream License, each Upstream License is in full force and effect, and no written notice of default or termination has been received or given under any Upstream License, and, to Sangamo's Knowledge, there is no act or omission by Sangamo or its Affiliates that would provide a right to terminate any such agreement;

(o) Sangamo and its Affiliates have taken commercially reasonable measures consistent with industry practices to protect the secrecy, confidentiality and value of all Licensed Know-How that constitutes trade secrets under applicable Law (including requiring all employees, consultants, and independent contractors to execute binding and enforceable agreements requiring all such employees, consultants, and independent contractors to maintain the confidentiality of such Licensed Know-How) and, to Sangamo's Knowledge, such Licensed Know-How has not been used, disclosed to or discovered by any Third Party except pursuant to such confidentiality agreements and there has not been a breach by any party to such confidentiality agreements;

(p) Sangamo has the right under the Licensed Technology to grant the licenses to Biogen as purported to be granted pursuant to this Agreement, and it has not granted any license to any Third Party under the Licensed Technology that is inconsistent with the license granted to Biogen hereunder;

(q) to Sangamo's Knowledge, the conduct of the Research Activities by Sangamo under the Research Collaboration as contemplated by the Research Plans attached to this Agreement as Schedule 4.2 (Initial Research Plans), does not infringe any Patent Right or misappropriate any Know-How, in each case, of any Third Party;

(r) to Sangamo's Knowledge, all information disclosed to Biogen by Sangamo under the Confidentiality Agreement relating to the [*], the Licensed Technology and the materials and methods to be employed by Sangamo in the performance by or on behalf of Sangamo of the Research Activities under Research Collaboration and otherwise under this Agreement is, at the time of disclosure, accurate in all material respects;

(s) there is no action, claim, demand, suit, proceeding, arbitration, grievance, citation, summons, subpoena, inquiry or investigation of any nature, civil, criminal, regulatory or otherwise, in law or in equity, pending or, to Sangamo's Knowledge, threatened against Sangamo, or any of its Affiliates or, to Sangamo's Knowledge, against any Third Party, in each case, relating

to the Licensed Technology, the [*] or any activities or transactions contemplated by or under this Agreement;

(t) except as otherwise stated on Schedule 1.77 (Excluded Targets), each of the Excluded Targets set forth on Schedule 1.77 (Excluded Targets) are subject to one or more Pre-Existing Restrictions as of the Execution Date;

(u) neither Sangamo, nor its Affiliates, nor any of their employees, officers, subcontractors, or consultants who have rendered services relating to the [*]: (i) has ever been Debarred or is subject to debarment or convicted of a crime for which an entity or person could be Debarred; or (ii) have ever been under indictment for a crime for which a person or entity could be so Debarred; and

(v) Sangamo has not intentionally failed to furnish Biogen with any information requested by Biogen in writing, or intentionally concealed from Biogen any information in its possession, including information relating to the Licensed Technology or [*], in each case, that Sangamo reasonably believes would be material to Biogen's decision to enter into this Agreement and undertake the commitments and obligations set forth herein.

13.3 Additional Representations and Warranties by Biogen. Biogen represents and warrants to Sangamo as of the Execution Date that it has the full right, power and authority to grant all of the licenses and rights granted to Sangamo under this Agreement.

13.4 Mutual Covenants.

(a) No Debarment. In the course of the research, Development, manufacture and Commercialization of the Products, neither Party nor its Affiliates or sublicensees shall use any employee or consultant who has been debarred by any Regulatory Authority, or, to such Party's or its Affiliates' knowledge, is the subject of debarment proceedings by a Regulatory Authority. Each Party shall notify the other Party promptly upon becoming aware that any of its or its Affiliates' or sublicensees' employees or consultants has been debarred or is the subject of debarment proceedings by any Regulatory Authority.

(b) Compliance. Each Party and its Affiliates shall comply in all material respects with all applicable Laws (including all anti-bribery laws) in the research, Development, manufacture and Commercialization of the Products and performance of its obligations under this Agreement.

13.5 Covenants of Sangamo. Sangamo hereby covenants to Biogen as follows:

(a) Sangamo will not assign, transfer, convey or grant any license or other rights to its rights, title and interests in or to the Licensed Technology (or agree to do any of the foregoing) in any way that would conflict with any of the rights or licenses granted to Biogen hereunder;

(b) Sangamo will not, and will cause its Affiliates not to incur or permit to exist, with respect to any Licensed Technology, any lien, encumbrance, charge, security interest, mortgage, liability, or other restriction (including in connection with any indebtedness) that would conflict with any of the rights or licenses granted to Biogen hereunder;

(c) Sangamo will, and will ensure that its Affiliates and Subcontractors obtain written agreements from any and all Persons involved in or performing any Research Activities by or on behalf of Sangamo that assign, to the extent legally permissible, (or exclusively license, with a right to grant sublicenses) such Persons' rights, title and interests in and to any Inventions or other Intellectual Property developed or invented in the performance of such activities that specifically relate to the Products or their use, manufacture or sale to Sangamo prior to any such person performing such activities;

(d) Sangamo will not prematurely terminate and not breach any Upstream Licenses in a manner that would give rise to the right of an Upstream Licensor to terminate such Upstream License;

(e) Sangamo will promptly notify Biogen of any breach by Sangamo or a Third Party of any Upstream License, and in the event of a breach by Sangamo and failure by Sangamo to cure such breach in a timely manner, will permit Biogen to cure such breach on Sangamo's behalf upon Biogen's reasonable written request;

(f) Sangamo will not amend, modify or terminate any Upstream License in a manner that would adversely affect Biogen's rights hereunder (other than in a *de minimis* manner) without first obtaining Biogen's written consent, which consent may be withheld in Biogen's sole discretion; and

(g) Sangamo will not, and will, to the extent it legally can, so cause its Affiliates not to, directly or indirectly, sue, assert any claim or counterclaim against, or otherwise participate in any action or proceeding against Biogen or its Affiliates or their respective Sublicensees in any action that claims or otherwise asserts that Biogen or its Affiliates or their respective Sublicensees is or are liable for infringing any Patent Rights [*] as a result of Biogen's Exploitation (expressly excluding [*]) of the Therapeutic Candidates or Products strictly in accordance with, and not in violation of, any applicable terms and conditions of this Agreement. Biogen and each of its Affiliates that is not party to this Agreement is a third party beneficiary of this Section 13.5(g). If Sangamo or any of its Affiliates [*], then Sangamo or such Affiliate, as applicable, will [*] the same covenant to the same extent as made by Sangamo and its Affiliates in this Section 13.5(g). If Sangamo [*] and [*], then Sangamo or such Affiliate, as applicable, will [*] the same covenant to the same extent as made by Sangamo and its Affiliates in this Section 13.5(g).

13.6 Covenants of Biogen. Biogen hereby covenants to Sangamo as follows:

(a) Biogen will, and will ensure that its Affiliates and Subcontractors obtain written agreements from any and all Persons involved in or performing any activities under this Agreement by or on behalf of Biogen that assign, to the extent legally permissible, (or exclusively license, with a right to grant sublicenses) such Persons' rights, title and interests in and to any

Inventions or other Intellectual Property developed or invented in the performance of such activities that specifically relate to the Products or their use, manufacture or sale to Biogen prior to any such person performing such activities;

(b) Biogen will not assign, transfer, convey or grant any license or other rights to its rights, title and interests in or to the [*] in any way that would conflict with any of the rights or licenses granted to Sangamo hereunder; and

(c) Biogen will not, and will cause its Affiliates not to incur or permit to exist, with respect to any [*], any lien, encumbrance, charge, security interest, mortgage, liability, or other restriction (including in connection with any indebtedness) that would conflict with any of the rights or licenses granted to Sangamo hereunder.

Notwithstanding any provision to the contrary set forth in this Agreement, [*] any covenant set forth in Section 13.6(b) or Section 13.6(c) above [*].

13.7 No Other Warranties. EXCEPT AS EXPRESSLY STATED IN THIS ARTICLE 13 (Representations and Warranties), (A) NO REPRESENTATION, CONDITION OR WARRANTY WHATSOEVER IS MADE OR GIVEN BY OR ON BEHALF OF BIOGEN OR SANGAMO; AND (B) ALL OTHER CONDITIONS AND WARRANTIES WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE ARE HEREBY EXPRESSLY EXCLUDED, INCLUDING ANY CONDITIONS AND WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. Both Parties understand that the Products are the subject of ongoing research and development and that neither Party can assure the safety, effectiveness, Regulatory Approval, Pricing Approval or commercial success of any Product.

ARTICLE 14
INDEMNIFICATION; LIABILITY; INSURANCE

14.1 Indemnification by Sangamo. Sangamo shall indemnify, defend and hold harmless Biogen and its Affiliates, and each of their respective directors, officers, employees and agents (collectively "**Biogen Indemnitees**"), from and against all losses, liabilities, damages and expenses, including reasonable attorneys' fees and costs (collectively, "**Liabilities**"), to the extent resulting from any claims, demands, actions or other proceedings by any Third Party arising out of:

(a) the conduct of the Research Activities by or on behalf of Sangamo (including by an Affiliate or Subcontractor of Sangamo), except to the extent [*] pursuant to [*];

(b) the breach of any representation, warranty or covenant under this Agreement by or on behalf of Sangamo or any of its Affiliates;

(c) any claims of any nature arising out of the Exploitation of any Therapeutic Candidate or Product or practice of the Licensed Technology by or on behalf of Sangamo or its Affiliates or Sublicensees, in each case, prior to the Effective Date or after the effective date of

termination of this Agreement; or the gross negligence, recklessness or wrongful intentional acts or omissions of any Sangamo Indemnitees in the course of performing activities under this Agreement;

except, in each case, to the extent such claims fall within the scope of Biogen's indemnification obligations under Section 14.2 (Indemnification by Biogen).

14.2 Indemnification by Biogen. Biogen shall indemnify, defend and hold harmless Sangamo and its Affiliates, Upstream Licensors and each of their respective directors, officers, employees and agents (collectively "**Sangamo Indemnitees**"), from and against all Liabilities to the extent resulting from any claims, demands, actions or other proceedings by any Third Party arising out of:

(a) the conduct of the Research Activities by or on behalf of Biogen (including by an Affiliate or Subcontractor of Biogen) or the conduct of the Research Activities by or on behalf of Sangamo (including by an Affiliate or Subcontractor), to the extent[*] pursuant to [*];

(b) the breach of any representation, warranty or covenant under this Agreement by or on behalf of Biogen or any of its Affiliates;

(c) the gross negligence, recklessness or wrongful intentional acts or omissions of any Biogen Indemnitees in the course of performing activities under this Agreement; or

(d) the Exploitation of any Product by or on behalf of Biogen or its Affiliates or Sublicensees;

except, in each case, to the extent such claims fall within the scope of Sangamo's indemnification obligations under Section 14.1 (Indemnification by Sangamo).

14.3 Indemnification Procedure.

(a) Notice. If either Party is seeking indemnification under Section 14.1 (Indemnification by Sangamo) or 14.2 (Indemnification by Biogen) (the "**Indemnified Party**"), it shall promptly inform the other Party (the "**Indemnifying Party**") of the claim giving rise to the obligation to indemnify pursuant to such Section as soon as reasonably practicable after receiving notice of the claim, *provided*, *however*, that no delay on the part of the Indemnified Party in notifying the Indemnifying Party shall relieve the Indemnifying Party from any obligation hereunder unless (and then only to the extent that) the Indemnifying Party is prejudiced thereby.

(b) Control. The Indemnifying Party shall have the right, exercisable by notice to the Indemnified Party within ten (10) Business Days after receipt of notice from the Indemnified Party of the commencement of or assertion of any Third Party claim, to assume the direction and control of the defense, litigation, settlement, appeal or other disposition of any such claim for which it is obligated to indemnify the Indemnified Party (including the right to settle the claim solely for monetary consideration) with counsel selected by the Indemnifying Party and reasonably acceptable to the Indemnified Party. During such time as the Indemnifying Party is controlling

the defense of such Third Party claim, the Indemnified Party shall cooperate with the Indemnifying Party, and shall cause its Affiliates and agents to cooperate upon request of the Indemnifying Party, in the defense or prosecution of the claim, including by furnishing such records, information and testimony and attending such conferences, discovery proceedings, hearings, trials or appeals as may reasonably be requested by the Indemnifying Party. In the event that the Indemnifying Party does not notify the Indemnified Party of the Indemnifying Party's intent to defend any Third Party claim within ten (10) Business Days after notice thereof, the Indemnified Party may (without further notice to the Indemnifying Party) undertake the defense thereof with counsel of its choice and at the Indemnifying Party's expense (including reasonable, out-of-pocket attorneys' fees and costs and expenses of enforcement or defense). The Indemnifying Party or the Indemnified Party, as the case may be, shall have the right to participate (including the right to conduct discovery, interview and examine witnesses and participate in all settlement conferences), but not control, at its own expense and with counsel of its choice, in the defense of any claim that has been assumed by the other Party.

(c) Settlement. The Indemnifying Party shall not, without the prior written consent of the Indemnified Party, enter into any compromise or settlement that commits the Indemnified Party to take, or to forbear to take, any action. Neither the Indemnifying Party nor the Indemnified Party shall make any admission of liability in respect of any claim without the prior written consent of the other party.

14.4 Mitigation of Loss. Each Indemnified Party shall take and shall procure that its Affiliates take all such reasonable steps and action as are reasonably necessary or as the Indemnifying Party may reasonably require in order to mitigate any claims (or potential losses or damages) under this Article 14 (Indemnification; Liability; Insurance). Nothing in this Agreement shall or shall be deemed to relieve any Party of any common law or other duty to mitigate any losses incurred by it.

14.5 Limitation of Liability. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL (INCLUDING ANY CLAIMS FOR LOST PROFITS OR REVENUES), INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 14.5 (LIMITATION OF LIABILITY) IS INTENDED TO OR SHALL LIMIT OR RESTRICT (A) THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER SECTION 14.1 (INDEMNIFICATION BY SANGAMO) OR 14.2 (INDEMNIFICATION BY BIOGEN), (B) ANY DAMAGES AVAILABLE FOR A PARTY'S BREACH OF ARTICLE 11 (CONFIDENTIALITY; PUBLICATION), SECTION 13.2(b)(ii), SECTION 13.2(b)(iii) OR SECTION 2.5 (EXCLUSIVITY). THE PARTIES ACKNOWLEDGE AND AGREE THAT DAMAGES AVAILABLE FOR PAYMENT BREACHES UNDER THE AGREEMENT ARE DIRECT DAMAGES AND SHALL NOT BE CLASSIFIED AS LOST PROFITS OR REVENUES FOR PURPOSES OF THIS SECTION 14.5 (LIMITATION OF LIABIITY).

14.6 Knowledge and Investigation. Neither Party may make any claim for a breach of any representation or warranty after the Execution Date if such Party had knowledge of such breach as of the Execution Date.

14.7 Insurance. Each Party shall procure and maintain, during the Term, commercial general liability insurance, including product liability insurance, with minimum "A-" Best rated insurance carriers to cover its indemnification obligations under Section 14.1 (Indemnification by Sangamo) or Section 14.2 (Indemnification by Biogen), as applicable, in each case with limits of not less than [*] per occurrence and in the aggregate. Each Party shall provide the other Party with evidence of such insurance by furnishing a certificate of insurance upon request. It is understood that such insurance shall not be construed to create a limit of either Party's liability, including with respect to its indemnification obligations under this Article 14 (Indemnification; Liability; Insurance). Notwithstanding the foregoing, Biogen may self-insure to the extent that it self-insures for its other activities.

ARTICLE 15
ANTITRUST

15.1 Effective Date. Except for Section 2.5 (Exclusivity), Article 11 (Confidentiality; Publication) and this Article 15 (Antitrust), which will each become effective as of the Execution Date, this Agreement will become effective on the date (the "**Effective Date**") that is the later of the date of the Closing (as such term is defined in the Stock Purchase Agreement) and the date on which: (a) the Parties shall have complied with all applicable requirements of all Antitrust Laws, including the HSR Act; (b) the waiting period under the HSR Act shall have expired or earlier been terminated; (c) no judicial or administrative proceeding opposing consummation of all or any part of this Agreement shall be pending; (d) no Law, order or injunction (whether temporary, preliminary or permanent) prohibiting consummation of the transactions contemplated by this Agreement or any material portion hereof shall be in effect; (e) no investigation brought by a Governmental Authority is pending that would reasonably be expected to lead to any of the foregoing in clauses (c) or (d) hereof that would be material in the context of the transactions contemplated by this Agreement; and (f) no requirements or conditions shall have been formally requested or imposed by the Federal Trade Commission and the Department of Justice in connection therewith that are not reasonably and mutually satisfactory to the Parties (each of (a)-(f), collectively, the "**HSR Conditions**," such date on which all of the HSR Conditions have been met, the "**Antitrust Clearance Date**"), unless either Party exercises its termination right under Section 15.3 (Outside Date) at any time prior to the Antitrust Clearance Date.

15.2 HSR Filing. The Parties shall each as promptly as practicable after the Execution Date of this Agreement, file or cause to be filed with the U.S. Federal Trade Commission and the U.S. Department of Justice any notifications required to be filed under the Hart-Scott-Rodino Act of 1976, as amended, along with the rules and regulations promulgated thereunder (the "**HSR Act**"); *provided* that the Parties shall each file the notifications required to be filed under the HSR Act (the "**Required Filings**") no later than ten (10) Business Days after the Execution Date of this Agreement. Each Party shall be responsible for its own costs in connection with such filing, except that Biogen shall be solely responsible for the applicable filing fees. The Parties shall use

reasonable efforts to respond promptly to any requests for additional information made by either of such agencies, and to cause the waiting periods under the HSR Act to terminate or expire at the earliest possible date after the date of filing. Each Party shall provide the other Party with any information, data or assistance requested for use in written or oral communications with the U.S. Federal Trade Commission, the U.S. Department of Justice or any other applicable Governmental Authority with respect to the Antitrust Laws, and such receiving Party shall be free to provide any such information, data or assistance to its external counsel where necessary.

15.3 Outside Date. This Agreement will terminate (a) at the election of either Party, immediately upon written notice to the other Party, if the U.S. Federal Trade Commission or the U.S. Department of Justice seeks a permanent injunction under applicable antitrust and non-competition laws against Biogen or Sangamo to enjoin the transactions contemplated by this Agreement and the Stock Purchase Agreement; or (b) at the election of Biogen, immediately upon written notice to Sangamo, in the event that the Antitrust Clearance Date will not have occurred on or prior to [*] days after the effective date of the Required Filing, and in such case, the Parties have not agreed in writing to extend the Antitrust Clearance Date; *provided*, *however*, that Biogen may elect in its sole discretion to extend such v day period for an additional [*] days if at the end of such initial [*] day period, (i) either Party is subject to a pending action, proceeding or investigation brought by a Governmental Authority related to the Antitrust Laws or any of the Required Filings, or (ii) either Party is engaged in any discussions with or has received any inquiries or requests for additional information from the U.S. Federal Trade Commission, the U.S. Department of Justice or any other applicable Governmental Authority with respect to the Antitrust Laws or any of the Required Filings. In the event of such termination, this Agreement will be of no further force and effect.

ARTICLE 16
GENERAL PROVISIONS

16.1 Force Majeure. Neither Party shall be held liable to the other Party nor be deemed to have defaulted under or breached this Agreement for failure or delay in performing any obligation under this Agreement to the extent such failure or delay is caused by or results from causes beyond the reasonable control and not caused by the negligence, intentional conduct or misconduct of the affected Party, including embargoes, war, acts of war (whether war be declared or not), acts of terrorism, insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, fire, floods, earthquakes or other acts of God, or acts, generally applicable action or inaction by any governmental authority (but excluding any government action or inaction that is specific to such Party, its Affiliates or sublicensees, such as revocation or non-renewal of such Party's license to conduct business), and occurring without its fault or negligence. The affected Party shall notify the other Party in writing of such force majeure circumstances as soon as reasonably practical, and shall promptly undertake and continue diligently all reasonable efforts necessary to cure such force majeure circumstances or to perform its obligations in spite of the ongoing circumstances.

16.2 Assignment. This Agreement may not be assigned or otherwise transferred, nor may any right or obligation hereunder be assigned or transferred, by either Party without the prior

written consent of the other Party. Notwithstanding the foregoing, (a) either Party may, without consent of the other Party, assign this Agreement and its rights and obligations hereunder in whole or in part to an Affiliate of such Party, or in whole to its successor in interest in connection with the sale of all or substantially all of its stock or its assets, or in connection with a merger, acquisition or similar transaction and (b) Sangamo may, without consent of Biogen, assign to any Third Party Sangamo's right to receive any payment from Biogen under this Agreement; *provided* that, prior to any assignment by Sangamo of its right to receive any payment from Biogen under this Agreement, Sangamo shall provide Biogen with written notice of its intent to do so at least sixty (60) days in advance and Sangamo shall consider in good faith any reasonable proposal provided by Biogen related to receiving assignment of such rights. Each Party shall promptly notify the other Party of any assignment or transfer under the provisions of this Section 16.2 (Assignment). Any attempted assignment not in accordance with the foregoing shall be null and void and of no legal effect. Any permitted assignee shall assume all assigned obligations of its assignor under this Agreement. The terms and conditions of this Agreement shall be binding upon, and shall inure to the benefit of, the Parties and their respected successors and permitted assigns.

16.3 Severability. If any one or more of the provisions contained in this Agreement is held invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby, unless the absence of the invalidated provision(s) adversely affects the substantive rights of the Parties. The Parties shall in such an instance use their best efforts to replace the invalid, illegal or unenforceable provision(s) with valid, legal and enforceable provision(s) that, insofar as practical, implement the purposes of this Agreement.

16.4 Notices. All notices that are required or permitted hereunder shall be in writing and sufficient if delivered personally, sent by nationally-recognized overnight courier or sent by registered or certified mail, postage prepaid, return receipt requested, addressed as follows (with a courtesy copy sent by email, which will not constitute notice):

If to Sangamo:

Sangamo Therapeutics, Inc.
7000 Marina Blvd
Brisbane, CA 94005
Attn: Chief Executive Officer
Email: smacrae@sangamo.com

with a copy to:

Sangamo Therapeutics, Inc.
7000 Marina Blvd
Brisbane, CA 94005
Attn: General Counsel
Email: legal@sangamo.com

and

Cooley LLP
3175 Hanover Street
Palo Alto, CA 94304
Attn: Marya Postner, Ph.D.
Email: mpostner@cooley.com

If to Biogen:

Biogen MA, Inc.
225 Binney Street
Cambridge, MA 02142
Attention: Chief Legal Officer
E-mail: legaldepartment@biogen.com

with a copy to:

Ropes & Gray LLP
Prudential Tower
800 Boylston Street
Boston, MA 02199-3600
Attention: Mark W. Bellomy, Esq.
Email: mark.bellomy@ropesgray.com

or to such other address(es) as the Party to whom notice is to be given may have furnished to the other Party in writing in accordance herewith. Any such notice shall be deemed to have been given: (a) when delivered if personally delivered on a Business Day (or if delivered or sent on a non-Business Day, then on the next Business Day); (b) on the Business Day after dispatch if sent by nationally-recognized overnight courier; or (c) on the fifth (5th) Business Day following the date of mailing, if sent by mail.

16.5 Injunctive Relief. Notwithstanding any provision to the contrary set forth in this Agreement, in the event of an actual or threatened breach or other default or non-performance hereunder, the aggrieved Party may seek equitable relief (including restraining orders, specific performance or other injunctive relief) in any court or other forum, without first submitting to the dispute resolution procedures set forth in Section 16.6 (Dispute Resolution).

16.6 Dispute Resolution. The Parties recognize that disputes as to certain matters may from time to time arise that relate to either Party's rights or obligations hereunder, including the interpretation, alleged breach, enforcement, termination or validity of this Agreement (a "**Dispute**"), but expressly excluding (i) matters within the JSC's authority, which shall be resolved in accordance with Section 3.6 (Decision-Making) and (ii) matters relating to the [*], which shall be resolved by baseball arbitration in accordance with [*]. It is the objective of the Parties to establish procedures to facilitate the resolution of such Disputes arising under this Agreement in an expedient manner by mutual cooperation. To accomplish this objective, the Parties agree that if a Dispute arises under this Agreement, and the Parties are unable to resolve such Dispute within [*] days after such Dispute is first identified by either Party in writing to the other, then the Parties

shall refer such Dispute to the Executive Officers of the Parties for attempted resolution by good faith negotiations within [*] days after such notice is received. If the Executive Officers are not able to resolve such Dispute within [*] days, then [*], consistent with [*].

16.7 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the [*] without reference to any rules of conflict of laws; *provided* that the United Nations Convention on Contracts for International Sale of Goods shall not apply.

16.8 Jurisdiction; Venue. Each Party irrevocably submits to the exclusive jurisdiction of (a) the [*] of the [*], and (b) the United States District Court for the [*], for the purposes of any suit, action, or other proceeding arising out of this Agreement or out of any transaction contemplated hereby. Each Party agrees to commence any such action, suit, or proceeding either in the United States District Court for the [*] or if such suit, action, or other proceeding may not be brought in such court for jurisdictional reasons, in the [*] of the [*]. Notwithstanding the foregoing, if neither the [*] of the [*] nor the United States District Court for the [*], as applicable, have subject matter jurisdiction of such action, suit or proceeding, then such action, suit or proceeding may be brought in any court of competent jurisdiction. Each Party irrevocably and unconditionally waives any objection to the laying of venue of any action, suit, or proceeding arising out of this Agreement or the transactions contemplated hereby in (i) the [*] of the [*] or (ii) the United States District Court for the [*], and hereby and thereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such action, suit, or proceeding brought in any such court has been brought in an inconvenient forum. Each Party irrevocable consents to service of process in the manner provided under Section 16.4 (Notices) or by first class certified mail, return receipt requested, postage prepaid. THE PARTIES EXPRESSLY, IRREVOCABLY, AND UNCONDITIONALLY WAIVE AND FOREGO ANY RIGHT TO TRIAL BY JURY.

16.9 Export Control. This Agreement is made subject to any restrictions concerning the export of products or technical information from the United States of America or other countries which may be imposed upon or related to Sangamo or Biogen from time to time, and both Parties agrees to comply with all such export control laws.

16.10 Performance by Affiliates. Each Party recognizes that the other Party may perform some or all of its obligations under this Agreement through Affiliates to the extent permitted under this Agreement; *provided*, *however*, that such other Party will remain responsible for the performance by its Affiliates as if such obligations were performed by such other Party. BIMA and BIG shall be jointly and severally liable for the performance of Biogen's obligations under this Agreement.

16.11 Entire Agreement; Amendments. This Agreement, together with the Schedules hereto, contains the entire understanding of the Parties with respect to the subject matter hereof. Any other express or implied agreements and understandings, negotiations, writings and commitments, either oral or written, with respect to the subject matter hereof (including prior drafts of this Agreement or the schedules hereto) are superseded by the terms of this Agreement. The Schedules to this Agreement are incorporated herein by reference and shall be deemed a part of

this Agreement. This Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by authorized representative(s) of both Parties hereto. The Parties agree that the Mutual Confidentiality Agreement between the Parties dated as of [*], as amended by the First Amendment to the Mutual Confidentiality Agreement, dated [*] (collectively, the "**Confidentiality Agreement**") is hereby terminated, but each Party's information that was the subject of confidentiality obligations under such Confidentiality Agreement shall been deemed to be Confidential Information of such Party under this Agreement.

16.12 Headings. The captions to the several Articles, Sections (and subsections) and Schedules hereof are not a part of this Agreement, but are merely for convenience to assist in locating and reading the several Articles, Sections and Schedules hereof.

16.13 Independent Contractors. It is expressly agreed that Sangamo and Biogen shall be independent contractors and that the relationship between the Parties (including BIG and BIMA) shall not constitute a partnership, joint venture or agency. Neither Sangamo nor Biogen shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other Party, without the prior written consent of the other Party. The Parties (and any successor, assignee, transferee or Affiliate of a Party) shall not treat or report the relationship between the Parties arising under this Agreement as a partnership for United States tax purposes, unless required by law.

16.14 Waiver. No provision of this Agreement shall be waived by any act, omission or knowledge of a Party or its agents or employees except by an instrument in writing expressly waiving such provision and signed by a duly authorized officer of the waiving Party. The waiver by either Party hereto of any right hereunder, or of any failure of the other Party to perform, or of any breach by the other Party, shall not be deemed a waiver of any other right hereunder or of any other breach by or failure of such other Party whether of a similar nature or otherwise.

16.15 Waiver of Rule of Construction. Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, the rule of construction that any ambiguity in this Agreement shall be construed against the drafting Party shall not apply.

16.16 Business Day Requirements. In the event that any notice or other action or omission is required to be taken by a Party under this Agreement on a day that is not a Business Day then such notice or other action or omission shall be deemed to be required to be taken on the next occurring Business Day.

16.17 Further Actions. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as necessary or appropriate in order to carry out the purposes and intent of this Agreement, including the filing of additional assignments, agreements, documents and instruments, as the other Party may at any time and from time to time reasonably request in connection with this Agreement or to carry out more effectively the provisions and purposes of, or to better assure and confirm unto such other Party its rights and remedies under, this Agreement.

16.18 Counterparts. This Agreement may be executed in two or more counterparts each of which taken together shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via electronic mail, including Adobe™ Portable Document Format (PDF) or any electronic signature complying with the U.S. Federal ESIGN Act of 2000, and any counterpart so delivered will be deemed to be original signatures, will be valid and binding upon the Parties, and, upon delivery, will constitute due execution of this Agreement.

<SIGNATURE PAGE FOLLOWS>

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

IN WITNESS WHEREOF, the Parties intending to be bound have caused this Collaboration and License Agreement to be executed by their duly authorized representatives as of the Execution Date.

Sangamo Therapeutics, Inc.

By: /s/ Alexander Macrae

Name: Dr. Sandy Macrae

Title: President and CEO

Biogen MA, Inc.

By: /s/ Michael Vounatsos

Name: Michel Vounatsos

Title: CEO

Biogen International GmbH

By: /s/ Johanna Friedl-Naderer

Name: Johanna Friedl-Naderer

Title: President Europe and Canada

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Schedule 1.77
Excluded Targets

[*]

Name	Gene ID (GenBank)	Full Gene Name	Alias
[*]	[*]	[*]	[*]
		(three rows omitted)	

- [*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 1.116
Licensed Patent Rights

Ref. No.	Assignee(s)	Country	Status	Title	Application No.	Filing Date	Publication No.	Patent No.
[*]								
[*]	[*]	[*]	[*]	[*]	[*]	[*]	[*]	[*]
(11 pages omitted)								

Schedule 1.165
Reserved Targets

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 1.217
Upstream Licenses

1) [*]

2) [*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 2.4
Upstream License Provisions Applicable to Biogen

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.**Error! Unknown document property name.**

Schedule 4.2
Initial Research Plans

[ ]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 4.7(e)
Data Package

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 5.3(c)
Form of AAV Vector Report

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 7.2(d)
Approved CMOs

1. [*]
2. [*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 7.8

[*].

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 11.6(a)
Academic Research Agreements

1. [*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 11.7(a)
Press Release
[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule [*]
Baseball Arbitration

1. Any arbitration proceedings conducted under this Schedule [*] shall be conducted through expedited "baseball arbitration" conducted by a single, independent arbitrator with at least five (5) years expertise in the negotiation of biotechnology and pharmaceutical license agreements.

2. If the Parties do not agree on such a single arbitrator within [*] days after request by a Party for arbitration, then each Party shall select, within the ensuing [*] days, a representative who meets the foregoing arbitrator criteria, and the two (2) representatives shall select, within [*] days after the selection of the second representative, an arbitrator who meets the foregoing criteria.

3. Within [*] days after the arbitrator's selection, each Party will deliver to both the arbitrator and the other Party a detailed written proposal setting forth its proposed [*] (the "**Proposed Terms**" of such Party). The Parties will also provide the arbitrator a copy of this Agreement, as may be amended at such time.

4. Neither Party may have any other communications (either written or oral) with the arbitrator other than for the sole purpose of engaging the arbitrator or as expressly permitted in this Schedule [*].

5. Within [*] days after the arbitrator's appointment, the arbitrator will select one of the two Proposed Terms (without modification) provided by the Parties that he or she believes is most consistent with the intention underlying and agreed principles set forth in this Agreement and most accurately reflects industry norms for a transaction of this type. The decision of the arbitrator shall be final, binding and unappealable.

6. For clarity, the arbitrator must select one of the two sets of Proposed Terms [*] and may not combine elements of both Proposed Terms or take any other action.

7. Each Party shall bear its own attorneys' fees, costs and disbursements arising out of the arbitration, and shall pay an equal share of the fees and costs of the arbitrator.

Schedule 13.2(c)

Sangamo Platform Technology

Ref No.	Assignee(s)	Country Code	Status	Title	Application No.	Publication No.	Filing Date	Patent No.
[*]								
[*]	[*]	[*]	Issued	[*]	[*]	[*]	[*]	[*]
(22 pages omitted)								

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Schedule 13.2(d)
Additional Representations and Warranties by Sangamo

[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

STOCK PURCHASE AGREEMENT

THIS STOCK PURCHASE AGREEMENT (***"Agreement"***) is entered into as of February 26, 2020 (the ***"Execution Date"***), by and between **Biogen MA, Inc.**, a corporation organized under the laws of the Commonwealth of Massachusetts having an office at 225 Binney Street, Cambridge, MA 02142 (***"Biogen"***), and **Sangamo Therapeutics, Inc.**, a Delaware corporation having an office at 7000 Marina Blvd., Brisbane, CA 94005 (***"Sangamo"***). The capitalized terms used herein and not otherwise defined have the meanings given to them in Appendix 1.

RECITALS

Sangamo has agreed to sell, and Biogen has agreed to purchase, shares of Common Stock subject to and in accordance with the terms and provisions of this Agreement.

AGREEMENT

For good and valuable consideration, the Parties agree as follows:

Section 1. SALE AND PURCHASE OF STOCK

1.1 Purchase of Stock. . Subject to the terms and conditions of this Agreement, at the Closing, Sangamo will issue and sell to Biogen, and Biogen will purchase from Sangamo, 24,420,157 shares of Common Stock (the ***"Shares"***) at a price per share of $9.2137 for an aggregate purchase price of $225,000,000.00 (the ***"Purchase Price"***).

1.2 Payment. At the Closing, Biogen will pay the Purchase Price by wire transfer of immediately available funds in accordance with wire instructions provided by Sangamo to Biogen at least three (3) Business Days prior to the Closing, and Sangamo will deliver the Shares in book-entry form to Biogen.

1.3 Closing.

(a) Closing. The closing of the transaction contemplated by Section 1.1 (the ***"Closing"***) will be held at the offices of Sangamo within three (3) Business Days after the conditions to closing set forth in Section 7 are satisfied or waived for the Closing (other than those conditions that by their nature are to be satisfied or waived at the Closing) or at such other place, time and/or date as may be jointly designated by Biogen and Sangamo for the Closing.

(b) Closing Deliverables.

(i) At the Closing, Sangamo will deliver to Biogen:

(1) a duly executed cross-receipt in form and substance reasonably satisfactory to each party (the "***Cross-Receipt***");

(2) a certificate in form and substance reasonably satisfactory to Biogen and duly executed on behalf of Sangamo by an authorized officer of Sangamo, certifying that the conditions to Closing set forth in Section 7.2 of this Agreement have been fulfilled; and

(3) a certificate of the secretary of Sangamo dated as of the Closing Date certifying that attached thereto is a true and complete copy of all resolutions adopted by the Board authorizing the execution, delivery and performance of this Agreement and the Collaboration Agreement and the transactions contemplated respectively therein and that all such resolutions are in full force and effect and are all the resolutions adopted in connection with the transactions contemplated hereby as of the Closing Date.

(ii) At the Closing, Biogen will deliver to Sangamo:

(1) a duly-executed Cross-Receipt; and

(2) a certificate in form and substance reasonably satisfactory to Sangamo and duly executed on behalf of Biogen by an authorized officer of Biogen, certifying that the conditions to Closing set forth in Section 7.1 of this Agreement have been fulfilled.

Section 2. REPRESENTATIONS AND WARRANTIES OF SANGAMO

Except as otherwise specifically contemplated by this Agreement, Sangamo hereby represents and warrants to Biogen that:

2.1 Private Placement. Neither Sangamo nor any person acting on its behalf, has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under any circumstances that would require registration of the Shares under the Securities Act. Subject to the accuracy of the representations made by Biogen in Section 3, the Shares will be issued and sold to Biogen in compliance with applicable exemptions from the registration and prospectus delivery requirements of the Securities Act and the registration and qualification requirements of all applicable securities laws of the states of the United States. Sangamo has not engaged any brokers, finders or agents, or incurred, or will incur, directly or indirectly, any liability for brokerage or finder's fees or agents' commissions or any similar charges in connection with this Agreement and the transactions contemplated hereby.

2.2 Organization and Qualification. Sangamo is duly incorporated, validly existing and in good standing under the laws of the State of Delaware, with full corporate power and authority to conduct its business as currently conducted. Sangamo is duly qualified to do business and is in good standing in every jurisdiction in which the nature of the business conducted by it or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, would not reasonably be expected to have a Material Adverse Effect on Sangamo.

2.3 Authorization; Enforcement. Sangamo has all requisite corporate power and authority to enter into and to perform its obligations under this Agreement, to consummate the transactions contemplated hereby and to issue the Shares in accordance with the terms hereof. The execution, delivery and performance of this Agreement by Sangamo and the consummation by it of the transactions contemplated hereby (including the issuance of the Shares at the Closing in accordance with the terms hereof and, in connection with such issuance, any actions taken with respect to Sangamo's stock incentive plans or the shares of Common Stock reserved thereunder) have been duly authorized by the Board and no further consent or authorization of Sangamo, the Board, or its stockholders is required. This Agreement has been duly executed by Sangamo and constitutes a legal, valid and binding obligation of Sangamo enforceable against Sangamo in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, or moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity and except as rights to indemnity and contribution may be limited by state or federal securities laws or public policy underlying such laws.

2.4 Issuance of Shares. The Shares are duly authorized and, upon issuance in accordance with the terms of this Agreement, will be validly issued, fully paid and non-assessable and will not be subject to preemptive rights or other similar rights of stockholders of Sangamo.

2.5 SEC Documents, Financial Statements.

(a) The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act. Sangamo has delivered or made available (by filing on the SEC's electronic data gathering and retrieval system (EDGAR)) to Biogen complete copies of its most recent Annual Report on Form 10-K and its most recent Quarterly Report on Form 10-Q, and any report on Form 8-K, in each case filed with the SEC after January 1, 2019 and prior to the Execution Date (the ***"SEC Documents"***). As of its date, each SEC Document complied in all material respects with the requirements of the Exchange Act, and other federal, state and local laws, rules and regulations applicable to it, and, as of its date, such SEC Document did not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(b) The financial statements, together with the related notes and schedules, of Sangamo included in the SEC Documents comply as to form in all material respects with all applicable accounting requirements and the published rules and regulations of the SEC and all other applicable rules and regulations with respect thereto. Such financial statements, together with the related notes and schedules, have been prepared in accordance with GAAP applied on a consistent basis during the periods involved (except (i) as may be otherwise indicated in such financial statements or the notes thereto or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes

or may be condensed or summary statements), and fairly present in all material respects the financial condition of Sangamo and its consolidated subsidiaries as of the dates thereof and the results of operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal year-end audit adjustments).

(c) The Common Stock is listed on Nasdaq, and Sangamo has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from Nasdaq. As of the date of this Agreement, Sangamo has not received any notification that, and has no knowledge that, the SEC or Nasdaq is contemplating terminating such registration or listing.

2.6 Internal Controls; Disclosure Controls and Procedures. Sangamo maintains internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act. Sangamo has implemented the "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) required in order for the principal executive officer and principal financial officer of Sangamo to engage in the review and evaluation process mandated by the Exchange Act, and is in compliance with such disclosure controls and procedures in all material respects. Each of the principal executive officer and the principal financial officer of Sangamo has made all certifications required by Sections 302 and 906 of the Sarbanes-Oxley Act of 2002 with respect to all reports, schedules, forms, statements and other documents required to be filed by Sangamo with the SEC.

2.7 Capitalization and Voting Rights

(a) The authorized capital of Sangamo as of the date hereof consists of: (i) 160,000,000 shares of Common Stock of which, as of February 25, 2020, (x) 116,173,820 shares were issued and outstanding, (y) 4,986,088 shares were reserved for issuance pursuant to Sangamo's stock incentive plans, and (z) 14,936,474 shares were issuable upon the exercise of stock options outstanding or issuable upon vesting of restricted stock unit awards outstanding, and (ii) 5,000,000 shares of Preferred Stock, of which no shares are issued and outstanding as of the date of this Agreement. All of the issued and outstanding shares of Common Stock (A) have been duly authorized and validly issued, (B) are fully paid and non-assessable and (C) were issued in material compliance with all applicable federal and state securities laws and not in violation of any preemptive rights.

(b) All of the authorized shares of Common Stock are entitled to one (1) vote per share.

(c) Except as described or referred to in the SEC Documents, as of February 25, 2020, there were not: (i) any outstanding equity securities, options, warrants, rights (including conversion or preemptive rights) or other agreements pursuant to which Sangamo is or may become obligated to issue, sell or repurchase any shares of its capital stock or any other securities of Sangamo other than equity securities that may

have been granted pursuant to its stock incentive plans, which plans are described in the SEC Documents, or (ii) any restrictions on the transfer of capital stock of Sangamo other than pursuant to federal or state securities laws or as set forth in this Agreement.

(d) Sangamo is not a party to or subject to any agreement or understanding relating to the voting of shares of capital stock of Sangamo or the giving of written consents by a stockholder or director of Sangamo.

2.8 No Conflicts; Government Consents and Permits.

(a) The execution, delivery and performance of this Agreement by Sangamo and the consummation by Sangamo of the transactions contemplated hereby (including the issuance of the Shares) will not (i) conflict with or result in a violation of any provision of Sangamo's Certificate of Incorporation or Bylaws, (ii) violate or conflict with, or result in a breach of any provision of, or constitute a default under, any agreement, indenture, or instrument to which Sangamo is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including United States federal and state securities laws and regulations and regulations of any self-regulatory organizations) applicable to Sangamo, except in the case of clauses (ii) and (iii) only, for such conflicts, breaches, defaults, and violations as would not reasonably be expected to have a Material Adverse Effect on Sangamo or result in a liability for Biogen.

(b) Sangamo is not required to obtain any consent, authorization or order of, or make any filing or registration with, any court or governmental agency or any regulatory or self regulatory agency in order for it to execute, deliver or perform any of its obligations under this Agreement in accordance with the terms hereof, or to issue and sell the Shares in accordance with the terms hereof other than such as have been made or obtained, and except for (i) any post-closing filings required to be made under federal or state securities laws, (ii) any required filings or notifications regarding the issuance or listing of additional shares with Nasdaq, and (iii) any consent required under the HSR Act.

2.9 Litigation. Other than as set forth in the SEC Documents filed prior to the date of this Agreement, there is no action, suit, proceeding or investigation pending (of which Sangamo has received notice or otherwise has knowledge) or, to Sangamo's knowledge, threatened, against Sangamo or which Sangamo intends to initiate, except where such action, suit, proceeding or investigation, as the case may be, would not reasonably be expected to have a Material Adverse Effect.

2.10 Licenses and Other Rights; Compliance with Laws. Sangamo has all franchises, permits, licenses and other rights and privileges ("***Permits***") necessary to permit it to own its properties and to conduct its business as presently conducted and is in compliance thereunder, except where the failure to be in compliance would not reasonably be expected to have a Material Adverse Effect. To Sangamo's knowledge, Sangamo has not taken any action that would interfere with its ability to renew all such Permit(s), except where the failure to renew such Permit(s) would not reasonably be

expected to have a Material Adverse Effect. Sangamo is and has been in compliance with all laws applicable to its business, properties and assets, and to the products and services sold by it, except where the failure to be in compliance has not had and would not reasonably be expected to have a Material Adverse Effect.

2.11 Intellectual Property.

(a) The Intellectual Property that is owned by Sangamo or its subsidiaries is owned free from any liens or restrictions. To Sangamo's knowledge, all of Sangamo's material Intellectual Property Licenses are in full force and effect in accordance with their terms, are free of any liens or restrictions, and neither Sangamo, nor any other party thereto, is in material breach of any such material Intellectual Property License. To Sangamo's knowledge (i) no event has occurred that with notice or lapse of time or both would constitute a breach or default of any such material Intellectual Property License or (ii) would result in the termination thereof, or (iii) would cause or permit the acceleration or other change of any right or obligation or the loss of any benefit thereunder by Sangamo or its subsidiaries except (1) in the case of each of (i)-(iii) as would not reasonably be expected to have a Material Adverse Effect, or (2) as set forth in any such Intellectual Property License. Except as set forth in the SEC Documents, to Sangamo's knowledge, there is no legal claim or demand of any person or any proceeding that is pending or overtly threatened in writing, (i) challenging the right of Sangamo in respect of any Intellectual Property of Sangamo, or (ii) claiming that any default exists under any Intellectual Property License, except, in the case of (i) and (ii) above, where any such claim, demand or proceeding has not had and would not reasonably be expected to have a Material Adverse Effect.

(b) Except as set forth in the SEC Documents: (i) Sangamo or one of its subsidiaries owns, free and clear of any lien or encumbrance, or, to Sangamo's knowledge, has a valid license , or an enforceable right to use, as it is used or held for use, all U.S. and non-U.S. patents, trade secrets, know-how, trademarks, service marks, copyrights, and other proprietary and intellectual property rights, and all grants and applications with respect to the foregoing (collectively, the "***Proprietary Rights***") necessary for the conduct of Sangamo's business, except where the failure to own or have any of the foregoing would not reasonably be expected to have a Material Adverse Effect (such Proprietary Rights owned by or licensed to Sangamo collectively, the "***Sangamo Rights***"); and (ii) to Sangamo's knowledge, Sangamo and its subsidiaries have taken reasonable measures to protect the Sangamo Rights, consistent with prudent commercial practices in the biotechnology industry, except where failure to take such measures has not had and would not reasonably be expected to have a Material Adverse Effect.

2.12 Absence of Certain Changes.

(a) Except as disclosed in the SEC Documents filed prior to the Execution Date, since September 30, 2019, no change or event has occurred, except where such change or event has not and would not reasonably be expected to have a Material Adverse Effect on Sangamo.

(b) Except as set forth in the SEC Documents filed prior to the Execution Date or as contemplated by this Agreement or the Collaboration Agreement, since September 30, 2019, Sangamo has not (i) declared or paid any dividends, or authorized or made any distribution upon or with respect to any class or series of its capital stock, or (ii) sold, exchanged or otherwise disposed of any of its material assets or rights.

(c) Since September 30, 2019, Sangamo has not admitted in writing its inability to pay its debts generally as they become due, filed or consented to the filing against it of a petition in bankruptcy or a petition to take advantage of any insolvency act, made an assignment for the benefit of creditors, consented to the appointment of a receiver for itself or for the whole or any substantial part of its property, or had a petition in bankruptcy filed against it, been adjudicated a bankrupt, or filed a petition or answer seeking reorganization or arrangement under the federal bankruptcy laws or any other laws of the United States or any other jurisdiction.

2.13 Not an Investment Company. Sangamo is not, and solely after receipt of the Purchase Price, will not be, an "investment company" as defined in the Investment Company Act of 1940, as amended.

2.14 No Integration. Sangamo has not, directly or through any agent, sold, offered for sale, solicited offers to buy or otherwise negotiated in respect of, any security (as defined in the Securities Act) which is or will be integrated with the Shares sold pursuant to this Agreement in a manner that would require the registration of the Shares under the Securities Act.

Section 3. REPRESENTATIONS AND WARRANTIES OF BIOGEN

Except as otherwise specifically contemplated by this Agreement, Biogen hereby represents and warrants to Sangamo that:

3.1 Authorization; Enforcement. Biogen has the requisite corporate power and authority to enter into this Agreement and to consummate the transactions contemplated hereby. Biogen has taken all necessary corporate action to authorize the execution, delivery and performance of this Agreement. Upon the execution and delivery of this Agreement, this Agreement will constitute a valid and binding obligation of Biogen enforceable against Biogen in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity and except as rights to indemnity and contribution may be limited by state or federal securities laws or public policy underlying such laws.

3.2 No Conflicts; Government Consents and Permits.

(a) The execution, delivery and performance of this Agreement by Biogen and the consummation by Biogen of the transactions contemplated hereby (including the

purchase of the Shares) will not (i) conflict with or result in a violation of any provision of Biogen's Certificate of Incorporation or Bylaws, (ii) violate or conflict with, or result in a breach of any provision of, or constitute a default under, any agreement, indenture, or instrument to which Biogen is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including United States federal and state securities laws and regulations and regulations of any self-regulatory organizations) applicable to Biogen, except in the case of clauses (ii) and (iii) only, for such conflicts, breaches, defaults, and violations as would not reasonably be expected to have a Material Adverse Effect on Biogen or result in a liability for Sangamo.

(b) Biogen is not required to obtain any consent, authorization or order of, or make any filing or registration with, any court or governmental agency or any regulatory or self regulatory agency in order for it to execute, deliver or perform any of its obligations under this Agreement in accordance with the terms hereof, or to purchase the Shares in accordance with the terms hereof other than such as have been made or obtained except for any consent required under the HSR Act.

3.3 Investment Purpose. Biogen is purchasing the Shares for its own account and not with a present view toward the public distribution thereof and has no arrangement or understanding with any other persons regarding the distribution of such Shares except as would not result in a violation of the Securities Act. Biogen will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire or take a pledge of) any of the Shares except in accordance with the Securities Act and to the extent permitted by Section 6.1 and Section 6.2.

3.4 Reliance on Exemptions. Biogen understands that Sangamo intends for the Shares to be offered and sold to it in reliance upon specific exemptions from the registration requirements of United States federal and state securities laws and that Sangamo is relying upon the truth and accuracy of, and Biogen's compliance with, the representations, warranties, agreements, acknowledgments and understandings of Biogen set forth herein in order to determine the availability of such exemptions and the eligibility of Biogen to acquire the Shares.

3.5 Accredited Investor; Access to Information. Biogen is an "accredited investor" as defined in Regulation D under the Securities Act and is knowledgeable, sophisticated and experienced in making, and is qualified to make decisions with respect to investments in shares presenting an investment decision like that involved in the purchase of the Shares. Biogen has been furnished with materials relating to the offer and sale of the Shares, that have been requested by Biogen, including, without limitation, Sangamo's SEC Documents, and Biogen has had the opportunity to review the SEC Documents. Biogen has been afforded the opportunity to ask questions of Sangamo. Neither such inquiries nor any other investigation conducted by or on behalf of Biogen or its representatives or counsel will modify, amend or affect Biogen's right to rely on the truth, accuracy and completeness of the SEC Documents and Sangamo's representations

and warranties contained in this Agreement. Biogen has, with respect to all matters relating to this Agreement and the offer and sale of the Shares, not relied upon counsel.

3.6 Governmental Review. Biogen understands that no United States federal or state agency or any other government or governmental agency has passed upon or made any recommendation or endorsement of the Shares or an investment therein.

Section 4. STANDSTILL AGREEMENT.

4.1 Prior to the earlier of (x) the three-year anniversary of the Effective Date and (y) the date that Biogen beneficially owns less than 5% of the Common Stock (the ***"Standstill Period"***), Biogen and its Affiliates will not, directly or indirectly, except as expressly approved or invited by Sangamo.

(a) effect or seek, offer or propose (whether publicly or otherwise) to effect, or cause or participate in or in any way advise, assist or encourage any other person to effect or seek, offer or propose (whether publicly or otherwise) to effect or participate in, (i) any acquisition of any securities (or beneficial ownership thereof) or material assets of Sangamo, (ii) any tender or exchange offer, merger, or other business combination involving Sangamo, (iii) any recapitalization, restructuring, liquidation, dissolution or other extraordinary transaction with respect to Sangamo, or (iv) any "*solicitation*" of "*proxies*" (as such terms are used in the proxy rules of the SEC) or consents to vote any voting securities of Sangamo;

(b) form, join or in any way participate in a "*group*" (as defined under the Exchange Act) with respect to any securities of Sangamo;

(c) otherwise act, alone or in concert with others, to seek to control or influence the management, Board or policies of Sangamo;

(d) take any action that would reasonably be expected to require Sangamo to make a public announcement regarding any of the types of matters set forth in clause (a) above; or

(e) enter into any discussions or arrangements with any person with respect to any of the foregoing.

4.2 Biogen also agrees during the Standstill Period not to request Sangamo (or its representatives), directly or indirectly, to amend or waive any provision of this Section 4, other than by means of a confidential communication to the Sangamo Chairman of the Board or Chief Executive Officer. Biogen represents and warrants that, as of the Execution Date, neither Biogen nor any of its Affiliates owns, of record or beneficially, any voting securities of Sangamo, or any securities convertible into or exercisable for any voting securities of Sangamo.

4.3 Notwithstanding the provisions set forth in Sections 4.1 and 4.2 (the ***"Standstill Provisions"***), Biogen shall immediately, and without any other action by Sangamo, be released from its obligations under the Standstill Provisions if: (a) Sangamo executes a definitive agreement with a third party providing for an acquisition (by way of merger, tender offer or otherwise), of more than 50% of Sangamo's outstanding Common Stock or all or substantially all of Sangamo's assets, then (in any of such cases), (b) a third party commences a tender offer seeking to acquire beneficial ownership of more than 50% of Sangamo's outstanding Common Stock and the Board recommends that the stockholders tender their Common Stock in such tender offer (with any acquisition described in (a) and (b) referred to as a "***Change of Control Transaction***"), or (c) Sangamo waives any standstill or similar provision in any other agreement between Sangamo and a third party for the explicit purpose of allowing the third party to engage in any Change of Control Transaction. None of (x) the ownership nor purchase by an employee benefit plan of Biogen or Biogen's Affiliates in any diversified index, mutual or pension fund managed by an independent advisor, which fund in-turn holds, directly or indirectly, securities of Sangamo, (y) transfers or resales of the Shares by Biogen to any other person in compliance with Section 6 or (z) the mere voting of the Shares in accordance with Section 5, will be deemed to be a breach of Biogen's standstill obligations under this Section 4.

4.4 As the Effective Date, all prior standstill agreements between Biogen and Sangamo are terminated and of no further force and effect, including but not limited to that certain Standstill Agreement dated February 19, 2020 by and between Biogen and Sangamo.

Section 5. VOTING AGREEMENT.

5.1 Voting Agreement.

(a) If the Proxyholder instructs Biogen in writing to vote in favor of, or against, any matter, action, ratification or other event for which approval of the holders of Sangamo's stock is sought (either by vote or written consent) or upon which such holders are otherwise entitled to vote, including but not limited to the election of directors, *but excluding* any Extraordinary Matter (collectively, a ***"Sangamo Stockholder Matter"***), then Biogen will (i) after receiving proper notice of any meeting of stockholders of Sangamo related to such Sangamo Stockholder Matter (or, if no notice is required or such notice is properly waived, after notice from the Proxyholder is given), be present, in person or by proxy, as a holder of Shares at all such meetings and be counted for the purposes of determining the presence of a quorum at such meetings and (ii) vote (in person, by proxy or by action by written consent, as applicable) all Shares as to which Biogen has beneficial ownership or as to which Biogen otherwise exercises voting or dispositive authority in the manner directed by the Proxyholder.

(b) Extraordinary Matters. Biogen may vote or execute a written consent with respect to, any or all of the voting securities of Sangamo as to which they are entitled to vote or execute a written consent, as it may determine in its sole discretion,

with respect to the following matters, if presented to Sangamo's stockholders for approval (each such matter being an ***"Extraordinary Matter"***):

(i) any transaction which would result in a Change of Control of Sangamo;

(ii) any issuance of Common Stock that represents more than 20% of the then outstanding Common Stock;

(iii) the entry into any licensing, partnering, partnership, collaboration, research and development, joint venture or other commercial agreement;

(iv) the payment of any dividends to any class of stockholders of Sangamo; and

(v) any liquidation or dissolution of Sangamo.

(c) Appointment of Proxy. To secure Biogen's obligations to vote the Shares in accordance with this Agreement and to comply with the other terms hereof, Biogen hereby appoints the Proxyholder, or his designees, as Biogen's true and lawful proxy and attorney, with the power to act alone and with full power of substitution, to vote or act by written consent with respect to all of Biogen's Shares in accordance with the provisions set forth in this Agreement, and to execute all appropriate instruments consistent with this Agreement on behalf of Biogen. The proxy and power granted by Biogen pursuant to this Section 5 are coupled with an interest and are given to secure the performance of Biogen's duties under this Agreement. Each such proxy and power will be irrevocable until the agreements contained in this Section 5 expire in accordance with Section 5.1(e). The proxy and power will survive the merger, consolidation, conversion or reorganization of Biogen or any other entity holding any Shares (other than any Shares sold by Biogen in compliance with Section 6). For the avoidance of doubt, the proxy granted by this Section 5 shall not apply to any Extraordinary Matter.

(d) No Revocation. The voting agreements contained in this Section 5 are coupled with an interest and may not be revoked prior to their expiration in accordance with Section 5.1(e).

(e) Expiration. The agreements contained in this Section 5 will expire (i) in part, solely with respect to any Shares sold by Biogen in an arm's length sale to a non-Affiliate in compliance with this Agreement upon the execution of the sale of such Shares, and (ii) as a whole on the earlier of (1) the two-year anniversary of the Effective Date, (2) the date that Biogen beneficially owns less than 5% of the Common Stock, and (3) 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 Effective Date. For the avoidance of doubt, the agreements contained in this Section 5 shall not limit Biogen's ability to transfer or resell any Shares, provided that such transfers or resales are done in accordance with Section 6.

Section 6. TRANSFER, RESALE, LEGENDS.

6.1 Transfer or Resale. Biogen understands that:

(a) the Shares have not been and are not being registered under the Securities Act or any applicable state securities laws and, consequently, Biogen may have to bear the risk of owning the Shares for an indefinite period of time because the Shares may not be transferred unless (i) the resale of the Shares is registered pursuant to an effective registration statement under the Securities Act, including pursuant to the registration rights set forth in Section 6.5 and Appendix 2; (ii) Biogen has delivered to Sangamo an opinion of counsel (in form, substance and scope customary for opinions of counsel in comparable transactions) to the effect that the Shares to be sold or transferred may be sold or transferred pursuant to an exemption from such registration; or (iii) the Shares are sold or transferred pursuant to Rule 144; and

(b) any sale of the Shares made in reliance on Rule 144 may be made only in accordance with the terms of Rule 144 and, if Rule 144 is not applicable, any resale of the Shares under circumstances in which the seller (or the person through whom the sale is made) may be deemed to be an underwriter (as that term is defined in the Securities Act) may require compliance with some other exemption under the Securities Act or the rules and regulations of the SEC thereunder.

6.2 Lock-Up. Biogen agrees that it will hold and will not sell any of the Shares (or otherwise make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale of the Shares) until the one-year anniversary of the Effective Date (the ***"Initial Holding Period"***). Biogen further agrees that from the one-year anniversary of the Effective Date through the two-year anniversary of the Effective Date, inclusive, (the ***"Partial Holding Period"*** and together with the Initial Holding Period, the ***"Holding Periods"***), Biogen will hold and will not sell at least 50% of the Shares (or otherwise make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale of the Shares). In addition, after the expiration of the Initial Holding Period, in any single trading day Biogen will not sell an amount of Shares that exceeds 10% of the average daily trading volume of the Common Stock on Nasdaq over the five (5) trading day period ending on the trading day immediately prior to such trading date (the ***"Volume Limitation"***). Notwithstanding the foregoing, this Section 6.2 will not preclude, and the Volume Limitation shall not apply to, sales of Shares by Biogen (i) to a third party pursuant to a tender offer made by such third party, or (ii) as part of an underwritten offering after Biogen exercises any of its registration rights as set forth in Appendix 2.

6.3 Legends. Biogen understands the Shares will bear a restrictive legend in substantially the following form (and a stop-transfer order may be placed against transfer of the Shares):

THE SHARES EVIDENCED HEREBY ARE SUBJECT TO AN AGREEMENT TO VOTE THESE SHARES IN THE MANNER SET FORTH IN THE STOCK PURCHASE AGREEMENT DATED FEBRUARY 26, 2020 BETWEEN SANGAMO THERAPEUTICS, INC. AND BIOGEN MA, INC.

THE SALE, PLEDGE, HYPOTHECATION OR TRANSFER OF THESE SECURITIES IS SUBJECT TO THE TERMS AND CONDITIONS OF A STOCK PURCHASE AGREEMENT DATED FEBRUARY 26, 2020 BETWEEN SANGAMO THERAPEUTICS, INC. AND BIOGEN MA, INC.

If such Shares may be transferred pursuant to Section 6.2, Biogen may request that Sangamo remove, and Sangamo agrees to authorize and instruct (including by causing any required legal opinion to be provided) the removal of any legend from the Shares, if permitted by applicable securities law, within two (2) Business Days of any such request; *provided*, *however*, each party will be responsible for any fees it incurs in connection with such request and removal.

6.4 10b5-1 Plan. If requested by Biogen, Sangamo will approve and adopt, without unreasonable delay or condition, any written plan by Biogen for trading the Shares that is designed in accordance with Rule 10b5-1(c) of the Exchange Act, as long as such plan does not violate this Agreement (including but not limited to the Standstill and Lock-Up provisions) and applicable securities laws.

6.5 Registration Rights. Sangamo hereby provides Biogen with the registration rights set forth on Appendix 2 attached hereto, which is hereby incorporated in and made a part of this Agreement as if set forth in full herein.

Section 7. CONDITIONS TO CLOSING

7.1 Conditions to Obligations of Sangamo. Sangamo's obligation to complete the purchase and sale of the Shares and deliver the Shares to Biogen is subject to the fulfillment or waiver of the following conditions at or prior to the Closing:

(a) Receipt of Funds. Sangamo will have received immediately available funds in the full amount of the Purchase Price for the Shares being purchased hereunder.

(b) Representations and Warranties. The representations and warranties made by Biogen in Section 3 will be true and correct in all material respects as of the Closing Date, except to the extent such representations and warranties are made as of another date, in which case such representations and warranties will be true and correct in all material respects as of such other date.

(c) Covenants. All covenants and agreements contained in this Agreement to be performed or complied with by Biogen on or prior to the Closing Date shall have been performed or complied with in all material respects.

(d) Absence of Litigation. No proceeding challenging this Agreement or the transactions contemplated hereby, or seeking to prohibit, alter, prevent or materially delay the Closing, will have been instituted or be pending before any court, arbitrator, governmental body, agency or official.

(e) No Governmental Prohibition; HSR Clearance. The sale of the Shares by Sangamo and the purchase of the Shares by Biogen will not be prohibited by any applicable law or governmental order or regulation. Each of the HSR Conditions under the Collaboration Agreement shall have been satisfied.

(f) Collaboration Agreement. Biogen shall have duly executed and delivered the Collaboration Agreement to Sangamo, and subject to execution by Biogen, such agreement shall be in full force and effect.

(g) Closing Deliverables. All closing deliverables as required under Section 1.3(b) shall have been delivered by Biogen to Sangamo.

7.2 Conditions to Biogen's Obligations at the Closing. Biogen's obligation to complete the purchase and sale of the Shares is subject to the fulfillment or waiver of the following conditions at or prior to the Closing:

(a) Representations and Warranties. The representations and warranties made by Sangamo in Section 2, except for the representations and warranties made by Sangamo in Sections 2.9, 2.10, 2.11 and 2.12(a), will be true and correct in all material respects as of the Closing Date, except to the extent such representations and warranties are made as of another date, in which case such representations and warranties will be true and correct in all material respects as of such other date.

(b) Covenants. All covenants and agreements contained in this Agreement to be performed or complied with by Sangamo on or prior to the Closing Date shall have been performed or complied with in all material respects.

(c) Transfer Agent Instructions. Sangamo will have delivered to its transfer agent irrevocable written instructions to issue the Shares to Biogen in a form and substance acceptable to such transfer agent.

(d) Nasdaq Qualification. Nasdaq shall have raised no objection to the consummation of the transactions contemplated by this Agreement in the absence of stockholder approval of such transactions.

(e) Absence of Litigation. No proceeding challenging this Agreement or the transactions contemplated hereby, or seeking to prohibit, alter, prevent or materially delay the Closing, will have been instituted or be pending before any court, arbitrator, governmental body, agency or official.

(f) Collaboration Agreement. Sangamo shall have duly executed and delivered the Collaboration Agreement to Biogen, and subject to execution by Sangamo, such agreement shall be in full force and effect.

(g) No Governmental Prohibition; HSR Clearance. The sale of the Shares by Sangamo, and the purchase of the Shares by Biogen will not be prohibited by any applicable law or governmental order or regulation. Each of the HSR Conditions under the Collaboration Agreement shall have been satisfied.

(h) Closing Deliverables. All closing deliverables as required under Section 1.3(b) shall have been delivered by Sangamo to Biogen.

Section 8. TERMINATION.

8.1 Ability to Terminate. This Agreement may be terminated:

(a) at any time by mutual written consent of Sangamo and Biogen;

(b) by Sangamo, upon written notice to Biogen, so long as Sangamo is not then in breach of its representations, warranties, covenants or agreements under this Agreement such that any of the conditions set forth in Section 7.1, as applicable, could not be satisfied by the Termination Date, (i) upon a breach of any covenant or agreement on the part of Biogen set forth in this Agreement, or (ii) if any representation or warranty of Biogen shall have been or become untrue, in each case such that any of the conditions set forth in Section 7.1 could not be satisfied by the Termination Date;

(c) by Biogen, upon written notice to Sangamo, so long as Biogen is not then in breach of its representations, warranties, covenants or agreements under this Agreement such that any of the conditions set forth in Section 7.2, as applicable, could not be satisfied by the Termination Date, (i) upon a breach of any covenant or agreement on the part of Sangamo set forth in this Agreement, or (ii) if any representation or warranty of Sangamo shall have been or become untrue, in each case such that any of the conditions set forth in Section 7.2 could not be satisfied by the Termination Date.

(d) by either Sangamo or Biogen, upon written notice to the other, if the Closing has not occurred on or before the outside date set forth in Section 15.3 of the Collaboration Agreement (the ***"Termination Date"***). In such event, neither party shall have any further obligations under this Agreement.

8.2 Automatic Termination. In the event that the Collaboration Agreement is terminated prior to the "Effective Date" thereof (as such term is defined in the Collaboration Agreement), this Agreement shall terminate automatically.

8.3 Effect of Termination. In the event of the termination of this Agreement pursuant to Section 8.1 or Section 8.2, (a) this Agreement (except for this Section 8.3, Section 9 and Section 1.5 of Appendix 2, and any definitions set forth in this Agreement

and used in such Sections) shall forthwith become void and have no effect, without any liability on the part of any party hereto or its Affiliates, and (b) all filings, applications and other submissions made pursuant to this Agreement, to the extent practicable, shall be withdrawn from the agency or other person to which they were made or appropriately amended to reflect the termination of the transactions contemplated hereby; provided, however, that nothing contained in this Section 8.3 shall relieve any party from liability for fraud or any intentional or willful breach of this Agreement.

Section 9. GOVERNING LAW; MISCELLANEOUS.

9.1 Governing Law; Jurisdiction. This Agreement will be governed by and interpreted in accordance with the laws of the State of Delaware without regard to the principles of conflict of laws.

9.2 HSR Clearance; Market Listing.

(a) Each of Biogen and Sangamo agree that any required filings with the U.S. Federal Trade Commission and the U.S. Department under the HSR Act with respect to the transactions contemplated hereby and by the Collaboration Agreement shall be governed by Section 15.2 (HSR Filing) of the Collaboration Agreement.

(b) From the Execution Date through the Closing, Sangamo shall use commercially reasonable efforts to (a) maintain the listing and trading of the Common Stock on Nasdaq and (b) effect the listing of the Shares on Nasdaq.

9.3 Counterparts; Electronic Signatures. This Agreement may be executed in two counterparts, both of which are considered one and the same agreement and will become effective when the counterparts have been signed by each party and delivered to the other party hereto. This Agreement, once executed by a party, may be delivered to the other party hereto by electronic PDF of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

9.4 Headings. The headings of this Agreement are for convenience of reference only, are not part of this Agreement and do not affect its interpretation.

9.5 Severability. If any provision of this Agreement should be held invalid, illegal or unenforceable in any jurisdiction, the parties will negotiate in good faith a valid, legal and enforceable substitute provision that most nearly reflects the original intent of the parties and all other provisions hereof will remain in full force and effect in such jurisdiction and will be liberally construed in order to carry out the intentions of the parties hereto as nearly as may be possible. Such invalidity, illegality or unenforceability will not affect the validity, legality or enforceability of such provision in any other jurisdiction.

9.6 Entire Agreement; Amendments. This Agreement (including any schedules and exhibits hereto) constitutes the entire agreement between the parties hereto with

respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein or therein. This Agreement supersedes all prior agreements and understandings between the parties hereto with respect to the subject matter hereof. No provision of this Agreement may be waived or amended other than by an instrument in writing signed by the party to be charged with enforcement. Any amendment or waiver effected in accordance with this Section 9.6 will be binding upon Biogen and Sangamo.

9.7 Notices. All notices required or permitted hereunder will be in writing and will be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed email if sent during normal business hours of the recipient, if not, then on the next Business Day, or (c) one Business Day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. The addresses for such communications are:

If to Sangamo, addressed to: Sangamo Therapeutics, Inc.
7000 Marina Blvd.
Brisbane, CA 94005
Attention: Chief Financial Officer
E-mail: SungLee@sangamo.com

with copies to: Sangamo Therapeutics, Inc.
7000 Marina Blvd.
Brisbane, CA 94005
Attention: General Counsel
E-mail: GLoeb@sangamo.com

Cooley LLP
101 California Street, 5th Floor San Francisco, CA 94111-5800
Attention: Robert W. Phillips
E-mail: rphillips@cooley.com

If to Biogen, addressed to: Biogen MA, Inc.
225 Binney Street
Cambridge, MA 02142
Attention: Chief Legal Officer E-mail: legaldepartment@biogen.com

with a copy to: Ropes & Gray LLP
Prudential Tower
800 Boylston Street
Boston, MA 02199-360
Attention: Zachary Blume
E-mail: Zachary.Blume@ropesgray.com

9.8 Successors and Assigns. This Agreement is binding upon and inures to the benefit of the parties and their successors and assigns. Sangamo will not assign this Agreement or any rights or obligations hereunder without the prior written consent of Biogen, and Biogen will not assign this Agreement or any rights or obligations hereunder without the prior written consent of Sangamo; *provided*, *however*, that Biogen may assign this Agreement together with all of the Shares it then owns (subject to Section 4 and Section 5) to any wholly-owned subsidiary and any such assignee may assign the Agreement together with all of the Shares it then owns (subject to Section 4 and Section 5) to Biogen or any other subsidiary wholly-owned by Biogen, in any such case, without such consent provided that the assignee agrees to assume Biogen's obligations under Section 4 and Section 5 of this Agreement.

9.9 Third Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto, their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other person.

9.10 Further Assurances; Survival. Each party will do and perform, or cause to be done and performed, all such further acts and things, and will execute and deliver all other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby. The provisions of this Agreement will survive termination.

9.11 No Strict Construction. The language used in this Agreement is deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against a party.

9.12 Equitable Relief. Sangamo recognizes that, if it fails to perform or discharge any of its obligations under this Agreement, any remedy at law may prove to be inadequate relief to Biogen. Sangamo therefore agrees that Biogen is entitled to seek temporary and permanent injunctive relief or specific performance in any such case. Biogen also recognizes that, if it fails to perform or discharge any of its obligations under

this Agreement, any remedy at law may prove to be inadequate relief to Sangamo. Biogen therefore agrees that Sangamo is entitled to seek temporary and permanent injunctive relief or specific performance in any such case.

9.13 Expenses. Sangamo and Biogen are each liable for, and will pay, their own expenses incurred in connection with the negotiation, preparation, execution and delivery of this Agreement, including, without limitation, attorneys' and consultants' fees and expenses.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, Biogen and Sangamo have caused this Agreement to be duly executed as of the date first above written.

BIOGEN MA, INC.

By: /s/ Michel Vounatsos

Its: CEO

SANGAMO THERAPEUTICS, INC.

By: /s/ Alexander Macrae

Its: President + CEO

[*Signature page to Stock Purchase Agreement*]

Section 10.

APPENDIX 1

DEFINED TERMS

"Affiliate" of an entity means any corporation, firm, partnership or other entity which directly or indirectly through one or more intermediaries controls, is controlled by or is under common control with it. An entity will be deemed to control another entity if it (i) owns, directly or indirectly, at least 50% of the outstanding voting securities or capital stock (or such lesser percentage which is the maximum allowed to be owned by a foreign corporation in a particular jurisdiction) of such other entity, or has other comparable ownership interest with respect to any entity other than a corporation; or (ii) has the power, whether pursuant to contract, ownership of securities or otherwise, to direct the management and policies of the entity.

"Board" means the board of directors of Sangamo.

"Business Day" means a day Monday through Friday on which banks are generally open for business in the State of California.

"Change of Control" means with respect to a party, any (i) direct or indirect acquisition or license of all or substantially all of the assets of such party, (ii) direct or indirect acquisition by a person, or group of persons acting in concert, of 50% or more of the voting equity interests of a party, (iii) tender offer or exchange offer that results in any person, or group of persons acting in concert, beneficially owning 50% or more of the voting equity interests of a party, or (iv) merger, consolidation, other business combination or similar transaction involving a party, pursuant to which any person owns all or substantially all of the consolidated assets, net revenues or net income of a party, taken as a whole, or which results in the holders of the voting equity interests of a party immediately prior to such merger, consolidation, business combination or similar transaction ceasing to hold 50% or more of the combined voting power of the surviving, purchasing or continuing entity immediately after such merger, consolidation, other business combination or similar transaction, in all cases where such transaction is to be entered into with any person other than the other party to this Agreement or its Affiliates.

"Closing Date" means the date on which the Closing actually occurs.

"Collaboration Agreement" means that certain Collaboration and License Agreement, dated February 26, 2020, between Biogen, Biogen International GmbH and Sangamo.

"Common Stock" means shares of Sangamo's common stock, par value $0.01 per share.

"Exchange Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations of the SEC thereunder.

"GAAP" means generally accepted accounting principles in the United States of America as applied by Sangamo.

"Governmental Authority" means any Federal, state, provincial, local, municipal, foreign or other governmental or quasi-governmental authority, including without limitation any arbitrator and applicable securities exchanges, or any department, minister, agency, commission, commissioner, board, subdivision, bureau, agency, instrumentality, court or other tribunal of any of the foregoing.

"HSR Act" means Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

"Intellectual Property" shall mean shall mean trademarks, trade names, trade dress, service marks, copyrights, and similar rights (including registrations and applications to register or renew the registration of any of the foregoing), patents and patent applications, trade secrets, and any other similar intellectual property rights.

"Intellectual Property License" shall mean any license, permit, authorization, approval, contract or consent granted, issued by or with any person relating to the use of Intellectual Property.

"Material Adverse Effect" means any change, effect or circumstance, individually or in the aggregate, (a) that is reasonably likely to be materially adverse to the business, operations, assets or financial condition of Sangamo or Biogen, as the case may be, taken as a whole, or (b) that materially impairs the ability of Sangamo or Biogen to perform its obligations pursuant to the transactions contemplated by this Agreement or the Collaboration Agreement; provided however, that, none of the following (alone or when aggregated any other effects), shall be deemed to be a Material Adverse Effect, and none of the following (alone or when aggregated any other effects), shall be taken into account for purposes of clause (a) above: (A) (1) general market, economic or political conditions or (2) conditions (or any changes therein) in the industries in which Sangamo or Biogen conducts business, in each case, including any acts of terrorism or war, weather conditions, global virus epidemics or other force majeure events, in the case of each of (1) and (2), solely to the extent that such effects do not have and are not reasonably likely to have a material disproportionate impact on Sangamo or Biogen, as the case may be; (B) this Agreement, the Collaboration Agreement and the transactions contemplated hereby and thereby; or (C) (1) regulatory, manufacturing or clinical changes resulting from any studies sponsored by Sangamo or Biogen, or clinical trial meetings (and communications related thereto), and including, for the avoidance of doubt, any increased incidence or severity of any side effects, adverse effects, adverse events or safety observations (new or previously identified); (2) any determination (or delay thereof), positive or negative, with respect to the acceptance, filing, designation, approval, or clearance of any of Sangamo's or Biogen's products or product candidates; (3) approval (or other clinical or regulatory developments), market entry (or threat thereof) of competitive products, or any regulatory guidance, announcement or publication relating to approval of any products or product candidates of Sangamo or Biogen; or (4) changes in the trading price or volume of the Common Stock or Biogen's common stock, in and of themselves . The capitalized terms used in this definition and not otherwise defined in this Agreement have the meanings given to them in the Collaboration Agreement.

"Nasdaq" means The Nasdaq Global Select Market.

"Preferred Stock" means shares of Sangamo's preferred stock, par value $0.01 per share.

"Proxyholder" means Sangamo Therapeutics, Inc. and its Chief Executive Officer and/or Chief Operating Officer, in their capacities as such officers of Sangamo Therapeutics, Inc.

"SEC" means the United States Securities and Exchange Commission or any successor entity.

"Securities Act" means the Securities Act of 1933, as amended, and the rules and regulations of the SEC thereunder.

APPENDIX 2

REGISTRATION RIGHTS GRANTED BY SANGAMO TO BIOGEN

a. **FORM S-3 REGISTRATION.** Biogen may send Sangamo a written request (a ***"Biogen S-3 Registration Request"***) or requests that Sangamo effect a registration on Form S-3 (or any successor to Form S-3) or any similar short-form registration statement and any related qualification or compliance with respect to all or a part of the Shares owned by Biogen, and in such case Sangamo will as soon as practicable, effect such registration and all such qualifications and compliances as may be so requested and as would permit or facilitate the sale and distribution of all or such portion of Biogen's Shares as are specified in such request; *provided*, *however*, that Sangamo will not be obligated to effect any such registration, qualification or compliance pursuant to this Section 1.1:

(a) if Form S-3 is not available for such offering by Biogen;

(b) if Biogen, together with the holders of any other securities of Sangamo entitled to inclusion in such registration, propose to sell Shares and such other securities (if any) at an aggregate price to the public of less than $50,000,000;

(c) if within thirty (30) days of receipt of a written request from Biogen pursuant to this Section 1.1, Sangamo gives notice to Biogen of Sangamo's intention to make a public offering within ninety (90) days, other than pursuant to (i) a registration statement relating to any employee benefit plan, including but not limited to any employee equity plan or employee stock purchase plan or (ii) with respect to any corporate reorganization or transaction under Rule 145 of the Securities Act, any registration statements related to the issuance or resale of securities issued in such a transaction or (iii) a registration related to stock issued upon conversion of debt securities (any registration statement described in clauses (i) – (iii), a "Special Registration Statement"); *provided*, that such right to delay a request will be exercised by Sangamo not more than once in any twelve month period;

(d) if Sangamo furnishes Biogen a certificate signed by the Chairman of the Board of Directors of Sangamo stating that in the good faith judgment of Sangamo's Board of Directors, it would be seriously detrimental to Sangamo and its stockholders for such Form S-3 registration to be effected at such time, in which event Sangamo will have the right to defer the filing of the Form S-3 registration statement for a period of not more than ninety (90) days after receipt of Biogen's request under this Section 1.1; *provided*, that such right to delay a request will be exercised by Sangamo not more than once in any twelve month period;

(e) if Sangamo has (i) within the twelve month period preceding the date of such request, already effected one registration or (ii) already effected two registrations, in each case on Form S-3 for Biogen pursuant to this Section 1.1;

(f) for an underwritten public offering of Biogen's Shares, if Biogen (i) has, within the twelve month period preceding the date of such request, already completed one underwritten public offering, or (ii) has completed more than two underwritten public offerings

of Biogen's Shares; it being further understood and agreed that in connection with any offering initiated by Biogen pursuant to this Section 1.1 involving an underwriting of Biogen's Shares, Sangamo shall not be required to perform its obligations under this Section 1.1 unless (i) the underwriting banks are mutually agreeable to Sangamo and Biogen, (ii) Biogen enters into an underwriting agreement in customary form with the underwriter or underwriters, (iii) Biogen accepts customary terms in such underwriting agreement with regard to representations and warranties relating to ownership of the Biogen Shares and authority and power to enter into such underwriting agreement and (iv) Biogen completes and executes all questionnaires, powers of attorney, custody agreements, indemnities and other documents as may be requested by such underwriter or underwriters; it being further understood and agreed that Sangamo shall not be required to perform its obligations under this Section 1.1. in such underwriting if the underwriting agreement proposed by the underwriter or underwriters contains representations, warranties or conditions that are not reasonable in light of Sangamo's then-current business; or

(g) in any particular jurisdiction in which Sangamo would be required to qualify to do business or to execute a general consent to service of process in effecting such registration, qualification or compliance.

(h) Subject to the foregoing, Sangamo will file a Form S-3 registration statement covering the Shares requested by Biogen for registration as soon as reasonably practicable after receipt of Biogen's requests and Biogen's information pursuant to Section 1.4.

b. EXPENSES OF REGISTRATION. Sangamo will bear all Registration Expenses with respect to the Shares incurred in connection with any registration, qualification or compliance pursuant to Section 1.1. ***"Registration Expenses"*** means all expenses incurred by Sangamo in complying with Section 1.1, including, without limitation, all registration and filing fees, printing expenses, fees and disbursements of Sangamo's counsel, blue sky fees, and the expense of any audits, comfort letters or consents incident to or required by any such registration, and the fully-burdened full time equivalent rate of Sangamo's employees who conduct activities related to any registration or offering of Shares under this Agreement. Biogen will bear the expenses of its own counsel and any Selling Expenses based upon the sale of Shares owned by Biogen. "***Selling Expenses***" means all underwriting discounts and selling commissions applicable to an offering involving Shares registered pursuant to Section 1.1.

c. OBLIGATIONS OF SANGAMO. Whenever required to effect the registration of any Shares, Sangamo will, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Shares and use all commercially reasonable efforts to cause such registration statement to become effective, and, upon Biogen's request, keep such registration statement effective for up to thirty (30) days or, if earlier, until Biogen has completed the distribution related thereto; *provided, however*, that at any time, upon written notice to Biogen and for a period not to exceed sixty (60) days thereafter (the "***Suspension Period***"), Sangamo may delay the filing or effectiveness of any registration statement or suspend the use of any registration statement (and Biogen hereby agrees not to offer or sell any Shares pursuant to such registration statement during the Suspension Period) if (a) Sangamo reasonably believes that there is or may be in

existence material nonpublic information or events involving Sangamo, the failure of which to be disclosed in the prospectus included in the registration statement could result in a Violation (as defined below), (b) all reports required to be filed by Sangamo pursuant to the Exchange Act have not been filed by the required date (without regard to any extension), or (c) if the consummation of any business combination by Sangamo has occurred or is probable for purposes of Rule 3-05 or Article 11 of Regulation S-X promulgated by the SEC or any similar successor rule. If Sangamo will exercise its right to delay the filing or effectiveness or suspend the use of a registration hereunder, the applicable time period during which the registration statement is to remain effective will be extended by a period of time equal to the duration of the Suspension Period. Sangamo may extend the Suspension Period for an additional consecutive sixty (60) days with Biogen's consent, which consent will not be unreasonably withheld. If so directed by Sangamo, Biogen will (i) not offer to sell any Shares pursuant to the registration statement during the period in which the delay or suspension is in effect after receiving notice of such delay or suspension; and (ii) use its commercially reasonable efforts to deliver to Sangamo (at Sangamo's expense) all copies, other than permanent file copies then in Biogen's possession, of the prospectus relating to such Shares current at the time of receipt of such notice. Notwithstanding the foregoing, Sangamo will not be required to file, cause to become effective or maintain the effectiveness of any registration statement other than a registration statement on Form S-3 that contemplates a distribution of securities on a delayed or continuous basis pursuant to Rule 415 under the Securities Act.

(b) Prepare and file with the SEC such amendments and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such registration statement for the period set forth in subsection (a) above.

(c) Furnish Biogen such number of copies of a prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as it may reasonably request in order to facilitate the disposition of the registered Shares.

(d) Use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue sky laws of such jurisdictions as will be reasonably requested by Biogen; *provided* that Sangamo will not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions.

(e) In the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter(s) of such offering. Biogen will also enter into and perform its obligations under such an agreement.

(f) With respect to Shares covered by such registration statement, notify Biogen at any time when a prospectus relating thereto is required to be delivered under the Securities Act of the happening of any event as a result of which the prospectus included in such

registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing. Sangamo will use commercially reasonable efforts to amend or supplement such prospectus in order to cause such prospectus not to include any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing.

(g) Use its commercially reasonable efforts to furnish, on the date that such Shares are delivered to the underwriters for sale, if such securities are being sold through underwriters, (i) an opinion, dated as of such date, of the counsel representing Sangamo for the purposes of such registration, in form and substance as is customarily given to underwriters in an underwritten public offering, addressed to the underwriters, if any, and (ii) a letter, dated as of such date, from the independent certified public accountants of Sangamo, in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering addressed to the underwriters.

d. FURNISHING INFORMATION.

(a) If Biogen requests to register any Shares pursuant to Section 1.1, Biogen will furnish Sangamo such information regarding itself, the Shares held by it and the intended method of disposition of such securities as will be required to effect the registration of its Shares.

(b) Sangamo will have no obligation with respect to any registration requested pursuant to Section 1.2 if the number of Shares or the anticipated aggregate offering price of the securities to be registered thereunder does not equal or exceed the number of shares or the anticipated aggregate offering price required to originally trigger Sangamo's obligation to initiate such registration as specified in Section 1.1.

e. INDEMNIFICATION. If any Shares are included in a registration statement under Section 1.1:

(a) To the extent permitted by law, Sangamo will indemnify and hold harmless Biogen, its officers and directors, as applicable, any underwriter (as defined in the Securities Act) for Biogen and each person, if any, who controls Biogen or such underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages, or liabilities (joint or several) to which they may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any of the following statements, omissions or violations (collectively a "***Violation***") by Sangamo: (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement or incorporated by reference therein, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading, or (iii) any violation or alleged violation by Sangamo of the Securities Act, the Exchange Act, any state securities law or any rule or regulation promulgated

under the Securities Act, the Exchange Act or any state securities law in connection with the offering covered by such registration statement; and Sangamo will reimburse each such indemnified party for any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability or action; *provided however*, that the indemnity agreement contained in this Section 1.5(a) will not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without Sangamo's consent, which consent will not be unreasonably withheld, nor will Sangamo be liable in any such case for any such loss, claim, damage, liability or action to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by any of such indemnified parties.

(b) To the extent permitted by law, Biogen will, if Shares are included in the securities as to which such registration qualifications or compliance is being effected, indemnify and hold harmless Sangamo, each of its directors, its officers and each person, if any, who controls Sangamo within the meaning of the Securities Act, and any underwriter and any other third party, as applicable, selling securities under such registration statement, against any losses, claims, damages or liabilities (joint or several) to which Sangamo or any such director, officer, controlling person, underwriter or other third party who may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect thereto) arise out of or are based upon any of the following statements: (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement or incorporated reference therein, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading, or (iii) any violation or alleged violation by Sangamo of the Securities Act (collectively, a "***Biogen Violation***"), in each case to the extent (and only to the extent) that such Biogen Violation occurs in reliance upon and in conformity with written information furnished by Biogen under an instrument duly executed by Biogen and stated to be specifically for use in connection with such registration; and Biogen will reimburse any legal or other expenses reasonably incurred by Sangamo or any such director, officer, controlling person, underwriter or other third party in connection with investigating or defending any such loss, claim, damage, liability or action if it is judicially determined that there was such a Biogen Violation; *provided, however,* that the indemnity agreement contained in this Section 1.5 will not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without Biogen's consent, which consent will not be unreasonably withheld; *provided further*, that in no event will any indemnity under this Section 1.5 exceed the net proceeds from the offering received by Biogen, as applicable.

(c) Promptly after receipt by an indemnified party under this Section 1.5 of notice of the commencement of any action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 1.5, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party will have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to

assume the defense thereof with counsel mutually satisfactory to the parties; *provided, however,* that an indemnified party will have the right to retain its own counsel, with the fees and expenses thereof to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action will relieve such indemnifying party of any liability to the indemnified party under this Section 1.5 to the extent, and only to the extent, prejudicial to its ability to defend such action, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 1.5.

(d) If the indemnification provided for in this Section 1.5 is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any losses, claims, damages or liabilities referred to herein, the indemnifying party, in lieu of indemnifying such indemnified party thereunder, will to the extent permitted by applicable law contribute to the amount paid or payable by such indemnified party as a result of such loss, claim, damage or liability in such proportion as is appropriate to reflect the relative fault of the indemnifying party on the one hand and of the indemnified party on the other in connection with the Violation(s) or Biogen Violation(s) that resulted in such loss, claim, damage or liability, as well as any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party will be determined by a court of law by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission; *provided, that* in no event will any contribution by Biogen hereunder exceed the net proceeds from the offering received by Biogen.

(e) The obligations of Sangamo and Biogen under this Section 1.5 will survive completion of any offering of Shares, as applicable, in a registration statement and, with respect to liability arising from an offering to which this Section 1.5 would apply that is covered by a registration filed before termination of this Agreement, such termination. No indemnifying party, in the defense of any such claim or litigation, will, except with the consent of each indemnified party, consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such indemnified party of a release from all liability in respect to such claim or litigation.

f. ASSIGNMENT OF REGISTRATION RIGHTS. The rights to cause Sangamo to register Shares pursuant to this Appendix 2 may be assigned by Biogen to a single transferee or assignee of Shares (for so long as such registration rights remain in effect) that (a) is an Affiliate of Biogen that is a corporation, partnership or limited liability company, or (b) acquires all of Biogen's Shares in connection with the sale of all or substantially all of such Biogen's business; *provided, however*, (i) the transferor will, within ten (10) days after such transfer, furnish Sangamo written notice of the name and address of such transferee or assignee and the

securities with respect to which such registration rights are being assigned and (ii) such transferee will agree to be subject to all restrictions set forth in this Agreement.

g. "MARKET STAND-OFF" AGREEMENT. Biogen hereby agrees that, if requested by the underwriters in any offering in which Biogen includes Shares, it will execute a customary lock-up agreement in connection with any Shares that are not included in such underwritten offering.

h. AGREEMENT TO FURNISH INFORMATION. Biogen hereby agrees to execute and deliver such other agreements as may be reasonably requested by Sangamo or the underwriter that are consistent with Biogen's obligations under Section 1.7, as applicable, or that are necessary to give further effect thereto. In addition, if requested by Sangamo or the representative of the underwriters of Common Stock, Biogen will provide, within ten (10) days of such request, such information as may be required by Sangamo or such representative in connection with the completion of any public offering of Sangamo's securities pursuant to a registration statement filed under the Securities Act. The obligations described in Section 1.7 and this Section 1.8 will not apply to a Special Registration Statement. Sangamo may impose stop-transfer instructions with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of said ten (10) day period. The underwriters of Common Stock (or other securities) are intended third party beneficiaries of Sections 1.7 and 1.8 and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

i. RULE 144 REPORTING. With a view to making available to Biogen the benefits of certain rules and regulations of the SEC which may permit the sale of the Shares to the public without registration, Sangamo agrees to use its reasonable best efforts to:

(a) Make and keep public information available, as those terms are understood and defined in SEC Rule 144 or any similar or analogous rule promulgated under the Securities Act, at all times after the effective date of the first registration filed by Sangamo for an offering of its securities to the general public; and

(b) File with the SEC, in a timely manner, all reports and other documents required of Sangamo under the Exchange Act.

j. TERMINATION OF REGISTRATION RIGHTS. Biogen's right to request registration or inclusion of Shares in any registration pursuant to Section 1.1 hereof will terminate upon such time as all remaining Shares may be sold pursuant to Rule 144 during any ninety (90) day period.

SANGAMO THERAPUETICS, INC.
INDEMNITY AGREEMENT

THIS INDEMNITY AGREEMENT (this "**Agreement**") dated as of May __, 2020, is made by and between **SANGAMO THERAPEUTICS, INC.**, a Delaware corporation (the "**Company**"), and [_____] ("**Indemnitee**").

RECITALS

A. The Company desires to attract and retain the services of highly qualified individuals as directors, officers, employees and agents.

B. The Company's Seventh Amended and Restated Certificate of Incorporation (as amended from time to time, the "**Certificate of Incorporation**") requires that the Company indemnify its directors, and empowers the Company to indemnify its executive officers, other officers, employees and agents, as authorized by the General Corporation Law of the State of Delaware, as amended (the "**DGCL**"), under which the Company is organized, and such Certificate of Incorporation expressly provides that the indemnification provided therein is not exclusive and contemplates that the Company may enter into separate agreements with its directors, officers and other persons to set forth specific indemnification provisions.

C. Indemnitee does not regard the protection currently provided by applicable law, the Certificate of Incorporation, the Company's Third Amended and Restated Bylaws (as amended from time to time, the "**Bylaws**"), the Company's other governing documents, and available insurance as adequate under the present circumstances, and the Company has determined that Indemnitee and other directors, officers, employees and agents of the Company may not be willing to serve or continue to serve in such capacities without additional protection.

D. The Company desires and has requested Indemnitee to serve or continue to serve as a director, officer, employee or agent of the Company, as the case may be, and has proffered this Agreement to Indemnitee as an additional inducement to serve in such capacity.

E. Indemnitee is willing to serve, or to continue to serve, as a director, officer, employee or agent of the Company, as the case may be, if Indemnitee is furnished the indemnity provided for herein by the Company.

F. Indemnitee may have previously entered into an indemnification agreement with the Company. This Agreement is intended to supersede and replace any previous indemnification agreements entered into between the Company and Indemnitee.

AGREEMENT

NOW THEREFORE, in consideration of the mutual covenants and agreements set forth herein, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Definitions.

(a) Agent. For purposes of this Agreement, the term "**Agent**" of the Company means any person who: (i) is or was a director**,** officer, employee, agent, or other fiduciary of the Company or a subsidiary of the Company; or (ii) is or was serving at the request or for the convenience of, or representing the interests of, the Company or a subsidiary of the Company, as a director, officer, employee, agent, or other fiduciary of a foreign or domestic corporation, partnership, joint venture, trust, employee benefit plan or other enterprise.

(b) Change in Control. For purposes of this Agreement, a "**Change in Control**" shall be deemed to have occurred if (i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended), other than a trustee or other fiduciary holding securities under an employee benefit plan of the Company or a corporation owned directly or indirectly by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company, is or becomes the "beneficial owner" (as defined in Rule 13d-3 under said Act), directly or indirectly, of securities of the Company representing 35% or more of the total voting power represented by the Company's then outstanding Voting Securities, (ii) during any period of two (2) consecutive years (not including any period prior to the execution of this Agreement) individuals who at the beginning of such period constitute the Board of Directors of the Company (the "**Incumbent Board**") cease for any reason to constitute at least a majority of the members of the Board of Directors of the Company (the "**Board**") (*provided, however,* that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall be considered as a member of the Incumbent Board), or (iii) the stockholders of the Company approve a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the Voting Securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into Voting Securities of the surviving entity) at least 35% of the total voting power represented by the Voting Securities of the Company or such surviving entity outstanding immediately after such merger or consolidation, or the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of (in one transaction or a series of transactions) all or substantially all of the Company's assets.

(c) Expenses. For purposes of this Agreement, the term "**Expenses**" shall be broadly construed and shall include, without limitation, all direct and indirect costs of any type or nature whatsoever (including, without limitation, all attorneys', witness, or other professional fees and related disbursements, and other out-of-pocket costs of whatever nature, actually and reasonably incurred by Indemnitee in connection with the investigation, defense or appeal of a proceeding or establishing or enforcing a right to indemnification under this Agreement, the DGCL or otherwise, and shall include any interest and any federal, state, local or foreign taxes imposed as a result of the actual or deemed receipt of any payment under this Agreement. The term "**Expenses**" shall also include reasonable compensation for time spent by Indemnitee for which he or she is not compensated by the Company or any subsidiary or third party: (i) for any

period during which Indemnitee is not an Agent, in the employment of, or providing services for compensation to, the Company or any subsidiary; and (ii) if the rate of compensation and estimated time involved is approved by the directors of the Company who are not parties to any action with respect to which Expenses are incurred, for Indemnitee while an Agent of, employed by, or providing services for compensation to, the Company or any subsidiary.

(d) Independent Counsel. For purposes of this Agreement, the term "**Independent Counsel**" means a law firm, or a partner (or, if applicable, member) of such a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past three (3) years has been, retained to represent: (i) the Company or Indemnitee in any matter material to either such party, or (ii) any other party to the proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement. The Company will pay the reasonable fees and expenses of the Independent Counsel referred to above and to fully indemnify such counsel against any and all expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(e) Liabilities. For purposes of this Agreement, the term "**Liabilities**" shall be broadly construed and shall include, without limitation, judgments, damages, deficiencies, liabilities, losses, penalties, excise taxes, fines, assessments and amounts paid in settlement.

(f) Proceedings. For purposes of this Agreement, the term "**proceeding**" shall be broadly construed and shall include, without limitation, any threatened, pending, or completed action, suit, claim, counterclaim, cross claim, arbitration, mediation, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing, or any other actual, threatened or completed proceeding, whether brought in the right of the Company or otherwise and whether of a civil, criminal, administrative or investigative nature, and whether formal or informal in any case, in which Indemnitee was, is or will be involved as a party, potential party, non-party witness, or otherwise by reason of: (i) the fact that Indemnitee is or was a director or officer of the Company; (ii) the fact that any action taken by Indemnitee (or a failure to take action by Indemnitee) or of any action (or failure to act) on Indemnitee's part while acting as an Agent; or (iii) the fact that Indemnitee is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise, and in any such case described above, whether or not serving in any such capacity at the time any liability or Expense is incurred for which indemnification, reimbursement, or advancement of Expenses may be provided under this Agreement. If Indemnitee believes in good faith that a given situation may lead to or culminate in the institution of a proceeding, this shall be considered a proceeding under this paragraph. For the avoidance of doubt, the provisions of this Agreement shall cover proceedings whether now pending or hereafter commenced and shall be retroactive to cover acts or omissions or alleged acts or omissions that heretofore have taken place.

(g) Subsidiary. For purposes of this Agreement, the term "**subsidiary**" means any corporation, limited liability company, or other entity, of which more than 50% of the outstanding voting securities or equity interests are owned, directly or indirectly, by the Company and one or more of its subsidiaries, and any other corporation, limited liability company, partnership, joint venture, trust, employee benefit plan or other enterprise of which Indemnitee is or was serving at the request of the Company as an Agent.

(h) Voting Securities. For purposes of this Agreement, "**Voting Securities**" shall mean any securities of the Company that vote generally in the election of the members of the Board.

2. Agreement to Serve. Indemnitee will serve, or continue to serve, as the case may be, as an Agent, faithfully and to the best of his or her ability, at the will of such entity designated by the Company and at the request of the Company (or under separate agreement, if such agreement exists), in the capacity Indemnitee currently serves such entity, so long as Indemnitee is duly appointed or elected and qualified in accordance with the applicable provisions of the governance documents of such entity, or until such time as Indemnitee tenders his or her resignation in writing; *provided*, *however*, that nothing contained in this Agreement is intended as an employment agreement between Indemnitee and the Company or any of its subsidiaries or to create any right to continued employment of Indemnitee with the Company or any of its subsidiaries in any capacity.

The Company acknowledges that it has entered into this Agreement and assumes the obligations imposed on it hereby, in addition to and separate from its obligations to Indemnitee under the Certificate of Incorporation, to induce Indemnitee to serve, or continue to serve, as an Agent, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as an Agent.

3. Indemnification.

(a) Indemnification in Third-Party Proceedings. Subject to Section 10 below, the Company shall indemnify Indemnitee to the fullest extent permitted by the DGCL, as the same may be amended from time to time (but, to the fullest extent of the law, only to the extent that such amendment permits Indemnitee to broader indemnification rights than the DGCL permitted prior to adoption of such amendment), if Indemnitee is a party to or threatened to be made a party to or otherwise involved in any proceeding, other than a proceeding by or in the right of the Company to procure a judgment in its favor, for any and all Expenses and Liabilities (including all interest, assessments and other charges paid or payable in connection with or in respect of such Expenses and Liabilities) incurred by Indemnitee in connection with the investigation, defense, settlement or appeal of such proceeding, if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company and, in the case of a criminal proceeding had no reasonable cause to believe that Indemnitee's conduct was unlawful. The parties hereto intend that this Agreement shall provide to the fullest extent permitted by law for indemnification in excess of that expressly permitted by statute, including, without limitation, any indemnification provided by the Certificate of Incorporation, the Bylaws, vote of its stockholders or disinterested directors, or applicable law.

(b) Indemnification in Derivative Actions and Direct Actions by the Company. Subject to Section 10 below, the Company shall indemnify Indemnitee to the fullest extent permitted by the DGCL, as the same may be amended from time to time (but, fullest extent permitted by applicable law, only to the extent that such amendment permits Indemnitee to broader indemnification rights than the DGCL permitted prior to adoption of such amendment), if Indemnitee is a party to or threatened to be made a party to or otherwise involved in any proceeding by or in the right of the Company to procure a judgment in its favor, against any and all Expenses actually and reasonably incurred by Indemnitee in connection with the investigation, defense, settlement, or appeal of such proceedings, if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company. No indemnification for Expenses shall be made under this Section 3(b) in respect of any claim, issue or matter as to which Indemnitee shall have been finally adjudged (by final non-appealable judgment) by a court competent jurisdiction to be liable to the Company, unless and only to the extent that the Chancery Court of the State of Delaware or any court in which the proceeding was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification.

4. Indemnification of Expenses of Successful Party. Notwithstanding any other provision of this Agreement, in circumstances where indemnification is not available under Section 3(a) or 3(b), as the case may be, to the fullest extent permitted by law and to the extent that Indemnitee is a party to (or a participant in) any proceeding and has been successful on the merits or otherwise in defense of any proceeding or in defense of any claim, issue or matter therein, in whole or part, including the dismissal of any action without prejudice, the Company shall indemnify Indemnitee against all Expenses and Liabilities in connection with the investigation, defense or appeal of such proceeding. If Indemnitee is not wholly successful in such proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such proceeding, the Company shall indemnify Indemnitee against all Expenses and Liabilities incurred by Indemnitee or on Indemnitee's behalf in connection with or related to each successfully resolved claim, issue or matter to the fullest extent permitted by law. Notwithstanding any of the foregoing, nothing in this Section 4 shall be construed to limit Indemnitee's right to indemnification that he or she would otherwise be entitled to in accordance with Section 3 hereof, regardless of Indemnitee's success in a proceeding. For purposes of this Agreement, the term "successful on the merits or otherwise" shall include, but not be limited to, (i) any termination, withdrawal, or dismissal (with or without prejudice) of any proceeding against Indemnitee without any express finding of liability or guilt against Indemnitee, or (ii) the settlement of any proceeding under Section 3(a) or Section 3(b) hereof pursuant to which Indemnitee pays less than $100,000. Notwithstanding any of the foregoing, nothing herein shall be construed to limit Indemnitee's right to indemnification that he or she would otherwise be entitled to in accordance with Section 3 and Section 10 hereof, regardless of Indemnitee's success in a proceeding.

5. Partial Indemnification; Witness Indemnification. If Indemnitee is entitled under any provision of this Agreement to indemnification by the Company for some or a portion of any Expenses and Liabilities incurred by Indemnitee in the investigation, defense, settlement

or appeal of a proceeding, but is precluded by applicable law or the specific terms of this Agreement to indemnification for the total amount thereof, the Company shall nevertheless indemnify Indemnitee for the portion thereof to which Indemnitee is entitled. Notwithstanding any other provision of this Agreement, to the fullest extent permitted by applicable law and to the extent that Indemnitee is, by reason of Indemnitee's acting as an Agent, is or was, or was threatened to be made, a witness or otherwise asked to participate in any proceeding to which Indemnitee is not a party, Indemnitee shall be indemnified against all Expenses incurred by Indemnitee or on Indemnitee's behalf in connection therewith.

6. Advancement of Expenses. To the extent not prohibited by law, the Company shall advance the Expenses incurred by Indemnitee in connection with any proceeding, and such advancement shall be made within thirty (30) days after the receipt by the Company of a statement or statements requesting such advances (which shall include invoices received by Indemnitee in connection with such Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditures made that would cause Indemnitee to waive any privilege accorded by applicable law shall not be included with the invoice) and upon request of the Company, an undertaking to repay the advancement of Expenses if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Company. Advances shall be unsecured, interest free and without regard to Indemnitee's ability to repay the Expenses. Advances shall include any and all Expenses incurred by Indemnitee pursuing an action to enforce Indemnitee's right to indemnification under this Agreement or otherwise and this right of advancement, including expenses incurred preparing and forwarding statements to the Company to support the advances claimed. Indemnitee acknowledges that the execution and delivery of this Agreement shall constitute an undertaking providing that Indemnitee shall, to the fullest extent required by law, repay the advance (without interest) if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Company. The right to advances under this Section 6 shall continue until the final disposition of any proceeding, including any appeal therein. Indemnitee shall be entitled to advancement of Expenses as provided in this Section 6 regardless of any determination by or on behalf of the Company that Indemnitee has not met the standards of conduct set forth in Section 10(a) hereof. The Company shall not seek from a court, or agree to, a "bar order" that would have the effect of prohibiting or limiting Indemnitee's right to receive advancement under this Agreement. This Section 6 shall not apply to any claim made by Indemnitee for which indemnity is excluded pursuant to Section 10(b).

7. Notice and Other Indemnification Procedures.

(a) Notification of Proceeding. Indemnitee will notify the Company in writing promptly upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any proceeding or matter which may be subject to indemnification or advancement of Expenses covered hereunder. The written notification to the Company shall include a description of the nature of the proceeding and the facts underlying the proceeding. The failure of Indemnitee to so notify the Company shall not

relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise and any delay in so notifying the Company shall not constitute a waiver by Indemnitee of any rights under this Agreement.

(b) Request for Indemnification Payments. To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification under the terms of this Agreement, and shall request payment thereof by the Company.

(c) Determination of Right to Indemnification Payments. Upon written request by Indemnitee for indemnification pursuant to Section 7(b) hereof, if required by applicable law and to the extent not otherwise provided pursuant to the terms of this Agreement, a determination with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following four methods, which shall be at the election of the Board: (1) by a majority vote of the disinterested directors, even though less than a quorum, (2) by a committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum, (3) if there are no disinterested directors or if the disinterested directors so direct, by Independent Counsel in a written opinion to the Board, a copy of which shall be delivered to Indemnitee, or (4) if so directed by the Board, by the stockholders of the Company; *provided, however*, that if there has been a Change in Control and if so requested in writing by Indemnitee, then such determination shall be made by Independent Counsel selected by Indemnitee. In connection with each meeting at which a stockholder determination will be made, the Company shall solicit proxies that expressly include a proposal to indemnify or reimburse Indemnitee, and the Company's proxy statement relating to the proposal to indemnify or reimburse Indemnitee shall not include a recommendation against indemnification or reimbursement unless the failure to include such a recommendation would violate applicable laws in the reasonable determination of the Company's counsel. For purposes hereof, disinterested directors are those members of the Board who are not parties to the action, suit or proceeding in respect of which indemnification is sought by Indemnitee. Indemnification payments requested by Indemnitee under Section 3 hereof shall be made by the Company no later than sixty (60) days after receipt of the written request of Indemnitee. Claims for advancement of Expenses shall be made under the provisions of Section 6 herein.

(d) Presumption; Burden of Proof; Defenses.

(i) In making any determination with respect to Indemnitee's entitlement to indemnification or advancement of Expenses hereunder, the person, persons or entity making such determination shall presume that Indemnitee is entitled to indemnification or advancement of Expenses, as applicable, under this Agreement.

(ii) It shall be a defense in any proceeding pursuant to Section 7(e) hereof to enforce rights to indemnification under Section 3(a) or Section 3(b) hereof (but not in any proceeding pursuant to Section 7(e) hereof to enforce a right to an advancement of Expenses under Section 6 hereof) that Indemnitee has not met the standards of conduct set forth in Section

10(a) hereof, as the case may be, but the burden of proving such defense shall be on the Company. With respect to any proceeding pursuant to Section 7(e) hereof brought by Indemnitee to enforce a right to indemnification hereunder, or any proceeding brought by the Company to recover an advancement of Expenses (whether pursuant to the terms of an undertaking or otherwise), neither (A) the failure of the Company (including by its directors or independent legal counsel) to have made a determination prior to the commencement of such proceeding that indemnification is proper in the circumstances because Indemnitee has met the applicable standards of conduct, nor (B) an actual determination by the Company (including by its directors or independent legal counsel) that Indemnitee has not met such applicable standards of conduct, shall create a presumption that Indemnitee has not met the applicable standards of conduct or, in the case of a proceeding pursuant to Section 7(e) hereof brought by Indemnitee seeking to enforce a right to indemnification, be a defense to such proceeding.

(iii) The termination of any proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, in and of itself, adversely affect the right of Indemnitee to indemnification hereunder or create a presumption that Indemnitee did not act in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal proceeding, shall not create a presumption that Indemnitee had reasonable cause to believe that his or her conduct was unlawful.

(iv) For purposes of any determination of good faith, Indemnitee shall be deemed to have acted in good faith if Indemnitee's action is reasonably based on the records or books of account of the Company or other entity, including financial statements, or on information supplied to Indemnitee by the officers of the Company or other entity in the course of their duties, or on the advice of legal counsel for the Company or other entity or on information or records given or reports made to the Company or other entity by an independent certified public accountant or by an appraiser or other expert selected by the Company or other entity. The provisions of this Section 7(d)(iv) shall not be deemed to be exclusive or to limit in any way the other circumstances in which Indemnitee may be deemed or found to have met the applicable standard of conduct set forth in this Agreement.

(v) The knowledge and/or actions, or failure to act, of any other director, officer, agent, or employee of the Company or of another Entity shall not be imputed to Indemnitee for purposes of determining Indemnitee's right to indemnification or advancement of Expenses under this Agreement.

(vi) For purposes of determining whether Indemnitee is entitled to indemnification or advancement of Expenses by the Company pursuant to this Agreement or otherwise, the actions or inactions of any other indemnitee or group of indemnitees shall not be attributed to Indemnitee.

(e) Remedies of Indemnitees.

(i) Right to Petition Court. In the event that Indemnitee makes a request for payment of Expenses and Liabilities under Section 3 or Section 7 hereof or a request

for an advancement of Expenses under Section 6 hereof and the Company fails to make such payment or advancement in a timely manner in accordance with the terms of this Agreement, Indemnitee may petition a court to enforce the Company's obligations under this Agreement. In such an enforcement hearing or proceeding, the burden of proof shall be on the Company to prove that indemnification or advancement of Expenses to Indemnitee is not required under this Agreement or permitted by applicable law by clear and convincing evidence to the contrary. On receipt of an application, the court, after giving any notice the court considers necessary, may order indemnification (and/or advancement) if it determines Indemnitee is fairly and reasonably entitled to indemnification (and/or reimbursement) in view of all the relevant circumstances (including this Agreement). Any determination by the Company (including the Board, a committee thereof, Independent Counsel) or stockholders of the Company**,** that Indemnitee is not entitled to indemnification hereunder, shall not be a defense by the Company to the action nor create any presumption that Indemnitee is not entitled to indemnification or advancement of Expenses hereunder.

(ii) Right of Indemnitee to Appeal an Adverse Determination by Board. If a determination is made by the Company's Board of Directors or a committee thereof that Indemnitee is not entitled to indemnification, upon written request of Indemnitee and Indemnitee's delivery of $500 to the Company, the Company shall cause a new determination to be made by the Company's stockholders at the next regular or special meeting of stockholders. Unless a court determines otherwise, such determination by the Company's stockholders shall be binding and conclusive for all purposes of this Agreement.

(iii) Expenses. The Company agrees to reimburse Indemnitee in full for any Expenses actually and reasonably incurred by Indemnitee in connection with investigating, preparing for, litigating, defending or settling any action brought by Indemnitee under Section 7(f) hereof, regardless of whether Indemnitee is ultimately determined to be entitled to indemnification, advancement or other remedies under this Agreement.

(iv) Costs of Determination. All costs of making the determination with respect to entitlement to indemnification or advancement of Expenses hereunder shall be borne solely by the Company, including, but not limited to, the costs of legal counsel, proxy solicitations and judicial determinations.

(v) Failure to Act Not a Defense. The failure of the Company (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of the payment of Expenses and Liabilities or the advancement of Expenses under this Agreement shall not be a defense in any action brought under Section 7(e) hereof, and shall not create a presumption that such payment or advancement is not permissible.

(vi) Entitlement to Indemnification; Independent Counsel. In the event that (A) a determination is made pursuant to Section 7(c) hereof that Indemnitee is not entitled to indemnification under this Agreement, (B) if the determination of entitlement to indemnification is not to be made by Independent Counsel pursuant to Section 7(c) hereof, no determination of entitlement to indemnification shall have been made pursuant to Section 7(c)

hereof within sixty (60) calendar days after receipt by the Company of Indemnitee's written request for indemnification, (C) if the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 7(c) hereof, no determination of entitlement to indemnification shall have been made pursuant to Section 7(c) hereof within eighty (80) calendar days after receipt by the Company of Indemnitee's written request for indemnification, unless an objection to the selection of such Independent Counsel has been made and substantiated and not withdrawn, in which case the applicable time period shall be seventy (70) calendar days after the Court of Chancery of the State of Delaware or another court of competent jurisdiction in the State of Delaware (or such person appointed by such court to make such determination) has determined or appointed the person to act as Independent Counsel pursuant to Section 7(c) hereof, (D) payment of Expenses and Liabilities payable pursuant to Section 4 or Section 5 hereof is not made within sixty (60) calendar days after receipt by the Company of a written request therefor, or (E) payment of Expenses and Liabilities payable pursuant to Section 4 or Section 5 hereof is not made within sixty (60) calendar days after a determination has been made pursuant to Section 7(c) hereof that Indemnitee is entitled to indemnification, then in each instance described in clauses (A) through (E), Indemnitee shall be entitled to seek an adjudication by the Court of Chancery of the State of Delaware of Indemnitee's entitlement to such indemnification or advancement of Expenses.

(vii) Not Prejudiced by Adverse Determination. In the event that a determination shall have been made pursuant to Section 7(c) hereof that Indemnitee is not entitled to indemnification, any proceeding commenced pursuant to this Section 7(f) shall be conducted in all respects as a de novo trial, or arbitration, on the merits and Indemnitee shall not be prejudiced by reason of that adverse determination.

8. Assumption of Defense. In the event the Company shall be requested by Indemnitee to pay the Expenses of any proceeding, the Company, if appropriate, shall be entitled to assume the defense of such proceeding, or to participate to the extent permissible in such proceeding, with counsel reasonably acceptable to Indemnitee. Upon assumption of the defense by the Company and the retention of such counsel by the Company, the Company shall not be liable to Indemnitee under this Agreement for any fees of counsel subsequently incurred by Indemnitee with respect to the same proceeding, provided that Indemnitee shall have the right to employ separate counsel in such proceeding at Indemnitee's sole cost and expense. Notwithstanding the foregoing, if Indemnitee's counsel delivers a written notice to the Company stating that such counsel has reasonably concluded that there may be a conflict of interest between the Company and Indemnitee in the conduct of any such defense or the Company shall not, in fact, have employed counsel or otherwise actively pursued the defense of such proceeding within a reasonable time, then in any such event the fees and Expenses of Indemnitee's counsel to defend such proceeding shall be subject to the indemnification and advancement of Expenses provisions of this Agreement.

9. Insurance. To the extent that the Company maintains an insurance policy or policies providing liability insurance for Agents ("**D&O Insurance**"), Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such Agent under such policy or policies. If, at the time of the

receipt of a notice of a claim pursuant to the terms hereof, the Company has D&O Insurance in effect or otherwise potentially available, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

10. Exceptions.

(a) Certain Matters. Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify Indemnitee on account of any proceeding: (i) if it is determined by final non-appealable judgment or other final non-appealable adjudication that remuneration paid to Indemnitee was in violation of law (and, in this respect, both the Company and Indemnitee have been advised that the Securities and Exchange Commission believes that indemnification for liabilities arising under the federal securities laws is against public policy and is, therefore, unenforceable and that claims for indemnification should be submitted to appropriate courts for adjudication, as indicated in Section 10(d) below); (ii) if there is a final non-appealable judgment rendered against Indemnitee for an accounting, disgorgement or repayment of profits made from the purchase or sale by Indemnitee of securities of the Company against Indemnitee or if there is a settlement by or on behalf of Indemnitee to the extent it is acknowledged by Indemnitee and the Company that such amount paid in settlement resulted from Indemnitee's conduct from which Indemnitee received monetary personal profit, pursuant to the provisions of Section 16(b) of the Securities Exchange Act of 1934, as amended, or other provisions of any federal, state or local statute or rules and regulations thereunder; or (iii) if there is a final non-appealable judgment or other final non-appealable adjudication that Indemnitee's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct (but only to the extent of such specific determination); or (iv) on account of conduct that is established by a final non-appealable judgment as constituting a breach of Indemnitee's duty of loyalty to the Company or resulting in any personal profit or advantage to which Indemnitee is not legally entitled. For purposes of the foregoing sentence, a final non-appealable judgment or other adjudication may be reached in either the underlying proceeding or action in connection with which indemnification is sought or a separate proceeding or action to establish rights and liabilities under this Agreement.

(b) Claims Initiated by Indemnitee. Any provision herein to the contrary notwithstanding, the Company shall not be obligated to indemnify or advance Expenses to Indemnitee with respect to proceedings or claims initiated or brought by Indemnitee against the Company or its Agents and not by way of defense, except (i) with respect to proceedings brought to establish or enforce a right to indemnification or advancement under this Agreement or under any other agreement, provision in the Certificate of Incorporation or the Bylaws or applicable law, or (ii) with respect to any other proceeding initiated by Indemnitee that is either approved by the Board or Indemnitee's participation is required by applicable law. However, indemnification or advancement of Expenses may be provided by the Company in specific cases if the Board determines it to be appropriate.

(c) Unauthorized Settlements. Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify Indemnitee under this Agreement for any amounts paid in settlement of a proceeding effected without the Company's written consent. Neither the Company nor Indemnitee shall unreasonably withhold consent to any proposed settlement; *provided, however*, that the Company may in any event decline to consent to (or to otherwise admit or agree to any liability for indemnification hereunder in respect of) any proposed settlement if the Company is also a party in such proceeding and determines in good faith that such settlement is not in the best interests of the Company and its stockholders.

(d) Securities Act Liabilities. Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify Indemnitee or otherwise act in violation of any undertaking appearing in and required by the rules and regulations promulgated under the Securities Act of 1933, as amended (the "**Act**"), or in any registration statement filed with the Securities and Exchange Commission under the Act. Indemnitee acknowledges that paragraph (h) of Item 512 of Regulation S-K currently generally requires the Company to undertake in connection with any registration statement filed under the Act to submit the issue of the enforceability of Indemnitee's rights under this Agreement in connection with any liability under the Act on public policy grounds to a court of appropriate jurisdiction and to be governed by any final adjudication of such issue. Indemnitee specifically agrees that any such undertaking shall supersede the provisions of this Agreement and to be bound by any such undertaking.

(e) Prior Payments. Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify or advance Expenses to Indemnitee under this Agreement for which payment has actually been made to or on behalf of Indemnitee under any insurance policy or other indemnity provision, expect with respect to any excess beyond the amount paid under any insurance policy or indemnity policy.

11. Nonexclusivity and Survival of Rights. The provisions for indemnification and advancement of Expenses set forth in this Agreement shall not be deemed exclusive of any other rights which Indemnitee may at any time be entitled under any provision of applicable law, the Certificate of Incorporation, Bylaws or other agreements, both as to action in Indemnitee's official capacity and Indemnitee's action as an Agent, in any court in which a proceeding is brought, and Indemnitee's rights hereunder shall continue after Indemnitee has ceased acting as an Agent and shall inure to the benefit of the heirs, executors, administrators and assigns of Indemnitee. The obligations and duties of the Company to Indemnitee under this Agreement shall be binding on the Company and its successors and assigns until terminated in accordance with its terms. The Company shall require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of the Company, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place.

No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her corporate status prior to such amendment, alteration or repeal. To the extent that a change in the DGCL, whether by statute or judicial decision, permits greater indemnification or advancement of Expenses than would be afforded currently under the Certificate of Incorporation, Bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, by Indemnitee shall not prevent the concurrent assertion or employment of any other right or remedy by Indemnitee.

12. Term. All agreements and obligations of the Company contained herein will continue during the period Indemnitee is an Agent of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and will continue thereafter so long as Indemnitee will be subject to any proceeding by reason of his or her corporate status as an Agent, whether or not he or she is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement. This Agreement will be binding on and inure to the benefit of and be enforceable by the parties of this Agreement and their respective successors (including any direct or indirect successor by purchase, merger, consolidation, or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors, and personal and legal representatives.

The Company is required to maintain insurance as provided in Section 9 while Indemnitee is an Agent and for five (5) years after the date Indemnitee shall have ceased to serve as an Agent.

13. Subrogation. In the event of payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who, at the request and expense of the Company, shall execute all papers required and shall do everything that may be reasonably necessary to secure such rights, including the execution of such documents necessary to enable the Company effectively to bring suit to enforce such rights.

14. Interpretation of Agreement. It is understood that the parties hereto intend this Agreement to be interpreted and enforced so as to provide indemnification and advancement of Expenses to Indemnitee to the fullest extent now or hereafter permitted by law.

15. Severability. If any provision of this Agreement shall be held to be invalid, illegal or unenforceable for any reason whatsoever, (a) the validity, legality and enforceability of the remaining provisions of the Agreement (including without limitation, all portions of any paragraphs of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that are not themselves invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby; and (b) to the fullest extent possible, the provisions of this Agreement (including, without limitation, all portions of any paragraph of this Agreement

containing any such provision held to be invalid, illegal or unenforceable, that are not themselves invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal or unenforceable and to give effect to Section 14 hereof.

16. **Amendment and Waiver**. No supplement, modification, amendment, or cancellation of this Agreement shall be binding unless executed in writing by the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

17. **Notice**. Except as otherwise provided herein, any notice or demand which, by the provisions hereof, is required or which may be given to or served upon the parties hereto shall be in writing and, if by electronic transmission, shall be deemed to have been validly served, given or delivered when sent, if by overnight delivery, courier or personal delivery, shall be deemed to have been validly served, given or delivered upon actual delivery and, if mailed, shall be deemed to have been validly served, given or delivered three (3) business days after deposit in the United States mail, as registered or certified mail, with proper postage prepaid and addressed to the party or parties to be notified at the addresses set forth on the signature page of this Agreement (or such other address(es) as a party may designate for itself by like notice). If to the Company, notices and demands shall be delivered to the attention of the Secretary of the Company.

18. **Governing Law**. This Agreement shall be governed exclusively by and construed according to the laws of the State of Delaware, as applied to contracts between Delaware residents entered into and to be performed entirely within Delaware.

19. **Counterparts**. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute but one and the same Agreement. Only one such counterpart need be produced to evidence the existence of this Agreement.

20. **Headings**. The headings of the sections of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction hereof.

21. **Entire Agreement**. Subject to Section 11 hereof, this Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements, understandings and negotiations, written and oral, between the parties with respect to the subject matter of this Agreement; *provided*, *however*, that this Agreement is a supplement to and in furtherance of the Certificate of Incorporation, Bylaws, the DGCL and any other applicable law, and shall not be deemed a substitute therefor, and does not diminish or abrogate any rights of Indemnitee thereunder.

22. **Contribution**. To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to

be paid in settlement and/or for Expenses, in connection with any claim relating to an indemnifiable event under this Agreement, in such proportion as is deemed fair and reasonable in light of all of the circumstances of such proceeding in order to reflect (i) the relative benefits received by the Company and Indemnitee as a result of the event(s) and/or transaction(s) giving cause to such proceeding; and/or (ii) the relative fault of the Company and Indemnitee in connection with such event(s) and/or transaction(s).

23. Consent to Jurisdiction. The Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Chancery Court of the State of Delaware (the "**Delaware Court**"), and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) agree to appoint, to the extent such party is not otherwise subject to service of process in the State of Delaware, an agent in the State of Delaware as such party's agent for acceptance of legal process in connection with any such action or proceeding against such party with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum.

24. Effect on Prior Agreement. Upon the execution and delivery of this Agreement by the Company and Indemnitee, that certain Indemnification Agreement, dated as of [_____ ___, ____], by and between the Company and Indemnitee automatically shall terminate and be of no further force and effect and shall be amended and restated in its entirety as set forth in this Agreement.

1.

IN WITNESS WHEREOF, the parties hereto have entered into this Agreement effective as of the date first above written.

COMPANY:

SANGAMO THERAPEUTICS, INC.

By: /s/ Alexander Macrae
Alexander Macrae
Chief Executive Officer

Address:

7000 Marina Blvd
Brisbane, CA 94005

INDEMNITEE:

_____
Signature of Indemnitee

_____
Print or Type Name of Indemnitee

Address:
_____
_____
_____

Exhibit 31.1

CERTIFICATION

I, Alexander D. Macrae, M.B., Ch.B., Ph.D., certify that:

1. I have reviewed this quarterly report on Form 10-Q of Sangamo Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: May 11, 2020

/s/ ALEXANDER D. MACRAE

Alexander D. Macrae, M.B., Ch.B., Ph.D.

President and Chief Executive Officer

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Sung H. Lee, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Sangamo Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: May 11, 2020

/s/ SUNG H. LEE

Sung H. Lee

Executive Vice President and Chief Financial Officer

(Principal Financial 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 capacity as an officer of Sangamo Therapeutics, Inc. (the "Company"), that, to the best of his knowledge:

(1) the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2020, 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, M.B., Ch.B., Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Date: May 11, 2020

/s/ SUNG H. LEE

Sung H. Lee
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: May 11, 2020

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.